

## KNOWLEDGE, ATTITUDES AND PRACTICES OF NURSES REGARDING POSTOPERATIVE PAIN MANAGEMENT AMONG PATIENTS WITH OPEN HEART SURGERY AT HOSPITAL IN AL-JOUF, SAUDI ARABIA

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### **Abstract**

**Background:** Pain is the fifth vital signs and the most common indicator of sickness or damage caused by a simple sensory response mechanism. Pain has been identified as the most critical and poorly controlled symptom affected cardiac surgery patients' total recovery. **Purpose:** The study purposed to assess knowledge, attitudes and practices of nurses regarding postoperative pain management among patients with open heart surgery at hospital in Al-Jouf, Saudi Arabia. **Methods:** The study was a descriptive cross sectional study design. A convenience sample of 121 nurses were recruited from governmental hospital in Al-Jouf and assessed in relation to knowledge, attitudes and practices towards pain management. **Results:** The study results revealed that the majority of nurses have moderate knowledge about pain management after cardiac surgery. In addition, nurses also showed to have neutral attitudes towards pain management and poor practice to manage pain. **Conclusions:** Pain management is ineffectively managed by nurses. Nurses need to adhere to best practices in pain management by increasing their theoretical and practical knowledge, so that there will be tangible positive change in pain management. **Recommendations:** The study results demonstrate the importance of delivering education intervention to enhance nurses' awareness regarding pain assessment and non-pharmacological pain management of patients after cardiac surgery.

**Keywords:** Knowledge, Attitudes, Practices, Pain Management, Postoperative, Cardiac Surgery

### **INTRODUCTION**

Coronary Artery Disease (CAD) is a serious public health issue that affects people all over the world (Bowry, Lewey, Dugani, & Choudhry, 2015). South Asians have a 3–5 times greater risk of coronary heart disease (CHD) than other ethnic groups, and the burden of CAD is around 80% higher among middle income countries (Vilite B et al., 2019) and (Bowry A. D. 2015). As a result, more than 20,000

heart procedures are conducted annually in Australia, while more than 66,000 heart surgeries are performed annually in Turkey (Eldin T.S.S et al., 2021) . In addition to, 70% of patients with coronary artery disease in Europe, the United States, and Canada got coronary artery bypass graft CABG, with 11% receiving CABG with valve surgery (Khalighi E et al., 2019).

The most important and poorly regulated symptom impacting the complete recovery of cardiac surgery patients has been identified as pain (Öğüt & Dağ, 2019). Untreated postoperative pain following cardiac surgery lead to mental and physical consequences including atelectasis, hemodynamic instability, sleep disruption, depression, increased length of ICU stay and treatment costs (Noor H, et al ., 2022), (Tseng et al., 2019).

Many patient-related factors, such as demographics, knowledge, attitudes, psychosocial elements, kind of operation, and lack of interaction with healthcare providers, might limit or facilitate pain therapy after heart surgery (Micah S, et al ., 2019). A patient's sensitivity to pain and responsiveness to pain therapy appears to be influenced by their culture as well (Parikh et al., 2021).

Despite the fact that one of the most important duties of an intensive care nurse is to alleviate pain and suffering, there has been little knowledge of the complexity of pain and only a few approaches to managing it. Pain is difficult to diagnose and treat because it is inherently subjective and impacted by a variety of circumstances. As a result, it is critical for a nurse to keep this in mind throughout practice. As a result, medical workers must analyze a patient's pain in order to provide tailored treatment (Osama A, 2018), and (Bach A.M, et al., 2018).

The nurse should choose an acceptable pain assessment scale for the patient and explain it to patient. For persons with cognitive impairment, pain measures such as the visual analogue scale (VAS), verbal numeric rating scale (VNRS), verbal rating scale (VRS), and Wong-Baker facial expressions scale are available (Alkhatib G.S et al., 2020). On the other hand, Patients in critical care units are frequently semi-conscious or unable to talk or convey fear due to a ventilator. Numerical pain intensity scales can be used to indicate the level of pain (from low to high) or to communicate the visual consequences of pain to solve this challenge. Physical signs (tachycardia, tachypnea, sweating, and pallor) as well as behavioral such as weeping, frowning, groaning, and stretching should be monitored in semi-conscious patients (Martorella & McDougall Jr, 2021).

