THE KNOWLEDGE AND ATTITUDE REGARDING CANCER PAIN MANAGEMENT AMONG NURSES WORKING IN CANCER CENTER; AN EXPERIENCE FROM QATAR

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Abstract

Purpose: The study aims to explore pain knowledge and attitudes of oncology nurses working in Qatar. Methods: A descriptive, cross-sectional design was used to explore nurse's knowledge and attitudes about cancer pain. The Nurses Knowledge and Attitude Survey Regarding Pain (NKASRP) survey was used. The NKASRP score differences were examined among nurses with varying demographics, levels of pain education and experience. Population of 159 oncology nurses working at National Center of Cancer Care and research (NCCCR) Qatar.

Results: The Mean NKASRP was 58%, significantly below the passing score of 80%. Nurses in palliative care unit scored significantly higher (<0.01) than nurses in other units (Hematology/Oncology). No significant differences between sex, age, and educational level were found.

Conclusion: The present study provides important information about knowledge deficit in pain management among oncology nurses and limited training regarding pain management. Palliative care nurses' scores were significantly higher than nurses in other (Hematology/Oncology) units and this was a result of a specialized palliative care course given to them. Our results support the universal concern of inadequate knowledge and attitudes of nurses regarding cancer pain. There is a need for more effective evidence-based educational programs in cancer pain management. Evaluation of the current educational pain program is also needed.

Key words: Middle East, Palliative, Cancer, Health Care Experience, Beliefs

Introduction

Pain is the most common symptom that causes suffering among patients with cancer. According to the National Institutes of Health, higher prevalence rates are reported among patients under active treatments (50–70%) and among patients in an advanced stage of disease (60–90%) [1, 2]. Furthermore, cancer pain has serious negative consequences and great influence on the overall quality of life. As stated by De Laurentis, et al., (2019) patients living with cancer pain are more prone to develop physical, emotional, and psychological distress. Therefore, pain is a significant health issue that needs to be addressed in all health care settings. Cancer pain management and treatment are complicated and require frequent assessment, reassessment, evaluation, and constant observation by health care providers.

Unlike physicians, nurses by virtue of their role within the health care organization are in a vital position to care for patients in pain. Nurses are responsible for assessing pain, identifying the cause of pain, planning the care, administering medication, and evaluating effectiveness of intervention. In addition, physicians rely on nurses' assessment in prescribing pain medication. Inadequate pain relief of cancer related pain can be attributed to nurse's lack of knowledge about pain assessment and management and incidence of narcotic addiction as well as negative attitudes regarding therapeutic level of analgesia [2]. Given the urgency of this issue, nurse's knowledge and attitudes toward pain is an important area that needs to be explored in more detail.

A series of international studies have examined nurse's knowledge and attitude toward cancer pain management including in the USA, Canada, Norway, Italy, Turkey, and China, [4- 8]. These studies concluded that nurses lack adequate knowledge about pain and pain management. Likewise, studies from the Middle East have found that oncology nurses have poor knowledge and attitude toward pain intervention [3, 9-11]. All these studies have used the same questionnaire "knowledge and attitude survey regarding pain" (NKASRP). However, the search didn't reveal any study that has been conducted in Qatar using the same tool.

Underlying factors of suboptimal pain assessment and management will result in continued patient suffering leading to further anxiety and discomfort. Barriers to cancer pain assessment and management has been discussed widely in the literature. These barriers are classified as patients, health care workers and system related barriers [9]. The most prominent factor that affects nurses' knowledge about cancer pain management was the nurses' approach which positively correlates with their previous pain education [6,12]. A qualitative study conducted by Yassin et al., (2015) in order to explore the social organization of nurses' pain management work in Qatar, concluded that there were barriers which resulted in delay of pain management. The study mentioned that nurse's knowledge about pain management was one of the reasons for delay in pain intervention.

Most of the literature search indicated that a lack of preregistration pain education programs and inadequate continuing education for nurses was the reason for poor pain knowledge [3,4,5,6,14]. Studies show that educational intervention improves the nurse's approach toward cancer pain. A study conducted by Al Qadire & Al Khalaileh to evaluate the impact of education on nurses' knowledge and attitude regarding pain management, concluded that attending a short pain course could improve nurses' knowledge and attitudes regarding pain management [12].

