

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF ALLIED HEALTH SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF ADULT POSTOPERATIVE PAIN MANAGEMENT
PRACTICE AMONG NURSES WORKING IN ADDIS ABABA PUBLIC
HOSPITALS, ADDIS ABABA, ETHIOPIA, 2015.

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Approved by the board of examiners

This thesis by _____ is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Masters of Science in Nursing.

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Acronyms

AAU	Addis Ababa University
ASA	American Society of Anesthesiologists
CSA	Central Statistical Agency
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
IASP	International Association for the Study of Pain
ICU	Intensive Care Unit
MoH	Ministry of Health
NRS	Numeric Rating Scale
OR	Operation Room
PACU	Post-Anesthesia Care Unit
PAT	Pain Assessment Tool
PCA	Patient Controlled Analgesia
PCEA	Patient Controlled Epidural Analgesia
POP	Postoperative pain
RDDMH	Ras Desta Damtew Memorial Hospital
SICU	Surgical Intensive Care Unit
SPSH	St. Paul's Specialized Hospital
SPSS	Statistical Package for Social Science
SRS	Simple Random Sampling
TASH	Tikur Anbessa Specialized Hospital
WHO	World Health Organization
YH	Yekatit 12 Hospital
ZMH	Zewditu Memorial Hospital

Abstract

Background

Despite the increased focus on pain management programs and the development of new standards for pain assessment, postoperative pain (POP) remains a concern for patients.

Objective: To assess adult postoperative pain management practice among nurses working in Addis Ababa public hospitals, Ethiopia, 2015.

Methods: A quantitative cross-sectional study was conducted on nurses in Addis Ababa public hospitals from April 26 to May 10, 2015. Self-administered structured questionnaire was distributed to 331 nurses selected randomly. However, 327 questionnaires were collected while 4 respondents didn't return questionnaires and another 3 were found incomplete. So 324 nurses gave complete responses to all items provided and the response rate was 97.9%. Statistical software SPSS version 20 was used to compute descriptive statistics, association by operating bivariate logistic regression analysis and data was presented using frequency tables.

Result: The result showed that there is a significant association between sex and postoperative management practice with [OR= 0.194, (95%CI: 0.053, 0.714)]. Males practice was better than females. Similarly the study showed a significant association between area of practice and postoperative management practice [OR=9.761(95% CI: 1.858, 51.274)]. Nurse's practice in SICU was found better than those working in surgical ward.

Conclusion: Even though the majority of nurses are professionals the overall knowledge and practice of nurses working in the postoperative area was found low in this study. This indicates that postoperative pain was undertreated, and patient's right to get rid of pain was not respected.

Recommendations: continuous professional development, proficiency assessment, and provision of PATs and pain guideline was recommended.

Key words: postoperative pain, knowledge and practice.

1. Introduction

1.1. Background

Incidence of postoperative pain (POP) has been reported to be between 47–100%. It has been repeatedly confirmed by studies in the past 3 to 4 decades that 20 to 80% of patients undergoing surgery suffer from inadequately treated pain and pain is classified as a serious public health problem both in the developed and in developing countries. In Africa, the issue of pain has been explored largely in relation to Human immune deficiency virus/ acquired immune deficiency syndrome (HIV/AIDS) and cancer, even though pain from surgical procedures poses a far greater burden. A Human Rights Watch's report showed that only 10% of these group patients are able to receive optimal pain management(1).

After years of neglect, issues of pain assessment and management have captured the attention of both health care professionals and the public. Factors that prompted such attention include the high prevalence of pain, continuing evidence that pain is undertreated, and a growing awareness of the adverse consequences of inadequately managed pain (2).

Poorly managed acute pain may cause serious medical complications (e.g., pneumonia, deep venous thrombosis), impaired recovery from injury or procedures, and/or progress to chronic pain. Undertreated chronic pain can impair an individual's ability to carry out daily activities and diminish quality of life. In addition to disability, undertreated pain causes significant suffering. Individuals with poorly controlled pain may experience anxiety, fear, anger, or depression. Pain is also a major cause of work absenteeism, underemployment, and unemployment. Mounting health care costs and disability compensation reflect, in part, poor care for pain related conditions. Thus, undertreated pain has significant physical, psychological, and financial consequences (2). Effective pain management is associated with patient satisfaction, earlier mobilization, shortened hospital stay, and reduced costs (3).

