Knowledge and Attitude about Pain and Pain Management among Critical Care Nurses in a Tertiary Hospital

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Abstract

Background: Pain assessment and management are essential parts of nursing care and two of the most fundamental patient rights. It is unethical to let a patient suffer from pain without taking appropriate measures to relief his or her pain.

Objective: This study aims to explore the ICU staff nurse's knowledge and attitudes towards pain and pain management at King Saud Medical City (KSMC) in Saudi Arabia. The pain management knowledge and attitudes of ICU nurses at KSMC has not been explored in previous research.

Methods: A descriptive cross sectional design was utilized using a self-reporting questionnaire tool to obtain information from ICU nurses about their knowledge and attitudes towards pain and pain management. The questionnaire was distributed to 289 nurses employed in King Saud Medical City (KSMC), which is one of the biggest tertiary hospitals in Riyadh, Saudi Arabia. 204 nurses responded to the questionnaire (71% response rate).

Results and conclusion: The results showed sever lack of knowledge and poor attitudes among ICU nurses towards pain management when dealing with ICU patients, 60% of the knowledge questions were answered incorrectly by more than 50% of the nursing staff participated in the study, 65% of attitude questions were answered incorrectly by more than 50% of the nursing staff. This study has uncovered both knowledge and attitudes gaps among ICU nurses.

Keywords: Pain management; Intensive care unit; Surgical intensive care; Pain

Background

Pain is one of the main reasons causing people to visit hospitals and it is a common symptom for many cases inside Intensive Care Units (ICUs). From an ethical point of view, a patient should not be left suffering when his or her pain can be relieved. The Joint Commission on Accreditation of Health Care Organizations [1] asserted that patients have the right for their pain to be assessed and managed in a way that is appropriate and effective. Incompetently estimating and leaving patients in pain may affect the quality of life for the patient, and pain management is an important step in regaining control over quality of life. Nurses are playing a critical role in contributing impressive pain management, there are several research findings indicating the importance of nursing knowledge and attitudes regarding the

pain management of patients and how behaviors' learned from pain management education transfer into the clinical setting [2,3].

Previous studies also referred to lack the proper knowledge and attitude towards effective pain management, and nurses' inability to adequately assess and manage pain [4,5]. Nurses' pain knowledge and assessment is a very important part of nursing care, which enables health care providers to manage pain in the best way possible [6]. Effective and accurate pain management requires efficient knowledge, positive attitudes and effective skills of clinical decision-making about pain [7]. Commonly nurses gain their beliefs and perceptions about pain from the profound knowledge they have, which may result in unfavorable attitude consequences towards pain management by the nurses if the knowledge they have is distorted, incomplete, or incorrect. A lot of pain-related issues may lead to inadequate pain management,

like incorrectly evaluating pain as less severe than the actual pain level, lack of knowledge regarding pain medications, and believing that the patient exaggerates his or her pain [8], such issues are directly affected by the personal knowledge and attitudes of the nurse towards pain and pain management.

A lot of researches have highlighted how some nurse' sin adequate knowledge about pain management and the best ways to treat pain can lead to grow poor pain management attitudes in general [9,10]. Previous studies have reported poor pharmacological knowledge among nurses, especially in matters related to opioids in regards of their use and/or abuse [11-13]. The matter of knowledge deficit among nurses can be referred to the scarcity of courses that aim to enhance pain management process in the nursing programs.

For proper pain management, the nurse must carry out a process that consists of precise pain assessment using valid and reliable scale for appropriate measurement, also approve and believe that the reported score of pain by the patient himself is authentic, use pain relief methods, provide patient support, and finally evaluate the adequacy of these methods [14,15]. The level of nurses' knowledge and attitudes about pain and pain management have strong negative correlation with high numbers of patients' complaints about unrelieved pain inside hospitals [16]. Improving nurses' knowledge, attitudes, and approaches towards pain and pain management does not reflect positively only on patients' level of pain, but also have positive hospital-wide significant impacts, like decrease length of stay, increase patients' satisfaction and decreasing morbidity and mortality rates [17].

Materials and Methods

The study will take place at King Saud Medical City (KSMC), which is a tertiary hospital in Riyadh, Saudi Arabia. KSMC is a tertiary governmental hospital with bed capacity of 1400 beds, in which 130 beds are in the intensive care unit (ICU). The pain management knowledge and attitudes of ICU nurses at King Saud Medical City (KSMC) has not been identified in previous research. This study aims to explore the ICU staff nurses' knowledge and attitudes towards pain and pain management at KSMC. This study utilized a descriptive approach based on cross-sectional design to measure variables of pain and pain management knowledge and attitudes among ICU staff nurses. The population of the study is all staff nurses working in adult intensive care units. Participants were selected using simple random sampling.

This study utilized a self-reporting a questionnaire survey that was adopted from the "Knowledge and Attitudes Survey Regarding Pain" tool. Content validity for the tool has been previously established by the tool author through a panel review of pain experts. The questionnaire collects information about socio-demographics of participants, knowledge towards pain, and attitudes of nurses regarding pain and pain management. The data was collected from ICU nurses who provide direct care to the patients and provide interventions to assess and reduce pain for these patients. Nursing managers were excluded from this study. The total number of ICU staff nurses is 500, which

represents the population of this study, thus the required sample size is 217 based on the sample size for a given population size tables presented by Sekaran [17]. To calculate the adjusted sample size for anticipated dropouts, the used formula is [N=n/(1-d)] [18] where N is the adjusted sample size, and (d) is the anticipated dropout rate. The anticipated dropout rate (d) is 25%, therefore N=217/(1-0.25), thus N=289. Based on previous calculations, 289 questionnaires were distributed to the nurses. Only 204 questionnaires were returned with a response rate of 71%. The participant staff worked at four different areas; Medical Intensive Care Unit (MICU), Surgical Intensive Care Unit (SICU), Trauma Intensive Care Unit (TICU) and Respiratory Intensive Care Unite (RICU). International Business Machines Corporation Statistical Product and Service Solutions software (IBM SPSS) version 21 used for data analysis [19].

Results

Around 70% of the respondents were less than 30 years old, and the vast majority were female with only 8 male respondents (3.7%). 169 respondents (83.1%) have a bachelor degree compared to only 26 respondents (12.5%) have Diploma or higher diploma in nursing.

191 respondents (93.4%) from the nurses who completed the questionnaire were staff nurses with direct contact with the patients. Regarding the staff experience, most of the nurses (61%) had experience less than 5 years, this can be explained by the high turnover of nurses in the ICU and the severe shortage of staff nurses in the market at the time of recruitment (data reported in **Table 1**). The respondents were fairly distributed among the working areas of the ICU. None of the participating nurses had taken advanced courses in pain assessment and management **(Tables 1-3)**.

Discussion

The results showed lack of knowledge among nurses regarding pain management when dealing with ICU patients. 60% of the knowledge questions were answered incorrectly by more than 50% of the nursing staff participated in the study. Surprisingly, one of the knowledge questions were answered correctly only by six nurses (2.9%) from all participants, this question tested the nurses' knowledge about the best route to administer opioid analgesia for cancer patients. At KSMC it is not rare to admit cancer patients into the ICU, and many of these patients suffer intolerable pain like pancreatic cancer patients or brain cancer patients, and they need to be provided opioids in the most efficient methods to relieve pain faster and achieve the most decrease in the pain level score.

Some cancer patients are dependent on a daily fixed dose of morphine to relief pain, but some days the pain could be worse and would not be relieved with the regular dose, the nurses at KSMC did not know that increasing Morphine dose from 200 mg to 250 mg will increase the chance of respiratory depression by less than 1% only. This lack of knowledge could prevent some cancer patients from relieving their pain due to unrealistic fear of causing respiratory depression. It is important for ICU nurses

Table 1 Socio-demographic and job characteristics of respondents.

Variable	Description	Frequency	
		N	%
Age	20-30	142	69.9
	31-40	52	25.7
	41-50	9	4.4
Gender	Male	8	3.7
	Female	196	96.3
Education	Diploma/high diploma	26	12.5
	Bachelor	169	83.1
	Post Graduate	4	0.7
Job position	Staff nurse	191	93.4
	Charge nurse	13	6.6
Experience	1-4 years	124	61
	5-9 years	69	33.8
	10 years or more	8	2.9
Working area	Medical ICU	38	18.4
	Surgical ICU	48	23.5
	Trauma ICU	63	30.9
	Respiratory ICU	50	24.3
	Other	5	2.9

to know the equivalent doses between IV and oral Morphine as changing the administration route from IV to oral is a step of Morphine weaning process, also oral Morphine is considered to be less harmful when compared to IV doses. 75% of ICU nurses at KSMC did not know the equivalent doses between the two routes.

It is frequent to receive substance abuse patients in the ICU at KSMC; this study has found that 71% of ICU nurses believed that these patients should not receive opioid treatment even if they have pain, which is a serious finding from both clinical and ethical perspectives. ICU patients should receive appropriate treatment to relief pain regardless of their history of substance abuse, this distorted perception among ICU nurses could prevent some patients from their right of being pain-free. On the other hand, it is considered a critical mistake to rely on the vital signs of the patients to judge the severity of pain level, such a crucial mistake does not appear to be far from occurring as 70% of the ICU staff nurses at KSMC thought that stable vitals are a positive indicator of absence of pain (data reported in **Table 2**).

Furthermore, the results showed lack of knowledge for ICU nurses when it comes to effectiveness, reliability, and mechanism

Table 2 Items of the instruments, frequency and percentages of correct knowledge answers.

Rank	Item	Freq	% of correct answers	Items (Question)
1	4	198	97.1%	Patients may sleep in spite of severe pain.
2	23	174	85.3%	The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain.
3	21	171	83.8%	Narcotic/opioid addiction is defined as a chronic neurobiologic 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.
4	33	159	77.9%	The time to peak effect for morphine given IV.
5	11	132	64.7%	Elderly patients cannot tolerate opioids for pain relief.
6	5	132	64.7%	Aspirin and other non-steroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.
7	7	131	64%	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.
8	29	126	61.8%	Which of the following is useful for treatment of cancer pain?
9	24	125	61%	Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?
10	2	121	59.6	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.
11	8	103	50.7	The usual duration of analgesia of 1-2 mg morphine IV is 4-5 h.
12	20	103	50.7	Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.
13	19	99	48.5	Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.
14	34	79	39%	The time to peak effect for morphine given orally.
15	17	63	30.9	Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5-10 mg of morphine PO.
16	9	61	30.1	Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics
17	1	61	30.1	Vital signs are always reliable indicators of the intensity of a patient's pain.
18	10	58	28.7%	Opioids should not be used in patients with a history of substance abuse.
19	6	58	28.7	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months
20	25	35	25.7%	Which of the following IV doses of morphine administered over a 4 h period would be equivalent to 30 mg of oral morphine given q 4 h?
21	27	29	14%	A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/h intravenously. Today he has been receiving 250 mg/h intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity.
22	22	6	2.9	The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain.

Table 3 Items of the instruments, frequency and percentages of correct answers (attitudes).

Rank	Item	Freq	% of correct answers	Items (Question)
1	15	187	91.9%	After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.
2	26	140	68.4%	Analgesics for post-operative pain should initially be given.
3	3	136	66.9%	Patients who can be distracted from pain usually do not have severe pain.
4	14	119	58.1%	Patients' spiritual beliefs may lead them to think pain and suffering are necessary.
5	31	111	54.4%	Which of the following describes the best approach for cultural considerations in caring for patients in pain?
6	30	106	52.2%	The most accurate judge of the intensity of the patient's pain.
7	28	99	48.5%	The most likely reason a patient with pain would request increased doses of pain medication.
8	13	93	45.6%	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.
9	32	82	40.4%	How likely it is that patients who develop pain already have an alcohol and/or drug abuse problem?
10	12	81	39.7%	Patients should be encouraged to endure as much pain as possible before using an opioid.
11	37A	69	39%	Robert is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP=120/80; HR=80; R=18; on a scale of 0 to 10 (0=no pain/discomfort, 10=worst pain/discomfort) he rates his pain as 8. A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Robert's pain
12	36A	63	30.9%	Andrew is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP=120/80; HR=80; R=18; on a scale of 0 to 10 (0=no pain/discomfort, 10=worst pain/discomfort) he rates his pain as 8. A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Andrew's pain.
13	35	46	22.8%	Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:
14	18	38	18.4%	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.
15	16	20	9.6%	Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.
16	37B	10	5.1%	Your assessment, above, is made 2 h after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.
17	36B	0	0	B. Your assessment, above, is made 2 h after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief." Check the action you will take at this time.

of action to the commonly used medications for pain relief and management

One important piece of knowledge to be understood by nurses when dealing with painkillers is to understand the time needed for the medication to reach its peak, an example is oral Morphine that needs 1 to 2 h to reach the peak effect after administration. This is important because if a nurse was under the impression that oral Morphine reaches the peak effect after 10 min or 30 min for example, this can lead to medication abuse by providing extra doses. Unfortunately, 61% of ICU staff nurses did not know the time for oral morphine to reach its peak effect, which is commonly used for ICU patients **(Table 2)**.

Table 3 refers to items of the Instruments, Frequency and Percentages of Correct attitudes Answers, The result showed poor attitude among ICU nurses regarding pain management when dealing with ICU patients; 65% of attitude questions were answered incorrectly by more than 50% of the nursing staff. The poor nursing attitudes towards pain management were evident by answering one question evaluating attitudes with wrong answers by all the respondents while another question was answered correctly by only 7% of the respondents. Both questions tested for the nurses' attitudes when the objective assessment of pain contradicts the subjective pain assessment. The questions asked the nurses if they will take action to relief patient's pain if the patient verbalizes the pain score to be eight although the clinical assessment says the pain score is two, the poor attitudes were evident by the tendency to ignore the patient's complain in favor of the clinical assessment. Precisely, pain is subjective, so the correct attitude for the ICU nurses is not to ignore the patient's complaining even if the patient is grimacing, smiling, or joking.

90.4% of nurses reported using placebo as a test for pain management, which is unethical practice to the patients who are suffering from pain. An alarming finding is that 82% of the nurses reported accepting to keep the patient in pain to seek its source. Again this is not ethical practice; it's important to ICU nurses to know during the pain evaluation process that there is no benefit to keep the patient in pain for the sake of checking the source **(Table 3)**.

Conclusion

The experience of pain is subjective and complicated experience. Thorough and complete assessment is a key for effective pain management, and it is the right of the patients to have their pain addressed by the nurses and other healthcare providers. The basic goal of pain management is to identify the pain score and manifestations correctly, and to provide the proper pain relief with minimal side effects as quickly as possible as one of the priorities for nurses to provide appropriate care. This study has uncovered both knowledge gap and attitudes' gap among ICU nurses working in King Saud Medical City (KSMC) in Saudi Arabia. The ICU nurses working at KSMC need effective intervention programs to increase their knowledge levels and modify their attitudes towards pain management through practical and updated intervention modules.

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