Currently in Qatar, there are a few pain education programs designed for oncology nurses. It is likely that nurses working in HMC rely on their basic pain education, particularly university education, to assess and manage patients in pain. Pain management is a dynamic and complex process. Thus, nurses need to be aware of the current evidence-based pain management practice. Given the urgency of this issue, this study is essential to evaluate nurses' knowledge in order to design optimal pain management strategies. Considering the aim of Qatar National Cancer Strategy, and congruent with nurses' essential role in pain management, there is an urgent need to conduct a study that addresses local nurses' knowledge and attitude toward pain intervention. Thus, the purpose of this study is to examine nurse's knowledge and attitudes towards cancer pain management and to identify factors that might affect pain management practice and ultimately, to recommend strategies to improve their knowledge.

The purpose of this study is particularly to investigate the knowledge and attitudes towards pain management among oncology nurses working in NCCCR and to identify factors that influence their knowledge and attitudes regarding pain management, then to recommend strategies to improve nurse's knowledge and attitude.

Method

Study Design, setting, sample

This research study used a descriptive-correlational design to examine demographic variables and their relationship to the knowledge and attitudes of nurses toward cancer pain management. Data were collected from (NCCCR) in Qatar from February 2018 to June 2018. A cross-sectional convenient sample of Oncology registered nurses working in cancer care who had at least 3 year of experience were invited to participate in the study. The target population was 159 nurses working in six oncology units (Hematology/ oncology) inpatient, and ambulatory care units. Nurses with all degrees (diploma, bachelor, Master) were invited to participate in the study.

Instrument

The study instrument included two parts. The first part contained nurses demographic sheet developed by the researchers which had eight items; age, gender, education level, units, years of experience in nursing, and any previous formal/informal education about Cancer Pain

Management. The second part included the Knowledge and Attitudes Survey Regarding Pain (NKASRP) that was originally developed by Ferrell and McCaffery [14]. The survey has been used widely from 1987 till present. It was last revised in 2014 to reflect changes in pain management practice. Permission was granted by the author to use the tool. The survey consists of a total 39 questions which include 22 true/false questions, 13 multiple-choice questions, and 2 case studies. Construct validity was established by comparing survey scores from different levels of expertise [10]. The authors reported the psychometric properties for KAS including test-retest reliability (r > .80) and internal consistency reliability (alpha r > .70). McCaffery and Pasero indicated that a score of 80% is the minimal acceptable score on the NKASRP [14]. The instrument was utilized in the studies conducted in Jordan, UAE, and Iran [15, 10, 16].

Data analysis

Demographic and work-related characteristics of the participants were summarized using frequency distributions. For each of the sections of the knowledge and attitudes survey (T/F section, multiple choice section MCQ, and Case studies section), the percentage of correct answers on each question was obtained. For each participant, a knowledge and attitude score ranging from 0 to 100% was obtained based on that participant's percentage of correct answers among all questions. This score was summarized using the mean, standard deviation, median and range. The associations between this score and participants work-related characteristics were assessed using the independent t-test or one-way ANOVA with multiple comparisons using the Bonferroni's method when needed. A p-value of 0.05 or less was considered statistically significant. All analysis was done using IBM-SPSS (version 25, Armonk, USA)

Results

A total of 126 oncology nurses participated in the study. Most of those nurses were females (82.5%) and of age between 30 and 49 years (91.3%). The majority had a diploma in nursing (55.6%) and worked in the Wards I, II or III (59.1%). Only about 5% had work experience below 5 years and about half received a pain course in University education (46.4%) or during employment (63.2%) with about 39% having both sets of training (See Table 1).

On the True/False Knowledge and attitude questions, the rate of correct response per question ranged between 21.3% and 90.9%. The questions with the lowest number of correct answers were: "Patients may sleep in spite of severe pain", "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 ", "Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases", "Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose", " Opioids should not be used in patients with a history of substance abuse", and Vital signs are always reliable indicators of the intensity of a patient's pain". All those questions received less than 50% correct answers. The highest rate of correct answers, with rates above 89%, were for the following 4 questions:" The term 'equianalgesic' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief", "Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression", "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", and "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" (Table 2).

On the multiple-choice questions, correct answers ranged between 16.5% to 89.4% (See Table 3). Most of the participants (83.5%) didn't know that oral is the recommended route of administration of opioid analgesics for patients with persistent cancer-related pain. Similarly, 81.8% didn't know that following abrupt discontinuation of an opioid, physical dependence is manifested by sweating, yawning, diarrhea and agitation. On the other hand, the vast majority knew the peak times for morphine whether given orally (89.4%) or intravenously (89.4%). The percentage of correct answers on questions related to the two case studies ranged between 27% and 61.9% (data not shown).