The perspectives of nurses on pain management and perceived obstacles have been well researched. Despite continued evidence of inadequate treatment for patients with pain, nurses assessed their ability to comprehend and manage pain as good. From hospital to hospital, pain medication treatment and nurse pain education differ significantly. As a result, nurses' perceptions of pain were unrelated to the severity of the patient's suffering, or the amount of pain medication given. (Vilite B, et al., 2019)

In the Intensive care unit ICU, patient dissatisfaction with pain control is linked to the patient's incapacity to speak and express pain (due to poor awareness and intubation), nurses' concerns about drug addiction, and the patient's respiratory depression. Other factors to consider include the severity of the pain, the patient's pain expectations, and the time it will take to receive the medicine. If the patient has to wait a long time to take the medicine or if the pain is worse than expected the severity of the pain increases. The art of pain management includes simple procedures that give patients with greater pain relief (Orovec A, et al., 2019).

Nursing intervention is essential involve a full grasp of patient and nurse pain evaluation and treatment? Nursing education programs should stress on the need of pain alleviation. Notes on medical history, current research, practice, and pain treatment measures are included in the thorough

report. Using the system to obtain help is part of the patient education campaign. The majority of patients are unaware of the degree of their pain and are unable to disclose it. Patients must learn to communicate their pain's degree, quality, duration, and location (Parizad A, et al., 2014).

The pharmacology of analgesics and tranquilizers should be better understood by nurses and physician to make clinical decisions and manage pain if they have a better grasp of tranquilizers (Dendir G, et al., 2020). Non-drug approaches, also known as non-drug pain control methods, are successful in lowering the degree of pain, reducing the amount of pain medicine needed, and reducing powerful analgesia such as opioids whether used alone or in combination with pharmacological methods. The following are non-pharmacological ways of pain reduction or pain alleviation:

Menthol skin application; Vibration; Aromatherapy; Therapeutic touch; Exercise; Positioning; Music therapy; Hypnosis; Yoga; TENS (transcutaneous electrical nerve stimulation); Application intensive; Applying cold; Imagination; Massage; Acupuncture; Acupressure; Relaxation techniques (Zuleyha S, 2019), (Kol et al., 2014) and ( Hsieh KH et al 2010).

Despite the important role of the ICU nurse in pain management, the role of the health team is crucial part. Pain treatment must be approached holistically (physician, nurse, pharmacist, physiotherapist, and anesthetist). Nurses are a vital element of the medical team since they look after patients who are in pain and can't always get rid of it. Nursing is a career that delivers direct services to individuals in order to treat and alleviate patient issues while also safeguarding and improving the health of healthy people( Alotaibi K, et al., 2019), (Keawnantawat P, et al., 2018), (Shdaifat E, et al., 2020) and ( Samarkandi, Osama A, 2021). Few researches in several countries in Saudi Arabia was conducted about the knowledge, attitudes and practice of Saudi nurses towards postoperative pain management and their practices in postoperative pain management.

### **Aim of the Study**

This study aims to

- Assess knowledge and attitudes of nurses regarding postoperative pain management among patients with open heart surgery at hospital in Aljouf, Saudi Arabia.
- Evaluate nurses' practices regarding postoperative pain management among patients with open heart surgery at hospital in Al-Jouf, Saudi Arabia

### **Research Questions**

- What are the nurse's knowledge and attitudes regarding postoperative pain management among patients with open heart surgery at hospital in Al-Jouf, Saudi Arabia?
- What are the nurses' practices of nurses regarding postoperative pain management among patients with open heart surgery at hospital in Al-Jouf, Saudi Arabia?

### **Subject and Methods**

**Study design:** The study design was a quantitative cross-sectional research survey.

**Study Setting:** The current study was conducted in the Cardiac Care Units (CCUs) in Al-Jouf Hospital in Saudi Arabia.

**Study sample:** A Convenient sampling total of (121) nurses, Saudi and non-Saudi nurses working in the (CCUs) Al-Jouf Hospital in Saudi Arabia.

## **Tools of the study**

Two tools were used in the current study”

Tool (1): Sociodemographic characteristics of the CCU nurses. It is developed by researcher after reviewing the literature. It consists of age, gender, education levels, marital status, and years of experience.