Studies have found that the prior identification of patients at risk of experiencing post-operative pain will allow early intervention and better pain management(4).Providing

adequate pain medication prior to painful events (such as dressing or wound healing) is essential, because post-surgical movement associated pain is more intense (95-226%) than pain at rest. However it seems that movement associated pain has been a minor concern in managing post-surgical pain(5).

Pain is broadly classified into two categories: acute and chronic pain. There are considerable differences between both acute and chronic pain states, however, it is becoming widely acknowledged and accepted that acute and chronic pain represent a continuum rather than separate and divergent entities (6).

In sub-Saharan Africa there are an estimated 70–500 operations per 100 000 population, compared with 5000–9000 per 100 000 in high income, industrialized countries. The most common major operations in sub-Saharan Africa are Caesarean section, exploratory laparotomy, eye/lens removal and hernia repair. The most common minor operations are tooth extraction, wound suture, incision and drainage of abscess and closed reduction of fracture. What these statistics illustrate is the gap in provision of surgical services; large numbers of patients present late with untreated pathology with unnecessary complications. A study of postoperative pain in Nigeria showed that two-thirds of patients complained of moderate to unbearable pain 24 h postoperatively. In many places opioid analgesia is unavailable intra operatively and postoperatively(7).

Opioid analgesics are the gold standard for treating moderate to severe pain, drugs such as morphine being low cost and highly effective. However, the availability and use of Opioids is not uniform across the globe. In 1999, 87% of the world's morphine was consumed by 10 major industrial countries: Australia, Canada, Denmark, France, Germany, Japan, Spain, Sweden, the United Kingdom and the United States of America; 85% of the world's population shared the remaining 13% of the world's morphine (7).

World Health Organization (WHO) uses morphine consumption statistics as a broad indicator of progress to improve pain relief. In 2003 Ethiopia had one of the lowest morphine /capita consumption 0.0005mg compared with the global mean of 5.85mg. Again in 2006, the consumption was reported as 0.0002mg/capita; Uganda 0.3136mg/capita; Mali 0.0181mg /capita; Sudan 0.0230 Kenya; 0.1292mg/capita.

Ethiopia's low consumption of morphine is indicative of the poor availability of pain control and palliative care (8).

1.2.Statement of the Problem

Pain is a universal experience, and it is the most frequent reason for people seeking health care. Because perception and tolerance of pain vary widely from individual to individual, pain is difficult to define and describe. Essentially, pain is the way the brain interprets information about a particular sensation that the body is experiencing. Information (or "signals") about this painful sensation are sent via nerve pathways to the brain. The way in which the brain interprets these signals as "pain" can be affected by many external factors, some of which can be controlled by special techniques(9).

The most commonly recognized definition of pain is that of the International Association for the Study of Pain [IASP] (1979): 'an unpleasant sensory and emotional experience associated with actual or potential damage or described in terms of such damage'.

The self- report of pain is the gold standard of pain assessment given the subjective nature of pain (10).

Postoperative pain is a type of acute pain. The American Society of Anesthesiologists (ASA, 1995) defined pain in the postoperative setting as pain that is present in a surgical patient because of a preexisting surgical procedure, or a combination of disease-related and procedure- related resources (11).

Despite the increased focus on pain management programs and the development of new standards for pain assessment, postoperative pain remains a concern for patients. At the same time, POP constitutes a healthcare challenge requiring knowledge in how to prescribe and administer drugs, assess and reassess POP, and a broad understanding of cultural and ethnic responses to pain and pain management (12).

Several reports have shown that persistent or uncontrolled pain is associated with increased incidence of postoperative nausea and delirium, prolonged post-anesthesia care unit (PACU) stay and delayed discharge from an ambulatory facility. Inadequate pain control may delay resumption of normal activities (13).

