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Cancer Pain Management at Oncology Units: Comparing Knowledge, Attitudes and Perceived Barriers Between Physicians and Nurses

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Abstract
Pain is a major symptom that causes suffering among patients diagnosed with cancer. Identifying physicians' and nurses' knowledge, attitudes, and their perceived barriers of cancer pain management is considered an essential step in improving cancer pain relief. The purposes of this study are to compare physicians' and nurses' knowledge and attitudes toward cancer pain management (CPM) and describe their perceived barriers to CPM at oncology units. A descriptive cross-sectional design was utilized to obtain data through self-report questionnaire. The total number of sample size was 207 participants (72 physicians and 135 nurses). Findings revealed that both physicians and nurses had fair knowledge and attitudes toward CPM. Physicians had significantly higher knowledge and better attitudes than nurses (62.3 vs. 51.5%, respectively). Physicians were knowledgeable about pharmacological pain management and opioid addiction but had negative attitudes toward pain assessment. Nurses' knowledge was better in regard of CPM guidelines, while they had poor knowledge about pharmacological pain management and opioid addiction. Physicians and nurses perceived knowledge deficit, lack of pain assessment, opioid unavailability, and lack of psychological interventions as the most common barriers to CPM. It is recommended to integrate recent evidence-based guidelines about CPM in oncology units that aim to improve practice. Offering continuing education courses in hospitals guided by pain teams is another essential recommendation for effective CPM.

Keywords Physicians · Nurses · Cancer pain management · Knowledge and attitudes · Barriers · Oncology · Jordan

Introduction

Cancer has become terrifying as it is considered as one of the major causes of death globally [1]. Ferlay et al. [2] estimated that by the year 2030, there will be 21.4 million new cancer cases yearly, and 13.2 million patients are expected to die from cancer. Among Jordanian population, the incidence of cancer has increased significantly to reach 8744 new cases in 2013, with breast cancer in females and lung cancer in males being the most frequent types [3].

During the trajectory of cancer, many symptoms were reported specially during advanced stages of the disease, where pain is the most prevalent and disturbing symptom [4]. Moderate to severe pain was reported in 39.3% of survivor patients with cancer and in 66.4% of patients in advanced stages [5]. In Jordan, 73% of patients diagnosed with cancer were found to suffer from moderate to severe pain, while 63% of their pain was inadequately treated [6].

Managing cancer pain (CP) is possible as different evidences suggested that 80–90% of CP can be relieved by following the World Health Organization (WHO) guidelines in cancer pain management (CPM) [7, 8]. However, CP continues to be a worldwide issue and it is still inadequately treated [5]. The obstacles that hinder the success of efficient CPM could be related to the patients and their families, healthcare professionals (HCPs), and healthcare systems [9]. Regrettably, lack of knowledge and negative attitudes were considered as major barriers to CPM among physicians [10, 11] and nurses [12, 13].

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Different studies were conducted in Jordan to assess nurses' knowledge and attitudes toward PM [14, 15]. None of these studies targeted nurses working at the oncology units. As well, no studies assessed Jordanian physicians' knowledge and attitudes toward CPM. Only one study examined and compared knowledge and attitudes toward PM among Jordanian HCPs including physicians, nurses, and pharmacists [16]. In this study, insufficient knowledge regarding pain was found where the percent of correctly answered questions were 29% for all HCPs, and physicians and pharmacists were more knowledgeable than nurses. However, most of the evidences revealed that physicians have much better knowledge and attitude toward PM comparing with nurses [17, 18].

Barriers to CPM have been studied in many published research among different countries. Some authors identified those barriers from physicians' perspective [11, 19], which is actually missed in the Jordanian literatures. Others explored them from nurses' perspective [12, 15]. However, recognizing those barriers facilitates an access to optimal CPM. Kim et al. (2011) reported that physicians' unwillingness to prescribe opiates, fear of opioid addiction and tolerance, and the fright from side effects of opioids as the most recurrent perceived barriers were [10]. Another study included 2000 oncologists revealed that medical oncologists perceived poor pain assessment, patient's fear from taking opioids, and reluctance of physicians to prescribed opioids as a real obstacles in treating CP [20]. Regarding nurses, many barriers were reported including knowledge deficit and negative attitudes toward PM and lack of education concerning CPM [12]. In addition, they considered opioids addiction misconception as a common barrier among HCPs.