Tool (II): Knowledge, attitudes and practices assessment tool. Knowledge and Attitudes Survey Regarding Pain (KASRP) developed by Betty Ferrell and McCaffery (revised version July 2014). KASRP pain tool developed in 1987 and has been used extensively since then until present. It has been revised over the years to accommodate to the changes in the practice of pain management. The modified KASRP pain tool consists of 33 close-ended questions modified by researcher. It covers aspects of pain assessment, pharmacological and no pharmacological interventions and attitudes towards pain management. The content of questionnaire constructed in line with the American Pain Society, the World Health Organization and the National Comprehensive Cancer Network Pain Guidelines current standards. Content validity of KASRP tool has been established by pain experts’ review. The choice of the items in the questionnaire used in this study based on revised KASRP tool (questions number 1, 33). Questions divided into 3 sections: Q1-16 (true-and-false questions regarding to nurses knowledge about pain assessment), Q17-25 (true-and-false questions regarding to nurses attitudes toward pain management), and Q26-33 (true-and-false questions regarding to nurses practices toward pain management), while the right answer was given one score, and the wrong answer was given zero scores, with a total of (33) scores, converted into a percent score (100%). It is considered as follows:

- A score  $\geq 85\%$  is regarded as a satisfactory level of knowledge as "good knowledge"
- A score between 85 -65% is regarded as "Fair knowledge".
- A score of  $< 65\%$  is regarded as an unsatisfactory level of knowledge or "poor knowledge".

## **METHODS**

The data collection process includes

### **1. Preparatory phase:**

Ethical consideration: The researcher applied all ethical considerations to conduct this study. Ethical approval was obtained from Institutional Research Board (IRB). Also, administrative approval was obtained from the hospitals mentioned above. Informed consent sought from all of the nurses before filling up the questionnaire. The study treated data anonymous, explanation for the research process was done for the participants, there was no risk from the participation in this study, and participants had the right to withdrawal at any stage of the research. Obtaining formal approval to proceed with this study from a selected hospital, obtaining formal permission from the author of the selected questionnaire.

Data collection was done by used tool I and II. The tools were reviewed by six jury experts in the field of critical care nursing, medical surgical nursing, and cardiac intensive care medicine for revision of its content validity and clarity. The reliability of the tools estimated using Cronbach’s Coefficient alpha test and will be greater than 0.88.

The electronic questionnaire sheet prepared by google form to collect data regarding sociodemographic data as base line and closed questions to assess the level of knowledge, attitudes

and practices regarding pain assessment and management after cardiac surgery. Data were collected over two months from March – May 2022.

**2. Implementation phase:** an electronic questionnaire content of 33 questions to disseminate all staff to assess their knowledge, attitudes, and practices regarding postoperative pain Management they answer the sheet within 35 minutes.

### Data analysis

The researcher used a statistical package for the Social Sciences (SPSS, IBM Version 26); data were collected, entered, and analyzed by a personal computer. We used descriptive statistics such as frequencies, and percentages to identify the number of nurses who answered each item.

## RESULTS

Concerning to the Sociodemographic data, the result revealed that 121 completed questionnaires and just around two-third of the study sample who responded to the survey females were (59.5%) and the 40.5% of them were males. Additionally, 52.1% of the study participants were aged 31-40 years compared to 18.2% of them aged between 41-50 years. Moreover, it is apparent from this table that 36.4% of the study respondents were single and 43.8% of them were married. Furthermore, 45.5% of nurses had attained bachelor's degree in nursing compared to 41.3% obtained a diploma degree whilst 13.2% had a master's degree in nursing. Also, around 46.2% of the study participants' Saudi nationality whilst, 53.8% of them are non-Saudi. It can be noted that around 62% of nurses are junior nurses (less than 10 years of clinical experience) 38% of them had a clinical experience of 10 years or more. Approximately, 54.5% of the study responded live in urban whilst 45.5% of them lived in rural, as described in Table 1.

**Table 1: Socio-demographic Characteristics of The Study Participants**

Characteristics	Frequency	%
Gender		
Female	72	59.5%
Male	49	40.5%
Age		
20-30 Years	21	17.4%
31-40 years	63	52.1%
41 - 50 years	22	18.2%
51 -60 years	9	7.8%
>60 years	5	4.5%
Marital Status		
Single	44	36.4%
Married	53	43.8%
Widow	6	4.9%
Divorced	18	14.8%
Education Qualification		
Diploma	50	41.3%
Bachelor	55	45.5%
Master	16	13.2%
Nationality		
Saudi	56	46.2%
Non-Saudi	65	53.8%

Years of experience		
<5 year	35	28.9%
5-≤10 years	40	33.1%
>10-≤15 years	20	16.5%
>15 -20 years	5	4.2%
>20 years	21	17.3%
Residence		
Urban	66	54.5%
Rural	55	45.5%

### Nurses Knowledge about Postoperative Pain Management of Patients with Open-Heart Surgery

Concerning to pain assessment, the current study revealed that the 51.2% of nurses pointed that the pain should be assessed before and after administering the analgesics while, 48.8% of them noticed opposed this opinion. Furthermore, 52.1% of nurses reported that the observation part of the method used in post-operative pain management while, 47.9% reported disagree. In addition to, 57.8% from the nurses' responses considered that the patient sleeps with no movement postoperatively, this indicates the patient is not in pain while 42.2% of them noticed opposed this opinion. However, 63.7% of nurses expressed their disagreement about the use of cold and heat therapy in managing pain post-surgery (non-steroid pain management).