Effective postoperative pain management is an essential component for the quality of care. Proper pain management is included in the patients' rights, and insufficient pain management increases human suffering in addition to increased costs to the society as a consequence from long term care in which functional recovery fails(14).

Evidence-based principles to follow include providing pain medication prior to painful events (such as dressing or wound healing), prior to physical activity and regularly, administering analgesics around the clock, assessing and documenting the effect of analgesics (including side-effects), assessment for post-operative pain at least every four hours during the first days and assessing pain by means of pain scales (5).

Ward nurses have a central role in postoperative pain management. Pain medication is prescribed by anesthetists and surgeons, but it is ward nurses who spend more time with patients and have the responsibility for assessing patient's pain intensity, administering prescribed analgesic treatments and monitoring their efficacy(15).

The purpose of this study is to identify the magnitude of nurses' knowledge and practice gap and to recommend corrective measures.

1.3. Significance of the Study

This study would provide the following information needed to improve the knowledge of nurses and their practice in pain management.

1. Provide critical information for development of knowledge and attitude of nursing staffs and management of nursing practice for postoperative patients.
2. Offer a baseline data for further development of research on issues related to POP management.
3. Guide nursing curriculum and training toward appropriate body of knowledge and practice in POP management.

2. Literature Review

2.1. Concept of Pain and postoperative pain

Pain is a universal human experience and the most common cause of seeking medical care(9). It is first of all a subjective experience that is unique to every patient. Since the sensation of pain only can be felt by the person who suffers from it, he/she has the authority to define the existence and nature of his/her pain. The only way of knowing if a person is in pain is to ask them or watch them. It is therefore not possible to measure pain but it is possible to measure expressions of suffering. It is therefore a risk that the patient does not get adequate pain treatment if she/he is unable to communicate(16). Pain perception does not correlate with the degree of tissue damage, and each patient's experience and expression of pain are different (17).

Pain can be uttered in both physiological and behavioral expressions. The physiological signs of pain can be seen as high blood pressure, high pulse, cold sweating, paleness, nausea, dilatation of the pupils and muscle tensions. Patients who may have difficulties expressing themselves verbally (due to handicap, reduced cognitive ability or language differences) can be observed crying, moaning, whining, sobbing or screaming when in pain. Facial expressions such as frowned forehead, closed eyes and closed jaws can also be a sign of pain(16).

The result of a study to determine the prevalence and predictive factors of chronic post-surgical pain and poor global recovery one year after outpatient surgery shows that the prevalence of acute postsurgical pain is 26.7% (18).

2.2.Types of Pain

There are many classifications of pain. Pain can be classified based on its cause, duration, source and intensity. Based on duration it can be acute or chronic. Acute pain is a type of pain which occurs in a sudden onset as a result of tissue injury due to trauma, surgery, childbirth, and acute medical illness and lasts seconds to six months. Acute pain usually accompanied by physiological and behavioral responses. Its intensity may range from mild to moderate and accounts for more than two-thirds of visits to the emergency department(19-21) . Chronic pain is constant or intermittent pain that persists beyond the expected healing time and that can seldom be attributed to a specific cause or injury. It may have a poorly defined onset, and it is often difficult to treat because the cause or origin may be unclear. Although acute pain may be a useful signal that something is wrong, chronic or persistent pain usually becomes a problem in its own right. It is a continuum of acute pain, lasts more than three to six months and neuropathic pain is the major contributor of chronic pain. Long term absence from work, unemployment and social isolation are the prominent behavioral responses of chronic pain(6, 20, 21) .

Even though there are many causes of pain; acute illness, surgery, trauma, invasive procedures, nursing and medical interventions, diagnostic procedures and immobilization are the common causes at the clinical setting(21) .

Based on the source pain is classified as nociceptive, neuropathic and inflammatory. Nociceptive represents the normal response to noxious insult or injury of tissues, whereas neuropathic pain is initiated by a primary lesion or disease in the somatosensory nervous system. Inflammatory pain results from activation and sensitization of nociceptive pain pathway by a variety of mediators released at a site of tissue inflammation(22) .

According to WHO 2011 pain management guideline, pain can be classified as mild, moderate and severe based on its intensity. By using a Numeric Rating Scale (NRS) patient is asked to rate his/her pain intensity on a scale of 0 (no pain) to 10 (the worst possible pain). Below 4 is mild pain, 4-6 is moderate pain and 7-10 is severe pain and treated accordingly based on the WHO pain ladder (23).

2.3.Nurses Knowledge of Postoperative Pain Assessment and Management

Accurate assessment of postoperative pain is essential to ensure that pain is managed effectively. Without assessment it is impossible to identify the nature of pain, the individual characteristics of pain or to gauge the effectiveness of pain management interventions. A range of standardized pain assessment tools are also available and can be used as a framework for assessment. (24).

There are two main approaches that can be used when managing POP; the use of pharmacological interventions and comfort measures. These approaches work best when used together, although there is a tendency in clinical practice to minimize the importance of comfort measures and emphasize the importance of pharmacological and technological intervention(24).

Adequate pain management knowledge by nurses is critical for effective pain relief for patients. Improvements in pain management education have led to improved pain relief for patients. Identifying factors that affect the learning and clinical application of pain management knowledge may suggest ways to tailor pain management education for even more effective use by nurses. One factor that could affect nurses' current pain management knowledge and their ability to learn more, is nurses' previous experiences with their own pain. This study by Wessman and McDonald revealed that Nurses' previous personal pain experiences were negatively related to their initial pain management knowledge ($r = -0.23$, $P < 0.01$) (25).

A quantitative descriptive study conducted in Bangladesh revealed two thirds (63.4%) of the nurses never read nursing journals, 26.8% did yearly, 5.4% did quarterly and 3.2% did it monthly. The majority (69.9%) of nurses reported that there was no pain content in their nursing curriculum. However, 8.6% reported that there was pain content included in their nursing curriculum. Whereas 21.5% reported that they were not sure. This study also revealed that 96.8% of nurses said that pain should be assessed before and after administering pain drugs. Only 23.7% nurses reported that patients who can be distracted from pain usually do not have severe pain and 26.9% of nurses said that Vital signs are always reliable indicators of the intensity of a patient's pain(21).

A non-experimental descriptive survey in Nigeria revealed that 92.6% of the respondents agreed that cold and heat such as warm bath, site bath, ice bags compress are used in the management of surgical pain 7.4% disagreed with the statement. The majority, 92.6% of the respondents agreed that the use of diversional therapy such as listening to music, watching T.V. reduces patient's pain perception, while 7.4% respondents disagreed. Also 92.6% respondents agreed that health education about surgical procedure is an important part of surgical pain management, 7.4% respondents disagreed. The result also showed that 77.9% respondents agreed that pharmacological methods: Opioids analgesic such as pethidine and Pentazocine are used to relief pain in surgical patients, 22.1% disagreed with this statement. Most of the respondents, 95.8% agreed that analgesic such as paracetamol injection is used in managing surgical pain, while 4.2% respondents disagreed. Lastly the result showed that 70.6% respondents agreed that presurgery injection such as anesthesia is given for pain management, while 29.4% disagreed with the statement the overall knowledge of participants was good (60%)(9).

A descriptive cross-sectional study to assess nurses' knowledge and practices related to pain assessment in Uganda mentioned that more than a quarter of the participants 30.6% had never had any training on pain assessment and management. Of these who had received some training, majority 83.9% were not satisfied with the training. Only 16.1% were satisfied with the training they received. The majority of the participants had never had training on; pain assessment methods and tools (72.9%), practice recommendations/guidelines (78.8%) and physiological consequences of unrelieved pain (60.6%). Most of the participants, 91.1% had never read any guidelines of pain assessment and management. Averagely nurses scored 71.8% with median score was 71.43% on theoretical knowledge. This may be indicating that nurses are reasonably knowledgeable about pain assessment principles.(10).

A cross sectional descriptive 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 most commonly specified formal training in pain management was Patient Controlled Analgesia/Patient Controlled Epidural Analgesia (PCA/PCEA) training. Out of the respondents who had formal training, 81.3% of these had received training in

PCA/PCEA. A further 20.3%, 8.4%, 1.6%, cited in-service education, lectures in college, and the completion of a postgraduate diploma in pain management as the formal training they received respectively. 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(6).

Majority (96.8%) of respondents correctly identified that the approach of combining analgesics that work by different mechanisms may result in better pain control with fewer side effects than using a single analgesic agent and only 3.2% of respondents incorrectly answered it. Almost every respondent 98.9% of respondents correctly answered 'false' to 'Patients should be encouraged to endure as much pain as possible before using an opioid'. Around 80.9% said that Patient's spiritual beliefs may lead them to think pain and suffering are necessary. Larger proportion 89.4% of the sample said that after an initial dose of an opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response. Almost 81.9% did not support giving patients sterile water by injection (placebo) to determine if the pain is real. This study also reported that 53.2% gave correct answer for "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 diagnose the cause of pain". Misconceptions were evident in some areas; 34% of respondents agree that the usual duration of analgesia of 1-2mg of morphine intravenous IV is 4-5 hourly, 48.9% of respondents in this sample incorrectly believed that patients' who can sleep do not have severe pain, more than a quarter of the sample (28.5%) thought that opioids should not be used in people with a history of substance abuse and 54.3% believed that respiratory depression would occur in patients receiving long-term opioid therapy. The findings revealed that the respondents' knowledge of pain management is far from optimal. The mean correct answer rate in this study was only 65.7% which is significantly below the threshold of 80% which has been indicated as the minimum level at which is acceptable in order for nurses to deliver appropriate care to patients who are experiencing pain (6).

A statewide cross-sectional survey conducted in Australia revealed that respondents' attitudes towards opioids and their administration to patients with pain were generally

positive; that is, more than half the respondents gave positive answers to each of these items. However, responses to particular items highlighted the presence of negative attitudes that could have a major influence on nurses' pain management. Nearly 40% of respondents did not agree that, in general, children and patients with a history of opioid addiction should be given opioids for pain relief. Over 20% agreed or were unsure whether patients who ordered analgesics every 4 hours and reported pain within those 4 hours should have to wait until their pain relieving medication was due. One-third (32.8%) of respondents considered opioids should not be required for longer than 3 days post-operatively and nearly 20% were unsure about this. Nearly half (47.8%) felt that, in general, patients should be encouraged to have non-opioids rather than opioids for pain relief. Just over one-third (36%) agreed it was best to administer the least possible amount of opioids (26).

A cross sectional study in western Ethiopia showed that majority (78.1%) correctly answered the item which highlights the use of non-pharmacological intervention like distraction in a form music or relaxation for managing pain, whereas only few (24.4%) succeeded to correctly answer the pharmacological question item stating “when a patient requests increasing amounts of analgesics to control pain, this usually indicates that the patient is psychologically dependent”. The mean percentage score obtained on this survey was poor (49.8%)(27).

2.4.Nurses Practice of Assessment and Management of Pain

The same study in Bangladesh revealed that most of the nurses (59.1%) stated that there was no pain management standard or protocol used as a basis in the hospital. On the other hand, 18.3% of the nurses stated that there was a pain management standard or protocol in their hospital, and 22.2% of nurses answered that they were not sure. Majority of nurses 93.5% believed that side effect of narcotics should be observed at least 20 minutes after administration(21).

Pain management practice of nurses depends on their existing knowledge and attitude regarding pain. Nurses are responsible for providing optimal pain relief to their patients. Currently much researches showed that patients are continually experience unnecessary postoperative pain due to lack of knowledge. The same study in Bangladesh showed that

the relationship among nurses' knowledge and attitudes and pain management practice did not correlate with pain management practice ($r = 0.014$; $p = 0.89$)(21).

The same survey in Nigeria showed that 95.8% of respondents collect information about pain from patients while 4.2% did not. Around 89.7% of respondents agreed that pain history is essential in pain assessment, while 10.3% respondents disagree. In self-report of pain used by nurses to assess pains, 72% of respondents agreed, while 28% of respondents disagreed with this methods. Almost 67.6% agreed that rating scale ranging from (0) "no pain at all to (10) the worst pain" is essential to adopt in pain assessment, 32.4% disagreed with this fact. Also 78.9% of the respondents agreed that observation is part of the method used in surgical pain assessment, 21.1% disagreed(9).

The above study in Uganda revealed that 90% of nurses reported that they assess for pain among adult patients who are able to report pain while 10% did not. Majority 96% of the participants who assessed for pain did not use any pain assessment tools. Among those who reported to use a tool , majority 83.3% used it sometimes , which is 26 to 50% of the time. The tools used included; Numerical Rating Scale (NRS), Faces and Visual analogue. The Findings show that the mostly used methods of pain assessed among participants who did not use tools included; patient's verbal report or complaints (68%), facial expression like tearing and frowning (34.5%), and touching to elicit tenderness (27.2%). Almost a half of the participants (43.5%) and (41.8%) reported that they do not agree with patients' statements about their pain and do not feel competent in effectively assessing patient for having pain respectively(10).

The same study in Uganda revealed that among those who reported that they did not assess for pain, the commonest reason for not assessing was because patients are able to report pain 53%; so there is no need to assess for it. Other reasons included: lack of guidelines for pain assessment 24%, lack of pain assessment tools 18% and heavy nursing workload 5%. 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 familiarity with tools (78.2%), lack of protocols and guidelines on pain assessment and management (74.1%), poor documentation of pain assessment and management (77.6%) and poor communication of pain assessment priorities at the unit (74.7%). Majority of the

participants who assessed for pain did not assess for the need of analgesics before the following procedures are performed; repositioning 60%, endotracheal suctioning 73%, drain removal 51%, and invasive line placement 67%. And more than a quarter 29% did not assess for the need for analgesics before wound care(10).

In the same study in Ireland it was determined that 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(6).

Some personal factors of nurses often contribute to their pain management practice. A nurses past personal experience of pain and analgesic use has been found to be an important factor in changing their attitude towards pain. This also helps them achieve optimal pain management outcome in their practice. The fact that nurses work in postoperative area and the duration of experience may contribute to determining how patients pain can be managed effectively (21).

It has been found that nurses' characteristics, such as age, knowledge, experience, intuition, attitudes and beliefs, as well as nurses' personal experience with pain, influence their implementation of analgesic interventions and knowledge about pain (28).

Improvements in pain management have occurred very slowly despite considerable efforts during the last two decades. Previous research identified nurses' knowledge deficits and exaggerated fears of addiction and respiratory depression and lack of understanding of the principle of scheduling analgesia. Knowledge contributes to the development of beliefs, affecting the salient beliefs and attitudes towards that object. Nurses' knowledge deficits in relation to pain management and poor knowledge of the benefits of opioids may cause them to be unduly concerned with the negative attributes of opioids, rather than with patient benefits, for example comfort, mobility and independence (26).

2.5.Nursing Documentation of POP Management

It has been suggested that the key issue of POP management strategies is to “make the pain visible”. This can be done by accurate pain assessment documentation, as well as monitoring the efficacy of pain treatment and the documentation should also include the patient’s satisfaction. For the safety of the patients, documenting daily nursing care in patients’ records is vital. The primary purpose of documentation is to communicate patient’s care among health team members and to provide legal evidence of the delivered care. POP assessment and management should be documented routinely in a systematic format. It can be documented as part of the vital signs record form. Nurses are also responsible for documentation of POP assessment and management (11).

Unfortunately, previous studies showed that nurses’ documentation of assessment, interventions, and treatment outcomes were inconsistent and infrequent. The findings of interventional research in Jordan revealed that there was no evidence of documentation of pain assessment in 53% of patient’s records. On the 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. The findings also revealed that the non-pharmacological interventions were documented in 48.7% of nursing notes. In addition, the outcomes of the interventions were described in 15% of the nursing notes(11).

The same study in Uganda showed that majority 79.1% of the participants who assessed for pain documented findings after assessment. Almost three quarters 74% of those who reported to document pain assessment findings did it whenever a patient reported pain or complained. Others documented hourly 4.1%, two hourly 5%, more than 2 hourly 2% and once every shift 14.9%. This study also revealed some reasons for not documenting findings. Among participants who did not document findings, the following were mentioned as reasons for not documenting; lack of guidelines for pain assessment and management 9.4%, no need to document because patients can report pain 3.1%, lack of pain charts for documentation 59.4%, pain assessment is not part of routinely documented data 46.9% and nursing workload 21.9% (10).

Effective pain management requires a sound knowledge of pain and its treatment. Researches indicated that inadequate knowledge and inappropriate attitudes of nurses

regarding pain management have a significant impact of treatment and patient care(27). Although there has been a growing awareness among health care professionals and the public; and the means to control pain is available for the majority of cases, the prevalence of pain in health institutions and the community is still high. The reasons for this may lie in the scant interest and attention of health professionals regarding pain and the lack of familiarity with the drugs and methods that are usually effective in controlling pain (29).

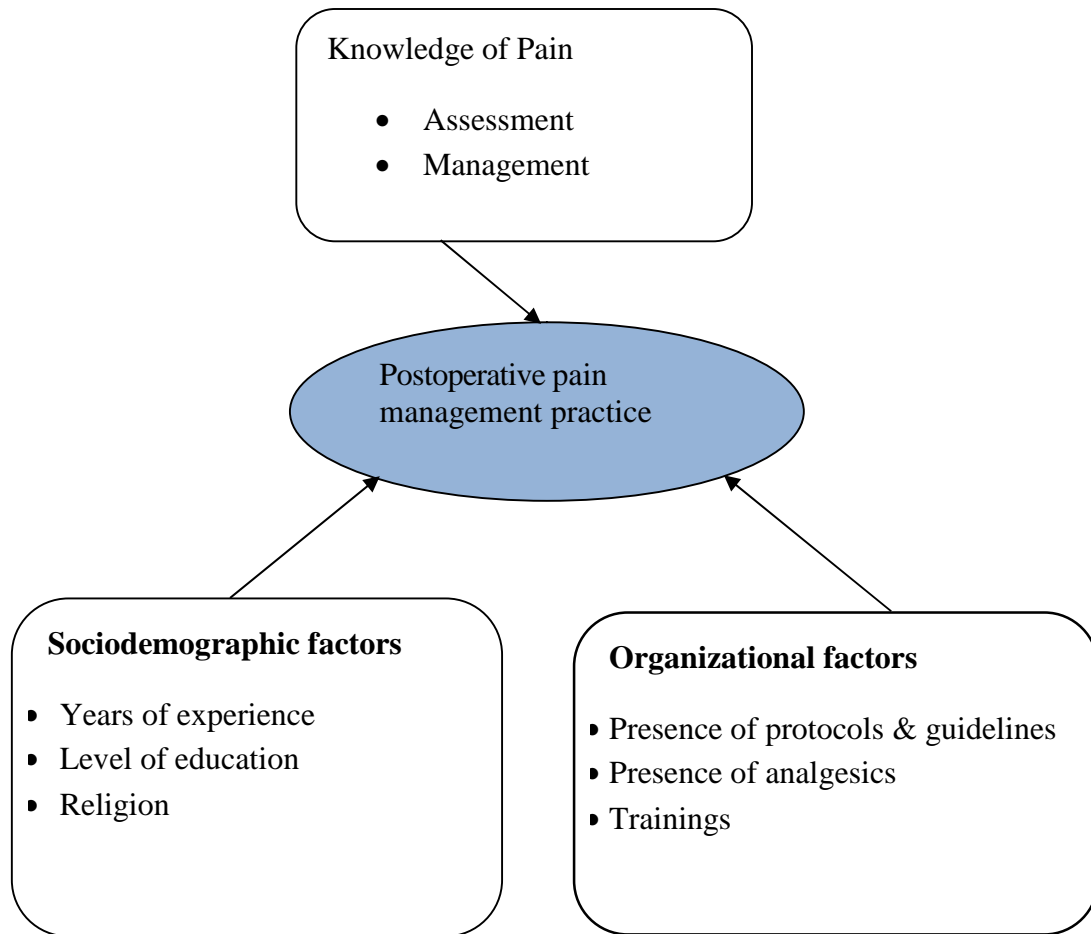


Figure 1: Conceptual framework on assessment of adult postoperative pain management practice (developed by investigator after reviewing literature).

3. Objectives

3.1.General Objective

To assess adult postoperative pain management practice among nurses working in Addis Ababa public hospitals, Ethiopia, 2015.

3.2.Specific Objectives

- To determine the knowledge of nurses about POP assessment and management in Addis Ababa Public hospitals 2015.
- To determine the practice of nurses on POP assessment and management in Addis Ababa Public hospitals 2015.
- To identify factors that influence practice of POP assessment and management in Addis Ababa Public hospitals 2015.

4. Methods and Materials

4.1. Study Area and Period

The study area included five public hospitals; Tikur Anbessa Specialized Hospital (TASH), St. Paul's Specialized Hospital (SPSH), Ras Desta Damtew Memorial Hospital (RDDMH), Zewditu Memorial Hospital and Yekatit 12 Hospital which were selected by lottery (simple random sampling) method.

Addis Ababa is the capital city of Ethiopia with ten sub-cities and 99 wards, lies at the foot of Mount Entoto. According to the 2007 census report by Central Statistical Agency of Ethiopia (CSA), it has an elevation of 2,355m and an estimated area of 526.99 square kilometers and has an estimated density of 5165.1 people per square kilometer and total population of 3,384,569 urban inhabitants with annual growth rate of 3.8%. The dominant ethnic group of Addis Ababa City is Amhara, language is Amharic, religion is Orthodox and the other dominant ethnic groups are: Oromo, Gurage, Selte, and Tigre respectively.

Addis Ababa has 12 public hospitals which are found in different sub cities and a state university named Addis Ababa University which has 6 campuses in Addis Ababa.

The study period was from April to May 2015.

4.2. Study Design

Institutional based quantitative cross sectional study was conducted among nurses working in selected public hospitals at Addis Ababa. This study design was preferred due to the fact that there was limited time to accomplish the study.

4.3. Population

4.3.1. Source Population

All nurses who were working in Addis Ababa public hospitals.

4.3.2. Study Population

Nurses who were working in surgical ward, Orthopedic ward, adult surgical Intensive care unit (SICU), Operation rooms(OR), recovery rooms and gynecology and obstetrics wards in the selected hospitals during the study period.

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion Criteria:

Nurses who were working in the surgical ward, Orthopedic ward, adult surgical Intensive care unit (SICU), OR, recovery rooms, emergency and gynecology and obstetrics wards for six months and above were included.

4.4.2. Exclusion Criteria

- Nurses who were not willing to participate in the study
- Nurses who were on annual leave
- Nurses who were working other than surgical ward, SICU, emergency, OR, recovery, orthopedic, gynecology and obstetrics
- Nurses who were on sick leave during data collection
- Nurses who were on study leave

4.5. Sample Size Determination

Sample size were determined using the formula for single population proportion with a 95% confidence interval, a margin of error of 5%, and Prevalence is 26.7% (0.267). The calculated sample size was 301. By adding 10% non-response rate and incomplete, lost questionnaire; the total sample size were 331 nurses.

By using the formula:

$$n = \frac{Z^2 p(1-p)}{d^2} = \frac{(1.96)^2 \cdot 0.267(1-0.267)}{(0.05)^2} = 301$$

Where: n = the required minimum sample size

P = the prevalence of acute postoperative pain

d = margin of error

Z /2 = critical value at 95% confidence level (1.96).

The calculated sample size = 301 + 10% non-response rate = 331

4.6. