

Knowledge, attitudes and practices on postoperative pain management among registered nurses in a private hospital in Selangor-Malaysia

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Knowledge, attitudes and practices on postoperative pain management among registered nurses in a private hospital in Selangor-Malaysia

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Abstract

Background : Postoperative pain is an important aspect of patient care. It occurs when there is tissue injury and muscle spasms following surgery. The goal of postoperative pain management is to minimize discomfort and side effects. Poor pain management can result in patient discomfort, complications, slow recovery, and longer hospital. Therefore, it is crucial for registered nurses to have a good understanding of postoperative pain assessment tools in order to provide the best pain management for their patients.

Purpose: To assessed knowledge and attitude related to pain management practices among registered nurses (m) in postoperative patients.

Method: In this study, a descriptive quantitative cross-sectional survey design was used. A questionnaire was administered, consisting of four parts. The first part collected socio-demographic data from Registered Nurses. The second part contained 13 true and false questions to evaluate their knowledge level. The third part consisted of 14 questions to assess the attitudes of Registered Nurses, and the fourth part consisted of 18 questions using a Likert scale to evaluate their practices. The total number of respondents was 108 Registered Nurses. The data obtained were analyzed using IBM Social Packages for the Social Sciences (SPSS) software version 26.

Results : The study finding shows that 58.2% of Registered Nurses possess adequate knowledge regarding postoperative pain management, while 41.8% lack sufficient knowledge. These nurses agree that effective analgesia is crucial in postoperative care, with 90.8% recognizing the importance of pain measurement instruments. Providing a clean and comfortable ward with a neatly made bed is the most commonly practised intervention for pain relief among Registered Nurses. Additionally, the study found a positive correlation between age, years of clinical experience, and pain management practices.

Conclusion: According to the findings, there is significant variation in the knowledge, attitude, and practices of registered nurses when it comes to managing postoperative pain. To ensure that patients receive helpful and effective pain management after surgery, it is important for nurses to participate in ongoing professional development activities.

Keywords: Knowledge; Attitudes; Practices; Postoperative; Pain; Management; Registered Nurses

INTRODUCTION

International Association for the Study of Pain defined pain as "unpleasant sensory and emotional experiences associated with actual or potential tissue damage or described in terms of such damage"

(Treede, 2018). Pain also can be well-defined as whatever the suffering individual says it is, present each time the experiencing person declares it does (Pasero, C., 2011; Raja S et al., 2021). Most surgical

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patients still experience acute postoperative pain. Most surgical patients experience acute postoperative pain, but evidence suggests that less than half report adequate postoperative pain relief (Chou et al., 2016).

Postoperative pain is not adequately managed in greater than 80% of patients in the US. However, rates vary depending on such factors as the type of surgery performed, analgesic/anaesthetic intervention used, and time elapsed after surgery (Gold Randzio, Kniha, Kim, Park, Stein, & Furnas, 1991). Poorly controlled acute postoperative pain is associated with increased morbidity, functional and quality-of-life impairment, delayed recovery time, prolonged duration of opioid use, and higher healthcare costs (Adams, Varaei & Jalalinia, 2020). Inadequate treatment of postoperative pain may lead to worse outcomes and persistent postoperative pain. Ineffective postoperative pain management among registered nurses is associated with poor patient outcomes such as increased length of stay, sleep disturbance, prolonged time to first mobilization, and increased opioid use. Pain is the fifth vital signs under Ministry of Health, Malaysia (Ministry of Health Malaysia, 2018).

Most patients who have undergone surgical procedures experience acute postoperative pain, but evidence suggests that less than half reported that patients did not receive adequate postoperative pain relief (Chou et al., 2016). Nurses are in a good place to manage pain in postoperative conditions. They must ensure their interventions are tailored to individual preferences and comfort (Dessie, Asichale, Belayneh, Enyew & Hailekiros, 2019; Eccleston, 2011; Twycross, 2007).

However, several previous studies in Postoperative pain management have identified sub-optimal pain management practices among nurses associated with nurse professional culture, ward culture, inadequate theoretical knowledge, lack of priority over pain management, and lack of clarity on the evidence base for different pain management interventions. In the private Specialist Hospital, about 300 cases are monthly in the operation theatre. About 100 cases were postoperative per month in the Surgical ward. From the observation, the practices of many nurses

are still based on their personal opinion about a patient's pain rather than using their record assessment, which also contributes to the under-treatment of pain. However, there is still awareness regarding pain management and using pain assessment tools to measure the pain (Aziato, Dedey, Marfo, Asamani & Clegg-Lamptey, 2015; Dessie et al., 2019).

RESEARCH METHOD

This cross-sectional study was conducted in 2021 at one of the private Hospitals in Selangor, Malaysia. The study post operative painulation (N=150) was all Registered Nurses in Medical/Surgical/Obstetrics & Gynaecology and ICU/HDU ward for at least one year of working experience. The sampling method used in this study was stratified sampling who were Registered Nurses were selected based on including and excluding criteria. This study needed an ideal number of 150 Registered Nurses (Krejcie, 1970). However the sample for this study is 108 Registered Nurses (N=108). A self-administered questionnaire was adapted from a previous study (Menlah et al., 2018).

The instrument was used to identify the knowledge and assess the attitudes and practices on postoperative pain management of Registered Nurses. The instrument consists of four parts. Part 1 (5 items) socio-demography data consists of gender, age, level of education, nursing grade and years. Part 2 was the knowledge on postoperative pain management, True/False (13 items). A correct answer with a score of seven or less was classified as having inadequate knowledge, and score marks above eight were considered to have adequate knowledge. Part 3 consists of 14 items (Attitude towards postoperative pain management) made up of a 3-point Likert Scale, Agree, Don't Know and Disagree. Part 4 (Practices on Postoperative pain management) comprises 4 points Likert Scale and consists of 18 Items, Always, Sometimes, Never and Not available.

The Cronbach's Alpha value for the three parts was 0.857. Thus, this result suggests good internal consistency. Due to the pandemic COVID 19, data was collected through Google form, and the respondent was reached via WhatsApp and e-mail.

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Permission, explanation and informed consent were stated in the Google form. The data were analyzed by using SPSS software version 26. The analysis included descriptive statistics such as frequencies, percentages, means and standard deviation. The Chi-Square was used to analyze relationships between the level of knowledge, attitudes and practices on postoperative pain management with socio-demography among Registered Nurses.

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Ethical considerations
Ethical clearance is sought from the Research Management Committee (RMC) of the University affiliation. The proposal for this study was reviewed and approved by RMC. The approval was also obtained from the private hospital management. The purpose of the study, informed consent, and the respondent criteria regarding privacy and confidentiality are attached and briefly explained in the Google form.

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RESEARCH RESULTS

Table 1. Demographic Characteristic of Respondents (N=98)

Variables	Results (n/%)
Age	
20 - 25	22/22.4
26 - 30	32/32.7
31 - 35	31/31.6
36 - 40	7/7.1
> 40	6/6.1
Gender	
Male	0
Female	98/100
Level of Education	
Diploma	66/67.3
Post Basic	25/25.3
Degree	7/7.1
Master	0/0
Nursing Grade	
Staff Nurse	71/72.4
Midwife	8/8.2
Senior Staff Nurse	5/5.1
Specialist Nurse	14/14.3
Years of working experience	
1 - 5	35/35.7
6 - 10	45/45.9
11 - 15	13/13.3
16 - 20	4/4.1
>20	1/1

All of the respondents were 100% female. The highest frequency of age among respondents at the ages of 26 and 30 years was 32.7%, and the lowest frequency of age is > 40 years 6.1%. In terms of the level of Education of Staff Nurses, 67.3% had Diploma , 25.3% had Post Basic and 7.1 % had Degree in nursing. Most respondents(72.4%). were Staff Nurses, The majority (45%) of respondents had working experience of 6 – 10 years.