In relation to, a pharmacological management of pain, the present study revealed that 62% of nurses believed that increasing analgesics reflects the psychological dependence of patients, while 38% opposed this opinion. On the other hand, two thirds of nurses 66.1% thought opium could be used to relieve pain post-surgery. Also, more than half of nurses 53.7% believed that paracetamol could be used to manage pain. In addition to, 49.6% of nurses agree about the combining analgesics that may result in better pain control with fewer side effects than using a single analgesic agent. Moreover, 57% of nurse noted that the side effects of narcotics observed immediately at least 20 minute after administration.

Additionally, 57% of nurses noted that the pre-surgery injection such as anesthesia given for pain management, while 43% opposed this opinion. From nurses' response, it was revealed that the 54.5% of them agreed on respiratory depression rarely occur in patients who have been receiving stable doses of Opioids over a period of months so, assessment is needed before administration by adopting a valid scale such as the visual analogue scale while, 45.5% of them disagree. More than half of nurses 55.4% thought that the Opioids not be used in patients with a history of substance abuse while, 44.6% opposed this opinion. Also, 56.2% of nurses' responses indicated if the source of pain is not known a pain drug should not be used during the pain evaluation period because this could mask the diagnosis while, 43.8% of them opposed this opinion. Concerning to impact of psychological aspect on pain assessment, the current study revealed that the 62% of nurses expressed their view that pain management is influenced by cultural or religious factors. More than half 52.1% encourage patients to endure as much pain as described in Table 2.

**Table 2: Nurses Knowledge about Postoperative Pain Management of Patients with Open-Heart Surgery**

Item	Item	Correct	Incorrect	Mean
<b>Pain assessment</b>				
Q1	Should Pain be assessed before and after administering pain drugs?	62 (51.2%)	59 (48.8%)	3.35
Q2	Does Observation part of the method used in surgical pain assessment?	63 (52.1%)	57 (47.9%)	3.22
Q3	Does the Rating scale ranging from (0) "no pain at all to (10) the worst pain" essential to adopt in pain assessment?	73 (60.3%)	48 (39.7%)	3.17
Q4	Do we consider when a patient sleeps with no movement postoperatively, this indicates that patient is not in pain?	70 (57.8%)	51 (42.2%)	3.09
<b>Non-Steroids</b>				
Q5	Does the cold and heat compress be used in the management of surgical pain?	44 (36.3%)	77 (63.7%)	2.99
<b>Analgesic</b>				
Q6	Does increasing analgesics indicate the patient is psychologically dependent?	75 (62%)	46 (38%)	2.84
Q7	Do Opioids analgesics use to relieve pain in surgical patients?	80 (66.1)	41 (33.9%)	2.81
Q8	Does the Paracetamol injection use in managing surgical pain?	65 (53.7%)	56 (46.3%)	2.78
Q9	Does the combining analgesics that may result in better pain control with fewer side effects than using a single analgesic agent?	60 (49.6%)	61 (51.4%)	2.72
Q10	Do the side effects of narcotics observed at least 20minute after administration?	69 (57.0%)	42 (43%)	2.64
Q11	Does Pre-surgery injection such as anesthesia given for pain management?	69 (57.0%)	42 (43%)	2.59
Q12	Does Respiratory depression rarely occur in patients who have been receiving stable doses of Opioids over a period of months?	66 (54.5%)	55 (45.5%)	2.50
Q13	Should Opioids not be used in patients with a history of substance abuse?	67 (55.4%)	54 (44.6%)	2.46
Q14	Does If the source of pain is not known a pain drug should not be used during the pain evaluation period because this could mask the diagnosis.	68 (56.2%)	43 (43.8%)	2.37
<b>Psychological</b>				
Q15	Does cultural and spiritual beliefs influence Patients think pain?	75 (62%)	46 (38%)	2.27
Q16	Should Patients be encouraged to endure as much pain?	63 (52.1%)	57 (47.9%)	2.15

The results in Table 3 represents nurses' attitudes towards pain management after open heart surgery. It could be noticed that more than half 53.7% of nurses expressed agreement that pain is reflected on patient behaviour whilst 46.3% disagreed with the statement. Unexpectedly, 37.2% of nurses indicated distraction could reduce pain intensity whilst 62.8% did not believe in the effectiveness of distraction in reducing pain intensity. Moreover, half of nurses 49.6% indicated that non-pharmacological interventions are effective in managing pain at mild or moderate levels while,

50.4% disagreed. Furthermore, 66.1% of nurses stated that use of placebo is important in determining if the pain is real. Additionally, less than half 45.4% of nurses agreed with statement that surgical patients experience higher pain intensity compared to medical patients, so they tended to use less analgesic. Also, more than 28.9% of nurses using pain assessment tool usually make nursing more complicated and consume time for other ward activities. In the same way, more than 36.6% of nurses believed personal experience with pain affects the way the nurses manage pain on surgical patients. Only 43.8% of nurses agreed with statement that pain severity is reflected on patient's vital sign. Also, half of nurses 51.2% thought that the best health care provider who can assess pain as they contact longer with patients as described in Table 3.

Table 3: The Study Participants Responses on Attitude towards pain management of patients with open-heart surgery

	Item	Yes	No
Q.17	Does Pain notice in the patient's behavior?	65 (53.7%)	46.3%)
Q.18	Can distraction reduce pain intensity?	45 (37.2%)	62.8%)
Q.19	Does the non-pharmacological interventions are very effective for mild to moderate pain not severe pain?	60 (49.6%)	50.4%)
Q.20	Does the use of placebo is important in determining if the patient is real pain?	80 (66.1%)	33.9%)
Q.21	Do surgical patients usually do experience pain more intense than medical patients?	55 (45.4%)	45.4%)
Q.22	Does using pain assessment tool usually make nursing more complicated and consume time for other ward activities?	35 (28.9%)	71.1%)
Q.23	Does the nurse's personal experience with pain affects the way the nurses manage pain on surgical patients?	44 (36.6%)	63.4%)
Q.24	Does the changes in vital sign rely on to verify patient's complaining of severe pain?	53 (43.8%)	56.2%)
Q.25	Do nurses consider best judges of the patient's pain intensity because they spent 24 hours with the patients?	62 (51.2%)	58 (48.8%)

**The results of nurses' practice towards pain management** show that 28.1% of participant applied pain assessment done only when patients could communicate. However, 45.5% of participant practiced pain assessment tool used after heart surgery. Also, 44.6% did use the pain assessment tool frequently after cardiac surgery, whilst 34.7% of nurses discuss pain scores and management during nurse to nurse report. Simultaneously, 64.5% of nurses did not discuss pain scores with nurses during endorsement. Also, 40% of nurses agree always with patients' statements about their pain after surgery. Moreover, 57.8% of nurses can provide direct care to patients after surgery, whilst 28% of nurses have not performed nursing care to cardiac patients, and 43% of nurses selected the type of pain relief based on the surgery type, whilst 28.9% of nurses did not use such a criterion with patients after surgery. Interestingly, only 43.8% of nurses read the guidelines for patient management after cardiac surgery. The results showed that nurses did not have adequate practice towards pain management post cardiac surgery, as indicated in Table 4.



**Table 4: Nurses Responses on Practice towards pain management of patients with open-heart surgery**

	Item	Not Done	Done completely	Done incompletely	Done competently
<b>Assessment</b>					
Q.26	Assess for pain for patient able to communicate?	17 (14%)	34 (28.1%)	69 (57.0%)	1 (0.8%)
Q.27	Use a pain assessment tool after heart surgery	33 (27.3%)	55 (45.5%)	32 (26.4%)	1 (0.8%)
Q.28	Use a pain assessment tool frequently after heart surgery	18 (14.9%)	54 (44.6%)	48 (40%)	1 (0.8%)
Q.29	Discuss pain scores and management discussed during nurse-to-nurse report	29 (24%)	42 (34.7%)	49 (40.5%)	1 (0.8%)
Q.30	Agree always with patients' statements about their pain after heart surgery	32 (26.4%)	48 (40%)	40 (33.1%)	1 (0.8%)
<b>Management</b>					
Q.31	Provide direct nursing care to cardiac patient	23.1( 28%)	70 (57.8%)	22 (18.2%)	1 (0.8%)
Q.32	Select type of pain relief based on the type of surgery.	33 (27.3%)	52 (43%)	35 (28.9%)	1 (0.8%)
Q.33	Read guideline often related to pain management after heart surgery	24 (19.8%)	53 (43.8%)	43 (35.6%)	1 (0.8%)

**Relation between sociodemographic characteristics of nurses and knowledge regarding postoperative pain management among patients with open-heart surgery.**

Table 5 presents the distribution of knowledge regarding postoperative pain management among patients with open-heart surgery across various demographic variables. There were more female participants than male participants in the study. The majority of both male and female participants had poor knowledge of postoperative pain management, with a higher percentage of males having poor knowledge compared to females. Also, it revealed that the participants aged 20 to less than 30 had the highest percentage of poor knowledge (80.95%) while the participants aged 40 and less than 50 had the highest percentage of poor knowledge (90.91%). Overall, the majority of the participants in all age groups had poor knowledge of postoperative pain management. For the educational Level, the participants with a diploma had the highest percentage of poor knowledge (82%), while those with a bachelor's degree had the lowest percentage of poor knowledge (75.44%). The majority of participants in all educational levels had poor knowledge of postoperative pain management. Regarding work experience, the table shows that the participants with 15 to less than 20 years of work experience had the highest percentage of poor knowledge (90%), while those with 5 to less than 10 years of work experience had the lowest percentage of poor knowledge (65.71%). Overall, the majority of participants in all work experience categories had poor knowledge of postoperative pain management. The participants from rural areas had a higher percentage of poor knowledge (87.04%) compared to those from urban areas (71.21%). The majority of participants in both residency categories had poor knowledge of postoperative pain management. Finally, the table shows that both Saudi and non-Saudi participants had a similar distribution of knowledge, with the majority having poor knowledge of postoperative pain management.

**Table 5: Relation between sociodemographic characteristics of nurses and knowledge regarding postoperative pain management among patients with open-heart surgery.**

Sociodemographic characteristics		knowledge			P value
		Poor	Fair	Good	
Gender	Male	38(79.17)	9(18.75)	1(2.08)	0.926
	Female	56(77.78)	15(20.83)	1(1.39)	
Age (years)	20 to less than 30	17(80.95)	3(14.29)	1(4.76)	0.562
	30 to less than 40	46(73.02)	16(25.40)	1(1.59)	
	40 to less than 50	20(90.91)	2(9.09)	0(0)	
	50 to less than 60	8(88.89)	1(11.11)	0(0)	
	60 and more	3(60)	2(40)	0(0)	
Educational Level	Diploma	41(82)	8(16)	1(2)	0.896
	Bachelor	43(75.44)	13(22.81)	1(1.75)	
	Master	10(76.92)	3(23.08)	0(0)	
work experience: (years)	less than 5	8(80)	2(20)	0(0)	0.306
	5 to less than 10	23(65.71)	10(28.57)	2(5.71)	
	10 to less than 15	38(84.44)	7(15.56)	0(0)	
	15 to less than 20	18(90)	2(10)	0(0)	
Residency	20 to less than 30	7(70)	3(30)	0(0)	0.081
	Rural	47(87.04)	7(12.96)	0(0)	
Nationality	Urban	47(71.21)	17(25.76)	2(3.03)	0.938
	Saudi	57(78.08)	15(20.55)	1(1.37)	
	Non-Saudi	37(78.72)	9(19.15)	1(2.13)	

## DISCUSSION

Inadequate pain management affects the patient outcome. Pain assessment and management are fundamental in CCUs care, and nurses must be equipped with adequate knowledge and a positive attitude toward pain assessment and management. This study aims to assess knowledge, attitudes and practices of nurses regarding postoperative pain management among patients with open heart surgery at hospital in Al-Jouf, Saudi Arabia.

Regarding socio-demographic characteristics, the results of the current study showed that more than half of studied nurses aged from thirty-one to forty years old. This result is congruent with Khaled M. AL-Sayaghi et al., (2022) in their study titled " Nurses' Knowledge and Attitudes Regarding Pain Assessment and Management in Saudi Arabia " Whose results revealed that the near to half of the studied nurses' were in the age group between thirty and thirty nine years old.

As regards the gender of the studied nurse table (1), shows that more than half of the nurse's sample were females. It may be because of the old perspective that nursing is a special profession for females. This result is compatible with Khaled M. AL-Sayaghi et al., (2022) stated that the more than two third of the nurses' studied were females. On the other hand, this result disagreed with Tadese T Negash et al., (2022) in a study titled " Knowledge, attitudes and practices of health professionals towards postoperative pain management at a referral hospital in Ethiopia" who stated that two third (66.1%) of studied nurses were males.

Concerning nurses' nationality according to the table (1), near to half of the studied nurse were non-Saudi while the remaining are Saudi. From the researcher's point of view, this may be due to most

Saudi nurses being recently employed in critical areas. These results in the same line with Tadese T Negash et al., (2022) they stated that near to half of nurses working in intensive care were from non-Saudi nationality.

As regards the educational level, the results of the current study showed that near to half of the studied nurses had bachelor's degrees while the remaining had diploma degrees. These findings were matched with Tadese T Negash et al., (2022) they indicated that the majority of studied nurses were bachelor's degrees, and only one third of studied nurses had nursing diplomas degree. Regarding Marital Status, the finding of the current study showed that near to half of the studied nurses were married. This finding was consistent with Khaled M. AL-Sayaghi et al., (2022) they reported that more than two third of the sample nurses were married.

Concerning years of experience, the findings of the current study showed that more than one quadrant of the studied nurses had from 1–to 5 years of experience in CCU, while, one third of the studied nurses had from more than five to ten years of experience in CCU. From a researcher's point of view, it may be due to the nature of the intensive care unit that it is an area of specialty that requires a young, qualified nurse to offer a better quality of nursing care and be able to tolerate the workload, as patients require complex assessment and continuous nursing vigilance. This finding is supported by Tadese T Negash et al., (2022) they revealed that more than two third of the nurse's experiences varied between (1 – 5 years) and (6 – 5 years) of experience.

Regarding the level of nurses' knowledge, it illustrated that there was a knowledge deficit regarding postoperative pain management among patients with open heart surgery the mean score 57.1%, which demonstrating a lack of knowledge among nurses. Furthermore, near to half of nurses reported that the pain assessment is not part of nursing role in post-operative pain management while, two third of nurses expressed their disagreement about the use of cold and heat therapy in managing pain post-surgery (non-steroid pain management). However, the current study was revealed that the near to half of nurses disagreed that the pain assessment is needed before administration by adopting a valid scale such as the visual analogue scale. This finding has been strengthened and enhanced by several studies (Adams, Varaei, & Jalalinia, 2020; Dechasa A, et al., 2022; Wurjine & Nigussie, 2018) they studied that nurses who work with postoperative patients have knowledge gaps and a negative attitude about pain management. Similarly, a researches conducted in post-operative pain management with (Bach et al., 2018; Rodriguez, et al 2019; Su et al., 2018) et al 2018; Vickers et al 2014) they demonstrating a lack of knowledge and attitudes regarding past research as well as reaffirming the general interest of nurses caring for patients with pain in this topic.

Concerning to nurses responses on attitude towards pain management of patients with open-heart surgery, the current study noticed that near to half of of nurses expressed disagreed that the pain is reflected on patient behavior. Unexpectedly, two third of nurses indicated distraction couldn't reduce pain intensity. Moreover, half of nurses indicated that non-pharmacological interventions are not effective in managing pain at mild or moderate levels. Furthermore, more than 28.9% of nurses noted that the using pain assessment tool usually complicated and consume time for other ward activities. This is could contributed to ineffective nurses' attitude toward pain management.

In relation to nursing practice towards pain management the present study shows that more than one- quarter of participant applied pain assessment only when patients could communicate. However, more than half didn't use the pain assessment tool frequently after cardiac surgery, Moreover, near to one quarter of nurses have not performed nursing care to cardiac patients. The

results showed that nurses did not have adequate practice towards pain management post cardiac surgery.

Similarly, Several studies Tadesse T Negash et al (2022), Samarkadi OA. (2018), and Samarkandi OA (2021) they stated that the overall health professionals' attitude and practice is poor. Also, the study brought out the lack of pain assessment and management skills in nurses working in the selected hospitals, particularly because of false ideas and perceptions regarding pain medications. These false perceptions are primarily fueled by nurses' shorter practicing experience in pain management, lack of post-licensing pain education, and their level of education this is also, consistent with Khaled M. AL-Sayaghi et al., (2022), they reported that the findings increase the concern of low level of knowledge and inappropriate attitudes about the pain experienced by patients. The sample had a mean score of 45.29% with the KASRP tool. The majority of the participants had a poor level of knowledge and attitude (scored <50%). This is also, consistent with (Awube MN Menlah et al 2018) they noted that the nurses have inadequate nursing intervention and assessment skills in the management of post-operative pain. This is a result of inadequate knowledge as well as limited range of practices utilized by nurses to offset the deleterious effects of post-operative pain management.

Relation between sociodemographic characteristics of nurses and knowledge regarding postoperative pain management among patients with open-heart surgery the present study revealed that there the majority of both male and female participants had poor knowledge of postoperative pain management, with a higher percentage of males having poor knowledge compared to females. Also, it revealed that the majority of the participants in all age groups had poor knowledge of postoperative pain management. For the educational Level, the majority of participants in all educational levels had poor knowledge of postoperative pain management. Regarding work experience, the majority of participants in all work experience categories had poor knowledge of postoperative pain management. The majority of participants in both residency categories had poor knowledge of postoperative pain management. Finally, the table shows that both Saudi and non-Saudi participants had a similar distribution of knowledge, with the majority having poor knowledge of postoperative pain management.

The same finding has been shown in the study conducted (Shoqirat, 2014) who noted that the nurses in the surgical department were found to have a high degree of perceived impairment, with a mean total disability score of 3.00 out of 4.00 on the questionnaire and only outperformed males ( $p = 5026$ ), but also had a greater knowledge of the consequences of pain management problems ( $p < 0.001$ ). This is could be contributed to a negative association between average attitude scale scores and age and work experience, with older nurses' favorable attitudes about pain management and shorter work experience being linked to lower average scale scores. This might suggest that older nurses have a negative opinion of pain management and are unaware of its symptoms. This results comparable with (Wurjine & Nigussie, 2018) they discovered a link between nurses' practice towards pain treatment approaches and their degree of education, postoperative work experience, and current practice. On the other hand (Ho et al., 2013; Manwere et al 2015) they reported that a higher ratio score ( $P.001$ ), obtained in participants over 30 years, where nurses over 40 had a superior comprehension of pain management. There was also a link between 2.47 years of experience and pain management experience ( $P 5.026$ ), which matches prior findings this is could be contributed that a negative association between average attitude scale scores and age and work experience, with older nurses' favorable attitudes about pain management and shorter work experience being linked to lower average scale scores. This might suggest that older nurses have a negative opinion of pain management and are unaware of its symptoms.

Moreover, (Manwere et al., 2015), they revealed no significant variations in "pain knowledge" across nurse subgroups in relation to factors like age and nursing experience and ranks. In addition to, the older and more experienced nurses scored higher in this research than their younger counterparts, which might be related to post-qualification training at the destination hospital, since older nurses with proper pain management training frequently make pain management decisions in surgical departments. Also, the views of pain management differed considerably based on the participants' nursing experience, with a significant majority of graduate students ( $P = 0.5026$ ). Although the number of masters in this study ( $n=16$ , 11%) is insufficient to have a substantial influence on clinical practise, it does imply that further higher education alters or transforms nurses' knowledge and attitudes towards pain management. This could be contributed to no hospital training about pain management that linked to improved decision-making, knowledge, and attitudes, leading in better patient pain management (Lin et al., 2021; Teoh et al., 2022; &Veroff, Marr 2013).

Overall, (Jaleta et al 2020) they noted that the nursing education should be founded on the concept that pain treatment is a fundamental human right that should be treated like any other bodily need. As a result, identifying key areas of knowledge deficiency in surgical nurses on pain management might serve as a foundation for developing suitable educational programmes to improve nurses' knowledge and attitudes about postoperative pain. While education is a vital part of increasing nurses' understanding and attitudes towards pain, it is insufficient to meet the PM's objectives. As a result, it appears that the entire health-care system must develop a positive culture in which PM is central to the therapeutic philosophy.

Additionally, experienced and educated nurses knew more about PM and had a more favourable attitude toward PM than their peers, whereas nurses had a more positive attitude regarding PM. A culture of pain management should be brought into nursing practise beginning in nursing school, with adequate pain management and department-mandated on-the-job training for active nurses to emphasize the individual's entitlement to pain management. Nurses cannot tolerate bad medical practises in Jordan or anyplace else since pain treatment is vital to general care. As a result, these findings must be included in nursing education and continuing professional development in order to enhance nurses' knowledge and attitudes about PM, and hence their participation in PM.

## **CONCLUSION**

Nurses in this study self-reported inadequate nursing assessment and intervention skills in the management of Pain management. This is a result of inadequate knowledge as well as limited range of practices utilized by nurses to offset the deleterious effects of pain management as the study identified. However, nurses' knowledge (57.1%), which can be harnessed to translate into evidence-based practices in pain management. Furthermore, the results showed that nurses did not have adequate practice and negative attitudes towards pain management post cardiac surgery.

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## **List of Abbreviations**

**CAD:** Coronary Artery Disease

**CHD:** Coronary Heart Disease

**CABG:** Coronary Artery Bypass Graft

**ICU:** Intensive Care units

**VAS:** Visual Analogue Scale

**VNRS:** Verbal Numeric Rating Scale

**VRS:** Verbal Rating Scale

**TENS:** Transcutaneous Electrical Nerve Stimulation

**CCUs:** Cardiac Care Units

**KASRP:** Knowledge and Attitudes Survey Regarding Pain

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