Post Operative Pain Management Knowledge, Attitude, Practice and Associated Factors Regarding Among Nurses' Working in Jimma Medical Center, South-West Ethiopia, 2019

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Abstract: Introduction: Effective post-operative pain management can lead to comfort, better mobility, improved recovery, and shorter stay in hospital. However, though few studies were done in this area, the extent to which nurses practice post-operative pain management and their level of knowledge and attitude regarding pain is not well documented in the study setting. Objective: To assess post-operative pain management knowledge, attitude, practice and associated factors among nurses working at Jimma medical center, south-west Ethiopia, 2019. Methods: Institution based quantitative cross-sectional study design was conducted on 203 nurses working in surgical Gynecology maternity and labor ward, operation theater, ophthalmology units of Jimma Medical Center. Data was collected by using pretested structured self-administered questionnaire and entered SPSS version 21 for analysis. Descriptive statistics (frequency percentage mean and standard deviation) was computed. Chi-square test was done to determine the association between dependent and independent variables. Significant associations were declared at P value less than 0.05. Results: The finding of this study revealed that 88.8% of nurses had poor knowledge and attitude regarding pain and 23.5% had good post-operative pain management practice. Prior training on pain management and reading of medical books were significantly associated with knowledge and attitude regarding pain whereas working unit and prior training on pain were found to be significantly associated with post-operative pain management practice. Conclusion and recommendation: Nurses knowledge and attitude regarding post-operative pain management practice in Jimma Medical Center are generally low. Prior training and reading books are significantly associated with the level of nurses' knowledge and attitude whereas; training and working units are significantly associated with post-operative pain management practice. Jimma Medical center should provide an in-service training and avail reading books to improve nurse's knowledge, attitude and practice toward post-operative pain management.

Keywords: Post-operative, Pain, Management, Knowledge, Attitude, Practice and Jimma

1. Introduction

The International Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience linked with actual or potential tissue damage or described in terms of such damage". On the other hand, regarding post-operative pain, the American anesthesiologist defined pain in the postoperative setting as pain that is present in a surgical patient because of a preexisting surgical procedure [3]. Pain is also considered personal and unique to every individual and the care providers [2]. It has been frequently reported that 20% to 80% of patient undergoing operation suffer from inadequately treated pain [4].

Health care professionals have been reported to have unsatisfactory level of knowledge about pain assessment. A descriptive cross-sectional study conducted in Banduras hospital Zimbabwe showed that 84% nurses were unaware of

pain assessment tools, 76% nurses were having minimal knowledge regarding ideal time for pain assessment.

Therefore, they must have knowledge and skill to assess pain, to implement pain relief activity and to evaluate effectiveness of strategies regardless of setting. The study done at Addis Ababa on nurse's level of knowledge of post-operative pain assessment and managements shows that, (50%), (40%), (10%) which were low, moderate and good respectively [4]. Another study done in Bangladesh, the findings indicated that nurses had very low level of knowledge and negative attitudes regarding post-operative pain management whereas the level of practice was moderate [13]. Nurses with a strong clinical knowledge, attitudes and skills are essential for relieving the suffering of pain in patient's undergoing surgery. After surgery the duration and intensity of pain depends on the site and type of operation, the degree of tissue damage and positioning of the patient during operation may contribute to overall incidence and severity of postoperative pain [16]. Dolin, S, J study finding revealed that 73% of patients in their study experienced moderate to severe pain. Almost ten years later a study established that approximately 58% of patients experienced excruciating pain postoperatively [17]. Out of an estimated 23.9 million surgical procedures performed in the United States of America, 80% of patients' experience moderate to severe pain postoperatively. Several studies have been undertaken in several countries with the objective of determining the prevalence of pain among hospitalized patients. The findings from these studies are pertinent as they each incorporate the incidence of pain among surgical patients [17]. A study conducted in Addis Ababa indicates from the total respondents (40.7%) had 5 to 10year of total work experience and (42.9%) had less than 2 years of experience in postoperative area.

Ninety-three (28.7%) of the respondents were working in surgical ward [6]. A study conducted in Bangladesh revealed that the overall level of knowledge and attitudes of nurses was very low and presenting by the total mean score of 59.05% (SD = 5.62) with minimum and maximum score of 40% and 70%, respectively. About 34% of respondents agree that the usual duration of analgesia of 1-2 mg of morphine intravenous IV is 4-5 hourly and 23.7% nurses reported that patients who can be distracted from pain usually do not have severe pain [13]. A study in Ireland revealed that a considerable number of respondents 62.8% specified that they had formal training in pain management. However, only 18.1% of respondents had informal training in pain management. The majority of respondents in this study (75.5%) rated their knowledge as being good, with 7.4% rating their knowledge as excellent and 17.0% rating their knowledge as average. None of the respondents rated their level of knowledge as being either fair or poor [18].

A study done on Uganda to assess nurses' knowledge and practices related to pain assessment indicates 30.6% had never had any training on pain assessment and management. But Out of those who had received some training, majority 83.9% were not satisfied with the training. The majority of the participants had never had training on; pain assessment methods and tools, practice recommendations/guidelines and physiological consequences of unrelieved pain which were (72.9%), (78.8%) and (60.6%) respectively. Most of the participants, 91.1% had never read any guidelines of pain assessment and management [19].

A study done in Eastern Ethiopia showed that Majority (94.23%) of all respondents do not use pain assessment tools and (82.69%) of the participants have not documented findings after assessment. About 32.69% of respondents mentioned the patient as the most accurate ways of rating the pain intensity but 78.85% of the respondents said that they do not know about multimodal analgesia. From this study, it can be concluded that there is knowledge gap among health professional towards postoperative pain management [19].

The study in Bangladesh nurses reported that they had practiced in pain management for post-operative patients at a moderate level (M = 77.81%, SD = 10.94) by which three-fourths of them indicated that they had practiced in pain management at the moderate (37.9%), high (21.8%), and very high level (16.1%)[13]. According to the study conducted in Ireland, more than half (57.4%) of the sample always used a pain assessment tool (PAT), a further 38.3% used a PAT frequently, with the remaining 4.3% of respondents rarely or occasionally using a PAT. None of the respondents picked the category 'never' use a PAT [17].

The study conducted in Uganda revealed that, Majority of the participants reported the following as barriers to pain assessment; nursing workload (84.1%), lack of availability of assessment tools (74.1%), lack of education on assessment tools (82.4%), lack of protocol and land guidelines on pain assessment and management (74.1%), poor documentation of pain assessment and management (77%), and more than a quarter (29%) did not assess for the need for analgesics before wound care [18].

The study done in Addis Ababa showed that the nurse's level of practice of postoperative pain assessment and management. It was calculated first by selecting items which were basic to the practice of POP, then 15 items were selected and each respondent correct answer were summed and finally based on the operational definition levels of practice were determined. From all study subjects, 283 (87.3%) of the respondents practice was low, 21 (6.5%) was moderate and only 20 (6.2%) of respondents practice was high [4]. It has been suggested that the key issue of postoperative pain management (POPM) strategies is to make the pain noticeable.

Study conducted in Jordanian nurses revealed that there was no evidence of documentation of pain assessment in 53% of patient's records. In 61% of nurses 'notes the location of pain was described, which was the most frequently recorded information for pain assessment. On other hand, there were 4.3% of the nurses who used the pain scale, and 8.7% of the nursing notes reported the quality of pain [15]. Knowledge deficit about pain management is not uncommon among health care professionals. The lower score of KAS was 9.8% and the

higher response of 86.2%. The 21.9% respondents agree that usual duration of analgesia of1-2 mg morphine IV is 4-5. About 44.5% agree that patients who can be distracted from pain usually do not have severe pain [21].

A study conducted in Ireland revealed that a considerable number of respondents 62.8% specified that they had formal training in pain management. According to this study, most respondents in this study (75.5%) rated their knowledge as being good, with 7.4% rating their knowledge as excellent and 17% rating their knowledge as excellent and 17.0% rating their knowledge as average. None of the respondents rated their level of knowledge as average. None of the respondents rated their level of knowledge as being either fair or poor [18].

A study done on Uganda to assess nurses' knowledge and practices related to pain assessment indicates 30.6% had never had any training on pain assessment and managements. But out of those who had any training, majority (83.9%) were not satisfied with the training. Majority of participants had never had training on; pain assessment methods and tools, practice recommendations or guidelines and physiological consequences of unrelieved pain which were (72.9%), (78.8%) and (60.6%) respectively. Most of the participants, 91.1% had never had training. The majority of the participants had never read any guidelines of pain assessment and management [19].

2. Methods and Materials

Study Area and Period

Jimma Medical Center (JMC) is one of the oldest public hospitals in the country. It was established in 1930 E. C by Italian invaders for the service of their soldiers. Geographically, it is in Jimma city 356 km southwest of Addis Ababa. After the withdrawal of the colonial occupants, it has been governed under the Ethiopian government by the name of "Ras Desta Damtew Hospital" and later "Jimma Hospital "during Dergue regime and currently Jimma Medical Center (JMC). Especially, after transfer of its ownership to Jimma University, the university has made relentless efforts in extensive renovation and expansion work to make the hospital conducive for service, teaching and research. Currently it is the only teaching and referral hospital in the Southwestern part of the country, providing services for approximately 15,000 inpatient including surgical operations, 200,000 outpatient attendants, 11,000 emergency cases and 4500 deliveries in a year coming to the hospital from the catchment population of about 20 million people. Cognizant of the fast-growing service and teaching role of the hospital, the federal government considered construction of a new and level- best 600 bedded hospital which' which is partially functioning now. Currently it provides service in surgery, gynecology and obstetrics, medicine, pediatrics, OPD, Ophthalmology, dentistry, Psychiatry, diagnostic facilities, Nursing, Pharmacy and anesthesia. The study was conducted in surgical Gynecology maternity and labor ward, Operation Theater, ophthalmology units of Jimma Medical Center from April 15-30/ 2019

Study design

Facility based descriptive cross-sectional study design was employed to assess post-operative pain management knowledge, attitude, and practice associated factors among nurses working at Jimma medical center, South west Ethiopia.

Population

Source population

All Nurses working in Jimma Medical Center

Study population

All Nurses working at surgical, maternity and gynecology, OR, and ophthalmology units Jimma Medical Center

Inclusion and exclusion criteria

Inclusion criteria

All Nurses working at surgical, maternity and gynecology ward, OR, and ophthalmology units of Jimma Medical Center

Exclusion criteria

Nurses who were on annual leave and Sick leave during data collection period were excluded

Sample size determination and sampling technique

Sample size determination and sampling procedure

Convenient samples of 203 nurses were participated in the study. After getting permission from head nurse of the respective working unit, all participants were approached through their head nurses.

Study Variables.

Dependent Variables.

Knowledge, attitude and Practice on pop management.

Independent Variables.

Socio-demographic characteristics: age, Educational status, Experience, working area, gender.

Nurses related factors: reading material/book, personal experience pain, in-service training, and caring patient with pain.

Measurement and Data Collection Procedure

The knowledge and attitude measurement tool were developed in 1987 and has been used extensively from 1987-present [22]. The tool has been revised over the years to reflect changes in pain management practice. The content of the KASRP was derived from pain management guidelines and standards including those of American Pain Society, The World Health Organization (WHO) and the U. S. Agency for Health Care Policy and Research. The KASRP has well established psychometric properties. It has been recommended to avoid distinguish items a measuring either knowledge or attitudes due to the overlap in some item and to report the percentage of correct responses. This tool also used by different country and Ethiopia on pain management. Data were collected through self-administered structured questionnaire by three data facilitators. The questionnaire has four parts which contains five parts. Part I: Socio demographic variables, Part two: Nurse Related Factor's questions, Part three: Nurse Knowledge and attitude regarding pain management related questions, Part four: Nurse Practice related pain management questions. For the

questionnaire, facilitators had informed the nurses about all details of the research. The nurses were encouraged to feel free and told that the confidentiality of their responses will be assured, and no information will be shared with third parties, except the investigator. After this, nurses who were willing to participate and signed the informed voluntary written consent document were given the questionnaire after they had finished their duty hours.

Pre-test

Pre-test was conducted on 5% of the study population one week before the actual data collection using self-administered questionnaires among nurses working at Agaro hospital which is about 50 km away from the study area to avoid information contamination. Based on the findings modification was done accordingly after pre-testing.

Data quality control

To assure the quality of the data the appropriately designed and pre-tested data collection instrument was used. In addition, data facilitators were trained regarding the aim of study, the data collection tool. Collected data was reviewed and checked for completeness and consistency of the response. The supervisors had monitored the process of data collection on a daily base.

Data processing and analysis

The questionnaires were checked for missed values, coded, cleaned, and entered SPSS version 21. Descriptive statistics analyses such as simple frequencies, mean, and St. Deviation were used to describe the characteristics of participants. For analyzing the outcome variable (i.e. post-operative pain management practice score of 75% and knowledge and attitude above was coded as "1" and below 75% was coded as "0. The Chi-square test was used to determine the association between independent and dependent variables at significance level of p-value less than 0.05. Finally finding

was presented using text, tables, and figures as appropriate.

Ethical consideration

Before conducting the study, permission letter was given from Jimma University, Institute of health of School of Nursing and Midwifery then officials communicated through letters. Informed consent was obtained from the respondents before collection of data after the purpose of the study explained. Confidentiality of information was secured, and privacy was maintained throughout. The nurses were also ensured that the study findings have no an implication on their job security.

Dissemination plan

The finding of the study will be disseminated to Jimma University, institute of health, School of Nursing and Midwifery and to CBE office of Jimma University. Finally attempt will be made to publish the finding of this study on national and international journals.

3. Results

Socio-demographic characteristics of nurses.

A total of 203 structured questionnaires were distributed to both male and female nurses working in postoperative area and 187 returned the questionnaire which gives the response rate of 92.1% however due to incompleteness sixteen respondents were excluded from the analysis. Half of (52.9%) respondents were male. The largest numbers of respondents belong to the age range between 25 to 29 years 75 (40.1%). Fifty-eight (31%) of the respondents were working in OR (all) unit. Majority 128 (68.4%) of the respondents were bachelor's degree holders. From the total respondents 110 (58.8%) had 1 to 5 years of total work experience and 64 (34.2%) had 6 to 10 years of experience.

Table 1. Socio-demographic characteristics Of Nurses at Jimma Medical Center, South west Ethiopia, April 15-30/ 2019. (N=187).

Variables	Characteristic	Frequency	Percentage
Sex	Male	99	52.9
	Female	88	47.1
Age in years	20-24	68	36.4
	25-29	75	40.1
	30-34	35	18.7
	35-39	9	4.8
Current working unit	Surgical ward	37	19,8
	Gynecology ward	22	11.8
	Labor and maternity Ward	48	25.7
	Ophthalmology ward	21	11.2
	OR (All)	59	31.6
Educational level	Diploma	59	31.6
	Bachelor's degree	128	68.4
Years of experience	1-5 years	110	58.8
	6-10 years	64	34.2
	11 years and above 13		7.0

Nurses' knowledge and attitudes regarding pain management

Generally, the correctly answered questions of knowledge and attitude by test items ranges from 18.2% -75.4%. The mean correctly answered score was 15.66 with St. Deviation 3.75. However, variations were observed by knowledge and

attitude test items, for example 78 (42.2%) of the study respondents were correctly answered that vital signs are not always reliable indicators of the pain intensity. Less than half (45.5%) of the nurses reported that analgesia of postoperative pain should be given around the clock on fixed schedules as prescribed.

Most respondents 141 (75.4%) were correctly answered that aspirin and other non-steroidal anti-inflammatory agents are not effective analgesics for painful bone metastases. About 70.6% of the respondents correctly answered the test item stating Patients' spiritual beliefs may lead them to think pain and suffering are necessary. The least correctly answered questions was the action taken by nurses for patient with scale 8 pain classification 34 (18.2%) (Table 2).

Table 2. Nurses' knowledge and attitudes regarding pain management among Nurses working at Jimma Medical Center, South west Ethiopia, April 15-30/ 2019.

Variables	Correct		Incorrect	
	Number	%	Number	%
1. Vital signs are always reliable indicators of the intensity of a patient's pain.	78	41.7	109	58.3
2. Patients who can distract from pain usually do not have severe pain.	88	47.1	99	52.9
3. Aspirin and other non-steroidal anti-inflammatory	141	75.4	46	24.6
4. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	109	58.3	78	41.7
5. Combining analgesics that work by different mechanisms may result in better pain control with fewer side effects than using a single analgesic agent	123	65.8	64	34.2
6. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.	82	43.9	105	56.1
7. Opioids should with a history of substance abuse not be used in patients	91	48.7	96	51.3
8. Elderly patients cannot tolerate opioids for pain relief.	78	41.7	109	58.3
9. Patients should be encouraged to endure as much pain as possible before using an opioids	90	48.1	97	51.9
10. 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	86	46.0	101	54.0
11. Patients' spiritual beliefs may lead them to think pain and suffering are necessary.	131	70.6	56	29.4
12. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.	116	62	71	38
13. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real	109	58.3	78	41.7
14. 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.	102	54.5	85	45.5
15. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose	100	53.5	87	46.5
16. Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment	118	63.1	69	36.9
17. 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.	113	60.4	74	36.9
18. The route of administration of opioid analgesics for patients with persistent cancer-related pain is oral	81	43.3	106	56.7
19. The route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is IV	123	65.8	64	34.2
20. The drug of choice for the treatment of prolonged moderate to severe pain for cancer patients is morphine	85	45.5	102	54.5
21. A 30 mg dose of oral morphine is equivalent to 10mg IV Morphine	83	44.4	104	55.6
22. Analgesics for post-operative pain should initially be given around the clock on a fixed schedule	85	45.5	102	54.5
23. The most likely reason a patient with pain would request increased doses of pain medication is the patient is experiencing increased pain.	97	51.9	90	48.1
24. Ibuprofen, hydromorphone and gabapentin are the drug useful for treatment of cancer pain	95	50.8	92	49.2
25. The most accurate judge of the intensity of the patient's pain is patient	110	58.8	77	41.2
26. Patients should be individually assessed to determine cultural influences	101	54	86	46
27. About 5 – 15% of the patients who develop pain already have an alcohol and/or drug abuse problem.	84	44.9	103	55.1
28. The time to peak effect for morphine given IV is 15 minutes	84	44.9	103	55.1
29. The time to peak effect for morphine given orally is 1-2hrs	65	34.8	122	65.2
30. The patient after first day abdominal surgery smile at you, continue talking and joking with his visitor has scale 8 pain classification	56	29.8	131	70.2

Nurses personal related factors

Out of 187 nurses 44 (23.5%) have taken in-service training and 142 (75.9%) read book or journal on pain management from this about 85 (59.4%) applied the knowledge gained on pain management. One hundred forty-four (77%) had personally experienced pain which to take medication and more than half 101 (61,6%) had mild pain at that times (Table 3)

Table 3. Personal related factors of Nurses towards postoperative pain management among nurses working at Jimma Medical Center, South West Ethiopia, April 15-30/ 2019.

Characteristics	Responses	Frequency (%)
Read journal or book about pain management	Yes	142 (75.9)
	No	45 (24.1)

Characteristics	Responses	Frequency (%)
Application of knowledge about pain in daily practice	Yes	85 (59.4)
	No	58 (40.6)
provide care to patients' experiencing pain	1-2 hours	63 (33.7)
At each shift	At each shift	97 (51.9)
At the end of week	At the end of week	19 (5.9)
Once a month	Once a month	9 (4.8)
never	never	7 (3.7)
Personally, Experienced pain which required to take medication	Yes	144 (77.0)
	No	43 (23)
Perceived severity of experienced pain	mild	85 (61.6)
	Moderate	33 (23.9)
	severe	209 (14.5)

Nursing practice of Postoperative Management

Out of 187 nurses, 23 (12.3%) of them reported that they were always used objective tool while assessing patient with pain and majority of the participants used objective tools sometimes. Among the study participants about 47 (25.1%) and 40 (21.4%) respondents always assess pain intensity and evaluate pain quality among patients with pain respectively. Sixty-six (35.3%) of the respondents always document the outcomes after assessing patients' pain (Table 3).

Table 4. Nursing practice of Postoperative Management among nurses working at Jimma Medical Center, South west, Ethiopia, 2019.

Variables	Always		Sometimes		Seldom		never	
	N	%	N	%	N	%	N	%
Provide care to patients' experiencing pain	69	36.9	91	48.7	27	14.4	0	0
Used objective tool while assessing pain	23	12.3	112	59.9	45	24.1	7	3.7
Assessing pain intensity among patients with pain	47	25.1	108	57.8	27	14.4	5	2.1
Evaluating pain quality among patients with pain	40	21.4	85	45.5	46	24.6	16	8.6
Evaluating site of pain among patients with pain	56	29.9	79	42.2	36	19.3	16	8.6
Evaluating pain onset and course of pain among patients with pain	47	25.1	94	50.3	40	21.4	6	3.2
Evaluating psychological, social and cultural background among patients with pain	25	13.4	84	44.9	49	26.2	29	15.5
Evaluating effect of pain (on function) among patients with pain	36	19.3	89	47.6	47	25.1	15	8
Screening for pain upon admission	60	32.1	92	49.2	28	15	7	3.7
Perform pain reassessment after analgesics injection	41	21.9	114	60	21	11.2	11	5.9
Record pain assessments results	62	33.2	90	48.1	25	13.4	10	5.3.

Factors associated with knowledge and attitude regarding pain

The chi-square analysis revealed that nurses knowledge and attitude regarding pain were significantly associated with history of prior training (χ^2 =10.290, p=0.001 and reading book or journal (χ^2=5.019, p=0.025) (Table 5).

Table 5. Association between personal factor of Nurses and knowledge and attitude regarding postoperative management among Nurses working at Jimma Medical Center, South west Ethiopia 2019.

Variables	knowledge and attitude status			χ^2-test	P-value
Good	Good		poor	0	0
Attend training (50)	13 (26%)		37 (74%)	14.935	0.0001*
No (137)	8 (5.8%)		129 (94.2%)		
Read book/ journal (141)	20 (14.2%)		121 (85.8%)	5.019	0.025*
no (n=46)	1 (2.17%)		0	45 (98.82%)	0

Factors associated with nurses' practice of postoperative management

The chi-square test showed the level of nurses postoperative pain management practice is associated with working unit (χ^2 =10.381, p=0.034), and attending in-service training (χ^2=10.290, p=0.001) (Table 6).

Table 6. Factors associated with Nurses practice of postoperative pain management among Nurses working at Jimma Medical Center, south west Ethiopia, 2019.

Variables	Ward status		$\chi 2$-test	P-value
Working unit	Good	Poor	0	0
Gynecology (22)	4 (18.18%)	18 (81.82%)	10.381	0.034
Maternity (48)	8 (16.67%)	40 (83.33%)	0	0
Surgical ward (58	16 (45%)	22 (55%)	0	0
Ophthalmology (21)	5 (23.81%)	16 (76.19%)	0	0
OR (all units) (58)	11 (18.97%)	47 (81.03%)	0	0
Attend training (50)	20 (40%)	30 (60%)	10.290	0.001*
No (137)	24 (17.5%)	113 (82.5%)	0	0

4. Discussion

The study findings show that the level of nurse knowledge and attitude regarding pain and post-operative pain management practices in jimma medical center generally low. The overall knowledge and attitude score show 88.8% had poor knowledge and attitude whereas just less than one-fourth (23.53%) had poor practice of post-operative pain management. However, the level of nurse's knowledge and attitude were significantly associated with prior training on pain management and habit of reading books whereas training, and working units are significantly associated with post-operative pain management practice. This indicate that most nurses currently give pain medication without adequate knowledge and most post-operative patients are suffering either from pain left untreated or poorly managed. Literature revealed that, the role of the nurse is fundamental in the assessment and management of postoperative pain. Nurses need to understand the path physiology of pain and recognize that pain management is vital in the recovery of postoperative patients.

Therefore, adequate knowledge, positive attitude, and effective practices on assessment of pain are principal. Generally the correctly answered knowledge and attitude items range from 27.3% -76.5%. This finding is almost similar with study Saudi overall correctly answered questions were 9.8% - 86.2% total mean score 18.6, 20.6% of the respondents were knowledgeable regarding postoperative pain management [21]. The finding was lower when compared with finding in Gardner-Webb University 35.1% to 100.0%, total mean score 26.7 [13] and in Bangladesh the minimum and maximum score of 40% and 70%, total mean score 59.05%[11]. The difference may be due sample size, variable categorization, duration of study. The study showed that about 43.9% respondents correctly answered that the usual duration of 1-2 mg morphine IV is 4-5 hours. This is higher when compared to finding in Saudi 21.9% and in Bangladesh 34% of the respondents agree that the usual duration of 1-2 mg morphine IV is 4-5 hours [11, 21]. In this study 47.1% of the respondents agree that patients who can distract from pain usually do not have severe pain. This is almost similar when compared with finding in Saudi 44.5% agree [21]. Regarding the case study about patient problem after surgery only 18.2% of Nurses agreed that they would administer the recommended amount of morphine based on the assessment data. This is higher when compared with the finding in Saudi only 8.9% agree [21]. This difference may be due geographical variation, sample size variation. Relating to the practice nurses toward postoperative pain management, less than quarter (23.5%) of nurses had good practice on postoperative pain management. This is higher when compared with the finding in Addis Ababa that 6.2% of nurses had good practice [4]. The difference may be due sample size, variable categorization, hospital protocol. In this study finding about 12.3% of the participants were used objective tool assessing patient. It was higher compared to

the finding in Eastern Ethiopia 5.77% used objective tools while assessing patient with pain [19]. This finding was lower compared with finding in Uganda 22.4% and in Ireland 57.4% used when assess patient with pain [17, 18]. This discrepancy may be due methodological variation. This study indicated that about 29.9% of the respondents always describe site of pain. This was lower compared to the study finding in Jordanian 61% nurses describe location of pain [15] and study showed that less than half (33.2%) of the respondents' document pain assessments results. This finding was higher when compared to Eastern Ethiopia 17.31% document the result of pain assessment [19]. But it was underscore compared to Uganda that 77.6% document the result of pain assessment [18]. The possible reason for this difference may be due to the differences in methodological approaches and variation in setting from place to place.

From this study there was significant association between the nurses' knowledge-attitude and attending in-service training with p -value < 0.05. This may be due the fact that nurses' who attend training can get more knowledge and attitude about postoperative pain, how to diagnosis and manage postoperative pain. There was also statically significant between nurses' knowledge-attitude and reading book or journal with p -value <0.05. This may be due the fact that from reading book or journal nurses can get more knowledge and change attitude about postoperative pain, get information about prevalence of POP, methods managing POP, drugs used in pain management, about sign and symptoms of POP.

From this, it can be observed that attending on job training had a positive effect on the extent of nurses' post-operative pain management practice. There was significant association between attending in-service training and nurses' practice of postoperative pain management with p-value <0.05. This is supported by the study conducted in, Jordan [15]. This may be due to the fact that attending training can help nurses to get more knowledge on how to manage post-operative pain and this can improve their pain management practice.

There was significant association between nurse's practice of postoperative pain management and working unit with p-value <0.05. This may be due the nurses that usually work the unit where the patient mostly admitted after surgery can practice more frequently for postoperative pain management that they can improve their practice towards postoperative pain management.

5. Nursing Implications

Nurses play an important role when managing a patient's pain. Based on the study findings nurses had poor knowledge and attitude demonstrated poor practice towards post-operative pain management. Nurses' poor practice may interfere with the care outcomes of surgical patients causing the increment in physiological, psychological and socio-economical costs. And it is important to consider these and

related negative impacts of poor pain management practice on the quality of patients' life.

6. Conclusion and Recommendation

6.1. Conclusion

The overall results show that nurses have poor knowledge and attitude related toward postoperative management that is only 21 (11.23%) of the nurses had good knowledge and attitude towards postoperative pain management. This study showed that there is the knowledge and attitude deficit regarding to pain management. The study found that the practices of nurses related to postoperative pain management also at low that less quarter (23.5%) of Nurses' good practice towards postoperative pain management.

6.2. Recommendation

Based on the findings this study it is recommended that:

Jimma medical center and Ministry Of Health should provide appropriate educational interventions to enhance nurses 'knowledge and attitudes regarding pain.

The hospital administration through the nurse managers should provide training to improve the technical capacity (knowledge. attitudes, skill) of nurses related to pain management.

Nurses ought to update themselves with current recommendations of international pain societies on how to manage post-operative pain.

Finally, this study recommends further studies which will include qualitative study and actual practices of nurses on assessment of post-operative pain management.

Availability of Data and Materials

The spreadsheet data supporting the findings of this work is available at the hands of the corresponding authors.

Ethics Statement

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the declaration and its later amendments or comparable ethical standards. Before the commencement of the study, ethical approval was secured from the Jimma University, Institute of health Ethical Review Board. Written informed consent was obtained from all individual participants included in the study.

Consent

The purpose of the study was explained to the study participants at the time of data collection and verbal consent was secured from each participant before the start of data collection. Confidentiality was ensured by not including names or other identifiers in the data collection tool. The right of the participants to refuse participation or not to answer any of the questions was respected.

Authors' Contribution

Bontu Mathewos and Gugsa Nemera conceived and designed the protocol. Bontu Mathewos and Gugsa Nemera, and checked the draft. Abiru Neme and Gugsa Nemera prepared manuscript. All authors read and approved the final paper.

Conflict of Interests

All authors declared that they have no conflict of interests. Jimma University covered only the survey cost for this study and there is no any funding organization.

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