Physicians and nurses play a major role in CP assessment and management. Their role implies assessing and reassessing of patients' pain, choosing and administering the appropriate treatment, using non-pharmacological PM interventions, educating patients and their families about pain, and advocating for patients [21]. Thus, sufficient knowledge and positive attitudes toward PM are required to achieve those roles. Therefore, this study aimed to evaluate and compare physicians' and nurses' knowledge and attitudes toward CPM, and to describe the perceived barriers to CPM at oncology units.

Research Questions

1- What level of knowledge and attitudes toward CPM do Jordanian physicians and nurses have?
2- What are the perceived barriers to CPM among Jordanian physicians and nurses?
3- Is there a significant difference between Jordanian physicians' and nurses' knowledge and attitudes toward CPM?
4- What are the differences in Jordanian physicians' and nurses' knowledge and attitudes toward CPM based on their demographics?

Methods

Setting and Sample

This descriptive cross-sectional study recruited physicians and nurses who were working at oncology units from the military, educational, oncology center, and public sectors in Jordan, which there are only four oncology units in Jordan. However, only adult medical and surgical floors were included from the oncology center. These oncology units include a total of 300 beds, 88 physicians, and 150 nurses. All physicians and registered nurses working at the selected oncology units for at least 3 months were asked to participate.

Instruments

Physicians' and nurses' knowledge and attitudes toward CPM were examined using the modified version of Knowledge and Attitudes Survey Regarding Pain (KAS) [22]. The KAS has 39 questions asking about knowledge and attitudes toward CPM including 21 true/false and 18 multiple-choice questions. The total mean scores of the correct answers may range from 0 to 39, considering the mean scores of less than 50% as poor knowledge and negative attitudes toward CPM, 50–75% as fair, and more than 75% as good [23].

To collect data about the perceived barriers of CPM, participants were asked to rank 14 barriers to CPM in their setting, and to rate each item on a4-point Likert scale ranging from 1 (not a problem) to 4 (serious problem). Originally, this instrument is part of the Physician Cancer Pain Survey developed by the Eastern Cooperative Oncology Group (ECOG) [24]. In the current study, the authors added the 14thitem that asks about opioids unavailability in hospital. The rationale of adding this item is the many evidences that indicate opioids unavailability as a barrier to CPM [9, 19]. In addition, there was a special part developed by the researchers asking about participants' demographics(educational level, gender, age, experience in general and in oncology unit, education about pain, working in pain team, and physicians' especially).

Data Collection

This study was approved by the Scientific Research Committee at the School of Nursing-the University of Jordan and the Institutional Review Board (IRB) of the participating hospitals. Anonymity and other participants' rights were maintained. Data collection process was started after providing full explanation about the study for physicians' manager and head-nurse in each participating unit who provided the data collector with lists of physicians and nurses names. Among different visits and during duty days, the data

collector met each physician and nurse separately and provided a complete clarification about the study. Participants who agreed to participate in the study were asked to complete the questionnaire that took 25–30 min. Then, returned questionnaires were checked for missing data and prepared for analysis.

Data Analyses

The data were entered and coded into IBM Statistical Package for the Social Science (SPSS) version 22.0. Means and standard deviations were utilized to describe demographic characteristics, analyze data about physicians' and nurses' knowledge and attitudes toward CPM, and to describe the perceived barriers to CPM at oncology units. Independent sample *t* test was used to find differences between physicians' and nurses' knowledge, attitudes toward and perceived barriers to CPM. In addition, this test was used to find the differences of knowledge and attitude scores based on the participants' demographics that comprise two groups, whereas analysis of variance (ANOVA) test was utilized to find the differences among the demographics that contain more than two groups. In all statistics, *P* value equal or less than 0.05 was considered significant.

Results

Sample Characteristics

The total number of returned questionnaires was 75 from physicians and 139 from nurses with a response rate of 86.2 and 91.4%, respectively. Three physicians and four nurses were excluded because of missing data. The mean of physicians' age was 30.5 years ($SD = 7.2$) ranged between 24 and 59 years. Regarding total work experience, the mean score was 4.9 years ($SD = 5.6$) with a range between 1 and 30 years. The range period of oncology experience found to be from 6 months to 12 years with a mean score of 2.6 years ($SD = 2.5$). The majority of the participating physicians were recruited from the specialized oncology center (50%). Sixty-one percent of physicians were male (44).

The mean age of participating nurses was 28.1 year ($SD = 4.09$) and the mean of their experience in nursing was 5.4 years ($SD = 4.1$). More than half were male ($n = 74$), and the majority of them had bachelor degree (92.6%, $n = 125$), Furthermore, about 65% of nurses ($n = 89$) did not have any course in PM. In addition, 94% of them did not work in pain team. Further details about participants' characteristics are presented in Table 1.

Physicians' and Nurses' Knowledge and Attitudes Toward CPM

Significantly, physicians had higher knowledge and attitudes score ($t = -5.8$, $df = 205$, $P < 0.00$) than nurses (24.3/39, $SD = 5.2$ vs. 20.08, $SD = 4.8$, respectively). Physicians' scores ranged from 14 to 34, while nurses' ranged from 11 to 37 out of 39. Sorting the correct answers by using the frequency and percentage for each question showed that both physicians and nurses had high correct scores in the question "adjust dose of opioid in response to patient's pain" (97.2 and 81.5%, respectively) and "identifying the patient as the most reliable person in reporting the severity of pain" (84.7 and 74.1%, respectively). In addition, physicians were able to define opioid addiction correctly (84.7%). Whereas, 80.7% of nurses knew that using combined analgesics is better in PM (Table 2).

Conversely, physicians and nurses seemed to have least correct answers in the questions that asking about the administration of morphine PRN dose to manage the acute severe pain (22.2 and 23%, respectively). Also, both physicians and nurses did not have sufficient knowledge regarding the manifestations of opioids physical dependency where correct answers were only 38.9% among physicians and 28.1% among nurses. Further analysis showed that physicians had poor knowledge about the estimated percent of having pain in patient with drug abuse issues, and the significant percent of developing respiratory depression among morphine user. The percentages of correct answer for those questions were 33.3%, and 33.3%, respectively. Moreover, only 43 nurses (31.9%) knew the recommended route of opioids administration in managing CP. Table 3 presents the least correctly answered questions by physicians and nurses.

Using inferential analysis revealed several significant differences in physicians' and nurses' CPM knowledge and attitude scores based on their demographics (Table 4). Significantly, physicians' knowledge and attitudes score found to be different among the four oncology units ($P = 0.005$). Furthermore, physicians who worked in pain team, significantly, have more knowledge and attitudes score than who did not ($P < .001$). In addition, with comparing physicians' CPM knowledge and attitudes with their educational level and specialty, results revealed that there were significant differences in knowledge and attitudes score ($P < .001$, $P = .004$, respectively). Moreover, using Pearson's correlation proved that physicians' knowledge and attitudes score is positively correlated with their age ($r = 0.27$, $P = .019$). On the other hand, other independent variables such as gender, having pain training course, total years of experience, and oncology experience did not reveal any significant differences or relationship with knowledge and attitudes score.

Regarding nurses, data revealed that having pain education course and having experience in a pain team were related to significantly higher knowledge and attitudes scores ($P < .001$,