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Table 2: Knowledge of Registered Nurses on Post Operative Pain Management

No.	Knowledge on post operative pain Management	True n(%)	False n(%)	Correct Answer T/F
1.	Pain is what the patient says it is	96(98)	2(2)	T
2.	Acute pain lasts for 20 - 30 days	44(44.9)	54(55.1)	T
3.	The most accurate judge of the intensity of the patient's primary nurse	83(84.7)	15(15.3)	F
4.	Vital signs are always reliable indicators of a patient's pain intensity.	94(95.9)	4(4.1)	F
5.	Pain assessment includes onset, duration, variability, location, and intensity.	98(100)	0	T
6.	Glasgow Coma Scale is a pain assessment tool	24(24.5)	74(75.5)	F
7.	When using the WHO pain ladder to treat acute pain, treatment should go from bottom to top	6465.3	3434.7	T
8.	Using pain management assessment tools is not integral in postoperative pain management	19(19.4)	79(80.6)	F
9.	Untreated postoperative pain management delays recovery	9596.9	3(3.1)	T
10.	Effective analgesia is an essential part of post operative pain management.	92(93.9)	66.1	T
11.	The recommended route of administration of opioid analgesics with brief, severe pain of sudden onsets, such as post operative pain, is intramuscular.	82(83.7)	16(16.3)	F
12.	Analgesics for postoperative pain should initially be given around the clock on a fixed schedule	77(78.6)	21(21.4)	T
13.	Naloxone antagonizes (reverses) all opiates, but its effect quickly disappears.	80(81.6)	18(18.4)	F

Table 2 shows the level of knowledge of the respondents. The level of knowledge questions consists of true and false. The level of knowledge was divided into two categories; i) inadequate knowledge with a score of 7 or less, and ii) adequate knowledge with a score of 8 and above out of a total score of 13. Of 98 respondents, 41, representing 41.8%, had inadequate knowledge 57 (58.2%) had adequate knowledge of Postoperative pain management.

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Table 3: Attitudes of Registered Nurses on Post Operative Pain Management

No.	Interventions/Measures	Agree n(%)	Don't know n(%)	Disagree n(%)	Mean	SD
1.	Your cultural background affects your nursing care of a patient's pain report.	61 (62.2%)	8(8.2%)	29 (29.6%)	1.67	0.906
2.	Your patient should experience discomfort before giving the next dose of pain medications	55 (56.1%)	6 (6.1%)	37 (37.8%)	1.82	0.56
3.	Your visual assessment of the patient reporting pain influences your response and treatment of post operative pain.	91 (92.9%)	3 (3.1%)	4 (4.0%)	1.11	0.0428
4.	The patient frequently requests pain medication influences her response time to analgesic administration.	83 (84.7%)	3 (3.1%)	12 (12.2%)	1.28	0.67
5.	You anticipate pain in all surgical procedures before you assess and treat pain in a patient	81 (82.7%)	4 (4.1%)	13 (13.3%)	1.31	0.0695
6.	Using pain measurement instruments is integral in postoperative pain management.	89 (90.8%)	6 (6.1%)	3 (3.1%)	1.12	0.413
7.	Patients should be encouraged to endure as much pain as possible before using an opioid.	53 (54.1%)	1 (1.0%)	44 (44.9%)	1.91	0.996
8.	A patient's spiritual beliefs may make them think pain and suffering are necessary.	53 (54.1%)	10 (10.2%)	35(35.7%)	1.82	0.934
9.	Analgesic opioids should not be administered to patients with a history of substance abuse.	61 (62.2%)	20 (20.4%)	17 (17.3%)	1.55	0.775
10.	It is a patient's right to expect total postoperative pain relief due to treatment.	80 (81.6%)	3 (3.1%)	15 (15.3%)	1.34	0.731
11.	Morphine is a very strong drug. Post operative pain patients would be content with just one dose.	48 (49.0%)	21 (21.4%)	29 (29.6%)	1.81	0.869
12.	The type of surgery done affects your response to pain management	87 (88.8%)	3 (3.1%)	8 (8.2%)	1.19	0.568
13.	Lack of pain expression does not mean lack of pain	80 (81.6%)	6 (6.1%)	12 (12.2%)	1.31	0.680
14.	Effective analgesia is an essential part of postoperative management	96 (98%)	2 (2.0%)	0(0)	1.02	0.142

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Table 3 shows the attitudes toward Postoperative pain management consisting of 3 points Likert Scale, Agree, Don't Know and Disagree. With a mean value of 1.02 and a variation of 0.142, most (98%) Registered nurses agreed that effective analgesia was essential to postoperative management. Concerning whether their visual assessment of the patient reporting pain influences their responses and treatment of Postoperative pain, 91 (92.9%) agreed. Eighty-nine (90.8%) agreed that pain measurement instruments are integral to Postoperative pain management. The patients should be encouraged to endure as much pain as possible before using an opioid, agreed by 53 (54.1%) respondents, and not much different from respondents who disagreed 44 (44.9%).

Table 4: Practices of Registered Nurses on Post Operative Pain Management

No.	Interventions/measures	Always n(%)	Sometimes n(%)	Never n(%)	Not available n(%)
1.	I provide a clean, calm, and well-ventilated ward environment for post operative pain management.	89 (90.8%)	9 (9.2%)	0	0
2.	I lay patients on neat, well-laid beds postoperatively	82 (83.7%)	14 (14.3%)	2 (2.0%)	0
3.	I use patient distraction, relaxation, and guided imagery Post-operatively to reduce pain.	71 (72.4%)	26 (26.5%)	1 (1.0%)	0
4.	I use music therapy to reduce pain	9 (9.2%)	44 (44.9%)	25 (25.5%)	20 (20.4%)
5.	I use massaging and stretching to reduce post operative pain.	16 (16.3%)	50 (51.0%)	24 (24.5%)	8 (8.2%)
6.	I apply heat and cold compresses to manage post operative pain.	39 (39.8%)	46 (46.9%)	11 (11.2%)	2 (2.0%)
7.	I encourage prayer or meditation by patients or religious leaders postoperatively.	44 (44.9%)	44 (44.9%)	10 (10.2%)	0
8.	I encourage the use of transcutaneous electrical nerve stimulator	13 (13.3%)	15 (15.3%)	50 (51.0%)	20 (20.4%)
9.	I encourage the use of acupuncture.	7 (7.1%)	8 (8.2%)	52 (53.1%)	31 (31.6%)
10.	I encourage early ambulation/exercise with analgesia.	43 (43.9%)	33 (33.7%)	20 (20.4%)	2 (2.0%)
11.	I dress, bandage, splint, and reinforce wound sites postoperatively	63 (64.3%)	31 (31.6%)	4 (4.1%)	0
12.	I give opioids on a regular schedule	69 (70.4%)	23 (23.5%)	4 (4.1%)	2 (2/0%)
13.	I give opioids to pediatric and adult patients postoperatively.	18 (18.4%)	29 (29.6%)	42 (42.9%)	9 (9.2%)
14.	I give patients sterile water by injection (placebo) to determine if the pain is real	8 (8.2%)	24 (24.5%)	61 (62.2%)	5 (5.1%)

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15.	I combine opioids with NSAIDs rather than single analgesic agents when managing post operative pain, as suggested by World Health Organization.	28 (28.6%)	26 (26.5%)	36 (36.7%)	8 (8.2%)
16.	I give analgesics for postoperative pain only when the patient asks for the medication	37 (37.8%)	45 (45.9%)	15 (15.3%)	1 (1.0%)
17.	I give pethidine frequently to manage pain in children.	7 (7.1%)	14 (14.3%)	68 (69.4%)	9 (2%)
18.	After I have given opioid analgesic, I administer subsequent doses to suit individual patient's response.	38 (38.8%)	26 (26.5%)	30 (30.6%)	4 (4.1%)

Note. NSAIS = non-steroidal anti-inflammatory drugs

Table 5: Factors Correlated With Level of Knowledge

Variables	Level of knowledge	
	Inadequate knowledge (n=41)	Adequate knowledge (n=57)
Age (n/%)		
20 – 25	10 (24.4%)	12 (21.1%)
26 – 30	13 (31.7%)	20 (35.1%)
31 - 35	10 (24.4%)	21 (36.8%)
36 – 40	6 (14.6%)	1 (1.8%)
>40	2 (4.9%)	4 (7.0%)
Level of education (n/%)		
Diploma	26 (63.4%)	38 (66.7%)
Post Basic	14 (34.1%)	14 (24.6%)
Degree	1 (2.4%)	5 (8.8%)
Nursing grade (n/%)		
Staff Nurse	28 (68.3%)	43 (75.4%)
Midwife	5 (12.2%)	3 (5.3%)
Senior Staff Nurse	2 (4.9%)	3 (5.3%)
Specialist Nurse	6 (14.6%)	8 (14.0%)

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Work Experience (n/%)		
1 – 5	17 (41.5%)	18 (31.6%)
6 – 10	17 (41.5%)	28 (49.1%)
11 – 15	5 (12.2%)	8 (14.0%)
16 – 20	2 (4.9%)	2 (3.5%)
>20	0 (0.0%)	1 (1.8%)

$\chi^2 = 7.023$, $df = 4$, $p = 0.135$ ($p < 0.05$)

Based on Table 4, the practices on Postoperative pain management are made up of 4 point Likert Scale and consist of 18 items, Always, Sometimes, Never and Not available. Of the practices of Registered Nurses on post operative pain management majority, 89 (90.8%) of them, said that it provided a clean, calm and well-ventilated ward environment for post operative pain management. While 82 (83.7%) said lay patients were distracted on neat, well-laid beds postoperatively. However, giving pethidine frequently to manage pain in children, giving patients sterile water by injection (placebo) to determine if the pain is real, and encouraging the use of acupuncture and transcutaneous electrical nerve stimulator had minimal to no available responses. This is because due to unavailability of the instrument.

Table 5 shows the relationship between knowledge and age. From the analysis, most respondents between 31 – 35 years old had adequate knowledge of post operative pain management, with a total of 21 (36.8%). They were followed by ages between 26 – 30 years, with a total number of 20 (35.1%), and age between 20 – 25 years old, with a total number of 12 (21.1%), four respondents (7.0%) age > 40 years old and 1 (1.8%) respondent age between 36 – 40 years old. At the same time, the respondent who had inadequate knowledge of post operative pain management are at age between 26 – 30 years old, with a total number of 13 (31.7%), age between 20 – 25 years old and 31 – 35 years old, with a total number 10 (24.4%), 6 (14.6%) respondent at the age between 36 – 40 years old and 2 (4.9%) respondent at the age > 40 years old. The Chi-square value was 7.023, and the p-value was 0.135. The finding shows there was no significant relationship between the level of knowledge and age.

The relationship between Level of knowledge and Level of education. The majority of the respondent is at the level of Diploma with a total number of adequate knowledge 38 (66.7%) and inadequate knowledge with a total number of 26 (63.4%). While Level of Post basic had equal inadequate knowledge, 14 (34.1%) and adequate knowledge, 14 (24.6%). Level of Degree adequate knowledge with a total number of 5 (8.8%) and inadequate knowledge with 1 (92.4%). This analysis revealed a Chi-square value of 2.368 and a p-value of 0.306 which is no significant relationship between the Level of knowledge and Level of education.

The relationship between the level of knowledge and nursing grade. The majority of the respondent are grade Staff Nurses. The total number of Staff nurses with adequate knowledge was 43 (75.4%), and inadequate knowledge was 28 (68.3%). Grade Specialist Nurse, adequate knowledge 8 (14.0%) and inadequate knowledge 6 (14.6%). While Midwife adequate knowledge 3 (5.3%) and inadequate knowledge 5 (12.2%). Senior Staff Nurse adequate knowledge 3 (5.3%) and inadequate knowledge 2 (4.9%). The chi-square value is 1.528, and the p-value is 0.676, which is no significant relationship between the level of knowledge and Nursing grade.

The relationship between level of knowledge and years of working experience. The majority of respondents with years of working experience 6 – 10 years had adequate knowledge, with a total number of 28 (49.1%), followed by years of working experience 1 – 5 years with a total number of 18 (31.6%), Years of working experience 11 – 15 years had adequate knowledge with total number 8 (14.0%), 16 – 20 years total number 2 (3.5%) and > 20 years 1 (1.8%) and while inadequate knowledge, years of experience working 1 – 5 years and 6 – 10 years had same total number 17 (41.5%) and 11 – 15 years with whole number 5 (12.2%), 16 – 20 years 2 (4.9%) and >20 years 0 (0.0%) chi-square

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value 1.847 and p-value 0.764. There is no significant relationship between the level of knowledge and working experience. Thus, it shows that the experience level did not influence the level of knowledge.

Table 6. The relationship between attitudes and socio-demographic variables

	Attitudes		
	Chi-square Value X ²	df	Significant
Age	46.692	56	0.711
Level of education	20.909	28	0.829
Nursing grade	31.168	42	0.890
Years of experience	54.367	56	0.537

Table 6 shows the relationship between attitudes with age, level of education, Nursing grade and years of experience. The P-Value of age is 0.71, which means no significant relationship exists between attitudes toward postoperative pain management and age. There is no significant relationship between attitudes toward postoperative pain management and level of education, which is a P-value of 0.82. Nursing grade and years of experience also have no significant relationship with attitudes on postoperative pain management, which is a p-value of nursing grade (0.890) and p-value of years of experience (0.537). These findings show no relationship between attitudes toward postoperative pain management with socio-demography.

Table 7. The relationship between Practices and socio-demography

	Practices		
	Chi-square Value X ²	df	Significant
Age	114.248	92	0.058
Level of education	44.191	46	0.548
Nursing grade	103.815	92	0.004
Years of experience	171.794	92	0.000

Table 7 shows the relationship between practices on postoperative pain management with socio-demographic variable (age, level of education, nursing grade and years of experience). There is a significant relationship between practices on postoperative pain management with age, with a P-value of 0.058 (<0.05). There is no significant relationship between practices on postoperative pain management and level of education, with a P-value of 0.548. There is a

significant relationship between Practices on postoperative pain management with a nursing grade, which is a P-value is 0.004, and the P-value of years of experience is 0.000, which is a significant relationship with practices on postoperative pain management. In summary, a significant relationship exists between practices with age, nursing grade and years of experience.

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DISCUSSION

The level of knowledge

A majority (58.2%) had adequate knowledge, and 41.8% had inadequate knowledge. Adequate knowledge, a positive attitude and good practice in postoperative pain management by the Registered Nurse will minimize the consequence and complications of pain. This result is similar to another study in which nurses' knowledge and attitudes are important in caring for patients' postoperative pain (Alzghoul & Abdullah, 2015). This can be explained by the fact that the Registered nurse is emphasized to attend training and awareness on pain management. Knowledge is the nurse's awareness of the key principles of critical care pain assessment among critically ill patients. The knowledge, attitude and practices model is one of the most used models in the medical field (Alzghoul & Abdullah, 2015). Most patients who undergo surgical procedures experience acute postoperative pain. Still, evidence suggests that less than half report adequate postoperative pain relief (Chou et al., 2016), and it is important for registered nurses to have the knowledge and good practices regarding postoperative pain assessment tools to provide optimum pain management (McKay et al., 2019; Teshome, Aychew, Mitiku & Guta, 2022; Wurjine & Nigussie, 2018).

The attitudes

An attitude is somewhere between a belief, a stance, a mood and a pose. If got an attitude about something, it can be hard to change. This study revealed that Registered Nurses had positive attitudes towards post operative pain management. The mean score for attitude was 1.44, with a standard deviation of 0.238. Respondents who scored less than the mean value were regarded as having a favourable attitude towards postoperative pain management. Respondents who scored more than the mean value were regarded as having an unfavourable attitude towards postoperative pain management. This indicates something very good in the care of postoperative pain management. The knowledge, attitude and practices model suggests that any practices (behaviours) are determined by the person's

attitude and knowledge towards the behaviours (Çisem OcakSacide Yildizeli Topcu, 2023).

The practices

The study presented had a moderate level of practice regarding postoperative pain management. Most of them answer 'always and sometimes' means they still practice the intervention and measurement of postoperative pain management. The factors might contribute to the moderate level of practices on pain management among nurses in this study. No subject in the present study had achieved continuous education on pain management topics that have proven helpful in increasing pain management skills. Nurses have been revealed to have no adequate training to continue and update the education program on pain management.

The relationship between knowledge, attitudes and practices on postoperative pain management among registered nurses and socio-demographic.

There was no statistically significant relationship between the level of knowledge, attitudes and practices with socio-demography (Age, Level of education, nursing grade and years of working experience). The significance p-value is 0.30 to 0.70 (<0.05). The level of knowledge is not related to age, level of education, nursing grade and years of experience. While the attitudes also are not relevant to socio-demography. Otherwise, there is a significant relationship between practices on postoperative pain management with age (p-value = 0.058), nursing grade (p-value = 0.004) and years of experience (P-value = 0.000). Otherwise, the findings in the Jordanian public hospitals showed that the nurses' attitudes towards pain management had a significant and positive relationship with their pain management practices. (Alzghoul & Chew Abdullah (2016). These findings are inconsistent with the KAP model, suggesting a positive relationship between knowledge, attitudes and (Dessie et al., 2019; Launiala, 2009; Lovich-Sapola, & Smith, 2015).

LIMITATION AND RECOMMENDATION

The study design was cross-sectional. It should be noted that the results of this study were obtained

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through self-report. The study sample was limited to certain wards and those registered with a valid practicing licence. This study has several limitations that should be addressed for future research. The usage of a dichotomous questionnaire may influence the participant report finding. Respondents might answer the question by guessing the answer. Hence the accuracy of the data will not be accurate. The time for questionnaire distribution was not sufficient and suitable. The researcher should submit the questionnaire using a hard copy when they did not get a full response from the respondent from Google form. The duration of the study was short.

This study is recommended to evaluate the knowledge, attitude, and practices on postoperative pain management. Its nursing benefits are to practice and continuous assessment and to upgrade the level of knowledge of nurses to implement quality care to patients. Some nurses have inadequate knowledge, attitudes and practices, and there is a need to implement in-service training on pain management. In addition, Nurse Instructors should also be trained so that they can teach and give training to all Registered Nurses. Although, these findings indicated that Registered Nurses rated they performed many actions related to pain management with a moderate level of practice, especially in wards with minimal received of postoperative patients. The practices of many Registered Nurses have not used pain assessment tools because their personal opinion should still be recognized, and Registered Nurses should attend training on post-operating pain management. The implementation in improving postoperative pain management, bedside teaching, and regular and continuous training awareness will be done for all Registered Nurses.

CONCLUSION

In conclusion, the findings of this study showed that more than half of Registered possess adequate knowledge and a positive attitude, also moderate practising towards Postoperative pain management. Continuous education and awareness are crucial to improving nurses' knowledge, attitudes and practices. The result of this study provided that nurses would

ensure the quality of care, improve nursing care and patient satisfaction and should update their knowledge regarding postoperative pain management. Furthermore, nurses are frontline of health care, and nurses' role is to educate patients. Therefore, by attending this nursing education programme, the nurses could share their knowledge and skill with the patients.

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