The median knowledge and attitude score were 56.10% and ranged between 36.0% and 100.0% with mean± standard deviation of 58.7%±12.9%. Only 2 (1.6%) of the participants had a score of 100% correct answers, and only 7 (5.6%) had a score above 80%. A quarter (25.4%) of the participants had scores below 50% (see Table 4). There were no significant associations between the knowledge and attitudes scores and any of the demographic and work-related variables except for the Unit where the nurses work. In particular, nurses working in the Palliative Care Unit had significant higher average knowledge and attitudes score than all of the other units (p<0.01, Table 1).

Table 1: Demographic Characteristics of the sample

Variable		N	%	Knowledge and attitudes score		p-value
				Mean	SD	
Age	23-29	8	6.3%	57.0%	9.3%	0.534
	30-49	115	91.3%	59.0%	13.1%	
	50 and above	3	2.4%	51.1%	10.0%	
Gender	Male	22	17.5%	59.5%	12.5%	0.761
	Female	104	82.5%	58.6%	13.0%	
Unit	Day Care	6	4.7%	57.7%	8.3%	<0.01*
	OPD	10	7.9%	51.8%	9.8%	
	Palliative Care	18	14.2%	71.2%	14.8%	
	Urgent Care	18	14.2%	54.8%	8.8%	
	Ward I	35	27.6%	56.4%	9.8%	
	Ward II	35	27.6%	59.9%	14.4%	
	Ward III	5	3.9%	51.2%	7.7%	
Education	Diploma	70	55.6%	59.1%	12.4%	0.444
	Bachelor	51	40.5%	57.6%	13.4%	
	Masters	5	4.0%	64.9%	14.4%	
Experience	3-5 years	6	4.8%	60.6%	7.7%	0.793
	5-10 years	40	31.7%	57.5%	13.1%	
	10-15 years	45	35.7%	58.3%	12.1%	
	>15 years	35	27.8%	60.3%	14.4%	
Pain course	None	37	29.6%	0.5737	0.1306	0.728
	Only during education	9	7.2%	0.5526	0.1304	
	Only during employment	30	24.0%	0.5987	0.1117	
	Both during education and employment	49	39.2%	0.5892	0.1291	

*significant difference between units with Palliative Care significantly higher than all the other Units

Table 2: Rate of Correct answer on the T/F knowledge questions

Question	Correct/total	% correct
Patients may sleep in spite of severe pain.	26/122	21.3
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.	41/122	33.6
Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.	49/123	39.8
Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.	51/122	41.8
Opioid should not be used in patients with a history of substance abuse.	52/122	42.6
Vital signs are always reliable indicators of the intensity of a patient's pain.	53/124	42.7
Patients who can be distracted from pain usually do not have severe pain.	62/123	50.4
Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.	62/122	50.8
Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5-10 mg of morphine PO.	67/121	55.4
Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.	70/124	56.5
Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regimen.	69/121	57.0
Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	73/122	59.8
The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.	73/122	59.8
Patients' spiritual beliefs may lead them to think pain and suffering are necessary.	74/122	60.7
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.	77/121	63.6
Patients should be encouraged to endure as much pain as possible before using an opioid.	80/122	65.6
Elderly patients cannot tolerate opioids for pain relief.	100/122	82.0
After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.	105/121	86.8
The term 'equianalgesic' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.	109/122	89.3
Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.	109/122	89.3
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.	108/120	90.0
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.	110/121	90.9

Table 3: Rate of Correct answer on the MCQ knowledge questions

Question	N correct/total answers	% correct answers
The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is oral	20/121	16.5
Following abrupt discontinuation of an opioid, physical dependence is manifested by sweating, yawning, diarrhea and agitation	22/121	18.2
A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is less than 1%	30/123	24.4
5-15% of patients who develop pain are likely to have an alcohol and/or drug abuse problem	48/120	40.0
Obstructive sleep apnea is an important risk factor for opioid induced respiratory depression	61/123	49.6
A 30 mg dose of oral morphine is approximately equivalent to Morphine 10 mg IV	65/123	52.8
Individually assessing patients to determine cultural influences is the best approach for cultural considerations in caring for patients in pain	68/118	57.6
All the following: Ibuprofen, hydromorphone and Gabapentin are useful for treatment of cancer pain?	78/123	63.4
The most likely reason a patient with pain would request increased doses of pain medication is that the patient is experiencing increased pain.	86/121	71.1
The recommended route of administration of opioid analgesics for patients with brief, severe pain of sudden onset, such as trauma or postoperative pain is intravenous	88/123	71.5
The most accurate judge of the intensity of the patient's pain is the patient	104/118	88.1
Analgesics for post-operative pain should initially be given around the clock on a fixed schedule	109/123	88.6
Morphine is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients.	109/122	89.3
The time to peak effect for morphine given IV is 15 min	110/123	89.4
The time to peak effect for morphine given orally is 1-2 hours	110/123	89.4

Table 4: Knowledge and Attitudes Score

Knowledge and attitudes Score	Summary statistic
Mean±SD	58.7±12.9
Median (Range)	56.1 (35.7, 100.0)
Score Rage	N (%)
0-49	32 (25.4%)
50-59	45 (35.7%)
60-69	26 (20.6%)
70-79	16 (12.7%)
80-89	1 (0.8%)

Discussion

This study is the first of its kind to survey knowledge and attitudes to pain and pain management among nurses working in an Oncology setting in Qatar. The purpose of this study was to explore the knowledge and attitude of nurses working in the Cancer Center regarding pain management and to find out what might be considered as barriers to provide optimal Cancer pain management.

Multiple studies have been published worldwide regarding pain and pain management practice [6-8, 17,18]. One of the largest studies is the one conduced in Norway by Utne, et al., (2019). The authors concluded that oncology nurses received pain education scores higher in NKASRP than nurses who didn't receive any prior pain education course. This reflects better knowledge in the first group. The advantage of this study is that the oncology nurses scored significantly higher and had a mean score in NKAS of 75% which indicated higher level of knowledge and good attitude toward pain. Despite the sample in the study representing all countries, in Norway most of the respondents were oncology nurses and thus there were no representatives from nurses who work in other cancer care such as hematology and palliative care.

Similar, to other areas around the world, there were studies in the Middle East that addressed the oncology nurse's knowledge and attitude toward pain management using NKASRP [3, 9, 10, 11, 13, 15]. Most of those studies concluded that level of awareness regarding cancer pain management is weak in most Arab countries regardless of the country in which the study has been performed. For instance; a study conducted in UAE found suboptimal pain knowledge and beliefs among UAE oncology nurses. The study was conducted in two large hospitals in UAE with population of 115 nurses, which significantly limits the generalizability to other populations in the UAE and the Middle East. Another limitation is that the study sample included nurses working in general oncology/Hematology units.

In contrast to the previous studies, the findings of the current study are unique. The study was conducted in a comprehensive Center (NCCCR) which consists of oncology, hematology, and palliative care units. Most of the earlier studies were conducted either in oncology or oncology and hematology settings; none of the earlier studies explored the knowledge of palliative care nurses. And the reason behind that might be that palliative care in some Western countries is delivered either through home based palliative care or through hospices care [20, 21]. Hospice care is a form of community-based palliative care predominantly serving patients and their loved-ones at the end of life. Both hospice care and palliative care is considered as supportive care for patients with advanced-stage disease [20, 21]. The current study exclusively includes nurses from three sectors of cancer care (oncology/hematology/palliative care).

One of the important findings of current study revealed that nurses working in palliative care unit had a mean NKASRP total score of 71.2% indicating a relatively high level of knowledge and good attitudes toward pain and pain management comparing to nurses in Hematology / Oncology units. The first reason for the high score is that palliative care nurses in our center have a background of hematology and oncology which can positively affect their decision about pain management. Also, palliative care nurses are dealing with highly symptomatic patients where pain is more prevalent, and they are more exposed to opioid and analgesia than nurses in hematology and oncology wards.

Another reason for high scores among palliative care nurses is prior pain education. The nurses in palliative care unit attended a palliative passport program which was designed and reviewed by the education department of NCCCR and Palliative Clinical Nurse Specialists. Palliative Care Passport is designed to improve the knowledge, skills and attitudes of nurses directly working with patients and their families who have palliative care needs, It is comprised of three days classroom contact with clinical-based activities to be undertaken once a week for a total of three weeks.

The three mainstream courses include: symptoms management, pain management and end of life care. Subsequently, Palliative care nurses' scores were significantly higher than their counterparts with no pain management education. This course was developed as a response to the recommendation of an earlier study conducted by Al-kindi et al., (2014) to assess the need for palliative education among oncology nurses in Qatar. The study concluded that there is lack of formal palliative care education including pain and pain management among palliative care nurses in Qatar.

Overall, the current study results showed that oncology nurses' knowledge and attitude toward pain and pain management was not optimal. The average NKASRP score of participants was 56.10%, lower than the passing score of 80%. This corresponds with the result of an earlier qualitative study conducted by Yassin et al., (2016) in order to explore the social organization of nurse's pain management work in Qatar. The study concluded that nurse's poor knowledge about pain management was one of the reasons for delay in pain intervention. However, comparing the result of the current study with other studies conducted in the Middle East region using the same tool indicates that the score of oncology nurses in Qatar were slightly higher than what was reported in UAE, Saudi Arabia, Jordan and Iran [10,11, 16, 17].

Surprisingly, there was no correlation between (NKASRP) scores and demographic variables (age, gender, level education, work experience and prior general pain course). 39% of the participants have attended a pain course during their education and employment, however this didn't make any difference to knowledge and attitudes of those nurses. This might be due to inadequate preparation in the nursing curriculum and in continued professional education. It has been well documented in the literature that educational programs improve nurses' knowledge and skills for pain management [13].

In the current study, there was a gap in the knowledge of pharmacology related to pain management as well as a deficit in the knowledge related to addiction and substance abuse. Specific areas of deficiency were in opioid dosing, use of opioids in patients with history of substance abuse, combination of opioid with other medications, best routes to administer analgesia, and pain assessment. Most nurses scored less than 50% in these questions which suggests that nurses have myths and misconceptions about opioid use. Similarly, prior research has found that insufficient knowledge about the physiology of pain and misconceptions about opioids side effects were the most perceived barriers that hinder Cancer Pain Management [18]. Thus, greater knowledge about pain and reinforcement of positive attitudes toward opioid use are necessary.

The participants in the survey were highly diverse in terms of culture, region and nationality. Such diversity is common in other gulf region (Saudi Arabia, UAE, and Oman) where most of the nurses working were expatriates. Although in the current study the impact of culture on oncology nurse's knowledge was not measured, Darawad, et al., found a variation of nurses' scores in NKASRP was due to cultural factors about pain assessment and management [17]. Likewise, Alqahtani and Jone reported significant differences in (NKASRP) scores among culturally heterogeneous nurse populations [8]. Therefore, there is a need for an educational program that unifies and overcomes the diversity among oncology nurses in Qatar.

The result of this study provides an overview of the knowledge and attitude of oncology nurses working in Cancer Center in Qatar. According to the World Health Organization (WHO) pain management should be achievable in up to 90% of all cancer patients and suboptimal cancer pain management will result in patient suffering [19]. Nurses play a crucial role in the treatment of patients with cancer pain. Therefore, a nurse's ability to effectively assess pain is vital to ensure that sufficient pain management is provided. The result of this study is an indication that the current pain educational program needs to be revisited. Thus, there is an urgent need to develop a specialized educational program for cancer pain management. In addition, nursing universities can benefit from this research by developing curricula that incorporates pain assessment and management.

Conclusion

The present study explored the knowledge and attitudes of nurses working in a Cancer center in Qatar. The overall results show that nurses have suboptimal knowledge about cancer pain assessment and management. Palliative care nurses scored higher than nurses in oncology and hematology units due to several reasons, one of which is their involvement in a prior specialized course. Therefore, pain management education needs to go beyond traditional training. Specialized courses for pain management are required to improve nurse knowledge and skills regarding cancer pain assessment and management. The organization and quality development should encourage continued professional development activities and encourage upgrading the level of pain management courses.

Data availability

The datasets generated and/or analyzed in the current study are not available publicly as eligible patients were informed at the time of the survey that their data would be stored securely and confidentially.

Code availability: not available

Compliance with Ethical Standards

Ethics approval:

The study was approved by the Medical Research Center (MRC) as well as the research committee at NCCCR. Participants who met the inclusion criteria were provided with explanations regarding the purpose, study nature, the benefits and risks and measured to protect confidentiality and privacy of the participants. The surveys did not include identification that would tie the individual nurse to the survey. Furthermore, participants were informed that their participation is voluntary, and they need to complete the questionnaire in the hospital, in private room

Consent to participate:

Verbal consent was obtained from all participants prior to participate in the study (as per the requirements for the Hamad Medical Corporation, Medical Research Center).

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