Table 1 Descriptive analysis of physicians' and nurses' demographics

Variable	Nurses ($N = 135$)		Physicians ($N = 72$)	
	Mean (SD)	*n* (%)	Mean (SD)	*n* (%)
Age (years)	28.1 (4.09)		30.5 (7.2)	
Total experience in nursing (years)	5.4 (4.1)		4.9 (5.6)	
Oncology experience (years)	3.7 (2.6)		2.6 (2.5)	
Nurses' educational level				
Bachelor		125 (92.6)		
Master		10 (7.4)		
Hospitals				
Public		15 (11.1)		10 (13.9)
Oncology center		71 (52.6)		36 (50)
Educational		15 (11.1)		15 (20.8)
Military		34 (25.2)		11 (15.3)
Gender				
Male		74 (54.8)		44 (61.1)
Female		61 (45.2)		28 (38.9)
Working in a pain team				
Yes		8 (5.9)		24 (33.3)
No		127 (94.1)		48 (66.7)
Pain management training				
Yes		46 (34.1)		21 (29.2)
No		89 (65)		51 (70)
Physicians' education level				
Resident 1				21 (29.2)
Resident 2				10 (13.9)
Resident 3				6 (8.3)
Resident 4				8 (11.1)
Resident 5				9 (12.5)
Resident 6				2 (2.8)
Fellow				8 (11.1)
Consultant				8 (11.1)
Physicians' specialty				
Medical				38 (52.8)
Surgical				15 (20.8)
Oncology				13 (18.1)
Anesthetist				6 (8.3)

$P < .001$, respectively). In contrast, no other significant differences were found in nurses' knowledge and attitude scores according to other demographics.

Physicians' and Nurses' Perceived Barriers to CPM

The results showed that physicians ranked lack of pain assessment as the most common problem to CPM ($M = 3.13$, $SD = 0.9$). Followed by insufficient staff's knowledge regarding pain ($M = 3.07$, $SD = 0.95$) and unavailability of opioids ($M = 2.85$, $SD = 1.18$) were considered as serious problems. Whereas, patients' unwillingness to notify their pain ($M = 2.35$, $SD = 1.09$) and unavailability of different types of analgesics were classified as the least barriers ($M = 2.4$, SD = 1.04).On the other hand, nurses reported that staffs' knowledge deficit regarding pain ($M = 2.76$, SD = 0.93), insufficient psychological support interventions ($M = 2.61$, $SD = 0.88$), and lack of pain assessment ($M = 2.58$, $SD = 0.95$) as the most common barriers that hinder CPM process. In contrast, patients' unwillingness to inform about their pain and their unwillingness to get opioids were perceived as the least barriers ($M = 2.07$, $SD = 0.96$, and $M = 2.25$, $SD = 0.9$, respectively).

Table 2 The most four physicians' and nurses' correctly answered questions of the knowledge and attitudes scale

Question	Physicians ($N = 72$)	Nurses ($N = 135$)
Q 15) After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response (True).	70 (97.2%)	110 (81.5%)
Q 30) The most accurate judge of the intensity of the patient's pain is (The patient).	61 (84.7%)	100 (74.1%)
Q 21) 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 (True).	61 (84.7%)	
Q 23) The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as breakthrough cancer pain, trauma pain or postoperative pain is? (Intravenous).	59 (81.8%)	
Q 7) Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent (True).		109 (80.7%)
Q 24) Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients? (Morphine)		98 (72.6%)

Table 5 shows more details about physicians' and nurses' perceived barriers.

Discussion

Physicians' and Nurses' Knowledge and Attitudes Toward CPM

This study revealed that physicians working at oncology units had fair knowledge and attitudes toward CPM where their mean scores of correct answers was 24/39 (62.3%). Interestingly, this study is the first study that found fair knowledge and attitudes toward CPM among physicians. Different results were found in many studies where physicians had poor knowledge and attitudes toward CPM [16, 19]. About nurses, they had fair knowledge and attitudes toward CPM, but had lower score (51.5%) than physicians. However, this mean score was higher than those reported in previous Jordanian studies using the same instrument including 48.4% [25] and 42.7% [26]. This variation could be explained by including nurses from non-oncology units. However, the results were variant when compared globally. For example, similar results were found in Italy 53.8% [27] and Turkey 54.1% [28]. Conversely, higher scores were reported in the USA (86.4%)

Table 3 The least four physicians' and nurses' correctly answered questions of the KAS

Question	Physicians ($N = 72$)	Nurses ($N = 135$)
Q37) 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: (Administer morphine 3 mg IV now).	16 (22.2%)	31 (23%)
Q 27) 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 is: (Less than 1%).	24 (33.3%)	45 (33.3%)
Q 32) How likely is it that the patients who develop pain already have an alcohol and/or drug abuse problem? (5–15%)	24 (33.3%)	
Q 35) Following abrupt discontinuation of an opioid, physical dependence is manifested by the following: (sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued)	28 (38.9%)	38 (28.1%)
Q 22) The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is: (Oral).		43 (31.9%)

Table 4 The significant differences of physicians' and nurses' CPM knowledge and attitudes score based on their demographics

	M (SD)	*t*	df	*P* value
Physicians (*N* = 72)				
Working in a pain team?		− 4.2	70	< .001**
Yes	27.7 (4.5)			
No	22.6 (4.8)			
Hospitals		3	4.6	.005***
Public	21.9 (4.3)			
Oncology center	26.4 (5.1)			
Educational	21.6 (4.5)			
Military	23.6 (4.8)			
Education level		7	5.6	< .001***
Resident	22.2 (3.8)			
Fellow	26.7 (5.7)			
Consultant	30.25 (2.9)			
Specialty		3	4.8	.004***
Medical	24.3 (5.1)			
Surgical	21.1 (3.2)			
Oncology	25.6 (5.8)			
Anesthetist	29.6 (3.2)			
Nurses (*N* = 135)				
Pain management training?		− 3.6	133	< .001**
Yes	22.1 (5.8)			
No	19 (3.8)			
Working in a pain team?		− 7.1	133	< .001**
Yes	30.2 (5.5)			
No	19.4 (4)			

*P value significant at ≤ 0.05 using Pearson's correlation

**P value significant at ≤ 0.05 using t test

***P value significant at ≤ 0.05 using ANOVA

[29], and lower results were found in Ethiopia 37.1% [13]. The variation of nurses' knowledge and attitudes level regarding CPM among different countries could be due cultural beliefs about pain assessment management [30]. For instance, nurses in Jordan fear from using opioids due to its legal consequences and they wrongly believe that using narcotics is forbidden in Islam except in specific emergency conditions [15].

Nurses in this study had lack of knowledge regarding pharmacological CPM. For instance, they had poor knowledge about the dose of PRN morphine and their judgment to use PRN morphine is variant according to the patient's expressions. This attitude is consistent with the European Society for Oncology (ESMO) guidelines regarding CPM that recommended better pain assessment and rating by the patients themselves [31]. Although patient's self-report of pain is the most accurate method of pain assessment, many nurses did not know that [13], and many of them suggested that healthcare are more able to determine the presence of pain and its severity [14]. Conversely, most of the pharmacology related questions were correctly answered by the participating physicians. However, the results contradict many previous studies that report physicians' knowledge deficit about analgesics [19, 20].

In the current study, many variables significantly physicians' and nurses' CPM knowledge and attitude score. Physicians and nurses who had an educational pain program significantly had better knowledge and attitude score toward CPM. Many earlier studies among nurses were consistent with this result [20, 26]. This indicates that providing educational training in this field is an essential step to improve physicians' and nurses' knowledge and attitudes toward CPM. Actually, most of the oncology units in Jordan lack the use of evidence-based guidelines in managing CP, and they do not pay enough attention to providing

Table 5 Means of physicians' and nurses' perceived barriers to CPM

Items	Physicians (*n* = 72) Mean (SD)	Nurses (*n* = 135) Mean (SD)
Patient reluctance to report pain.	2.35 (1.09)	2.07 (0.96)
Patient reluctance to take opioids.	2.57 (0.86)	2.25 (0.9)
Medical staff reluctance to prescribe opioids.	2.5 (0.91)	2.28 (0.88)
Nursing staff reluctance to administer opioids.	2.58 (1.07)	2.36 (1.01)
Excessive state regulation of prescribing analgesics.	2.53 (1)	2.33 (0.93)
Inadequate assessment of pain and pain relief.	3.13 (0.9)	2.58 (0.95)
Inadequate staff knowledge of PM.	3.07 (0.95)	2.76 (0.93)
Lack of opioids availability.	2.85 (1.18)	2.29 (1)
Lack of available neuro-destructive procedures.	2.5 (0.91)	2.34 (1.02)
Lack of psychological support services.	2.69 (0.94)	2.61 (0.88)
Lack of access to a wide range of analgesics.	2.4 (1.04)	2.33 (0.92)
Lack of equipment or skills.	2.71 (1.1)	2.32 (0.94)
Lack of access to professionals who practice specialized methods.	2.68 (0.93)	2.31 (0.9)
Patient inability to pay for services or analgesic.	2.74 (1)	2.33 (0.93)

continuing education to the staff in their units [32]. So, it is recommended to focus on this topic for the staff in the hospitals and to include CPM in the curricula for medical and nursing students. In addition, a significant higher score was found among physicians and nurses who have a history in working with a pain team than others. Having this opportunity makes physicians and nurses more confident in PM which improves their knowledge and attitudes in this regard. However, this variable has not been well-studied in the literature. Unfortunately, only few hospitals in Jordan have pain teams, which should raise the decision makers' attention to establishing such teams in our hospitals due to their positive impact in managing patients' pain and improving their quality of life [33].

Physicians' and Nurses' Perceived Barriers to CPM

Physicians and nurses identified healthcare providers' CPM knowledge deficit as one of the main barriers. Insufficient knowledge regarding physiology of pain and opioids side effects were the most perceived barriers that hinder CPM as evident by a previous study conducted in Jordan [12]. Lack of integrating sufficient education about pain in nursing and medical curricula and lack of training in this field could be the reasons for such knowledge deficit [34].

In addition, physicians and nurses in this study pointed out to insufficient pain assessment as another major barrier to CPM, which was reported in different studies [12, 35]. Nurses' lack of adherence to pain assessment may be due to lack of their awareness about the availability of pain assessment scales in practice [17] or could be related to working overload and staff shortage that are well-documented in Jordanian nursing work environment [36, 37], in addition to the absence of pain assessment protocols hospitals that is considered as another barrier to perform pain assessment [38].

In contrast, the least rated barriers in our study were patients-related barriers including patients' refraining to use opioids and report pain, which was in concordance to another Jordanian study [16]. The causes of patients' refraining were patients' fear of opioids addiction and from having their side effect [39]. Another reason may be that Jordanian patients' believe that tolerating pain and not disclosing it might be rewarded by God [15], or, in some culture in Jordan, male patients are reluctant to state pain because it is considered as a stigma which is, somewhat, similar to why black persons less report pain than white persons [40]. This guides us to the need of establishing educational programs within the context of culture and religious beliefs.

Surprisingly, nurses considered insufficiency of psychological support services as a major barrier to CPM. This finding is scarce in the literature while nurses in only few old studies identified this point as a major barrier to CPM [41, 42]. Further understanding of the impact of psychological support in CPM from the Jordanian perspective by conducting studies to explore nurses' perceptions regarding the importance of the psychological support in CPM, and the patient's and their families' needs for psychological services to relief CP, and its impact in CPM among Jordanian patients with cancer are required.

Strengths and Limitations of the Study

This was the first study in Jordan that examined the knowledge and attitudes of physicians and nurses working at oncology units toward CPM, in addition to exploring barriers to CPM from the physicians' perspective in Jordan. Moreover, this was the first time, among all literature, that the KAS tool was used among physicians to measure their knowledge and attitudes toward CPM, which will support using the KAS among different healthcare professionals. On the other hand, data in this study were obtained from physicians and nurses working at oncology units in four healthcare sectors in Jordan, thus, generalizing the result to other physicians and nurses working in other departments could be limited. So, conducting such studies by including larger number of physicians and nurses and from other departments using other methods in data collection is highly recommended.

Conclusion

This study found both physicians and nurses to have fair knowledge and attitudes toward CPM, and they seemed to be knowledgeable in the questions regarding the major principles of CPM guidelines. Moreover, they perceived that knowledge deficit, lack of pain assessment, lack of psychological support, and opioids unavailability as the most common barriers to CPM. However, it is recommended to integrate recent evidence-based guidelines about CPM in oncology units that aim to improve practice. Providing accessible written texts, online database, and other educational material will keep physicians and nurses updated with recent evidences that enhance their knowledge. Moreover, adopting pain assessment tools to be used in the oncology units is considered vital. Offering continuing education courses in hospitals guided by pain teams is another essential recommendation to manage CP effectively. Finally, further follow-up studies are needed to investigate the efficiency of PM strategies in Jordanian hospitals.

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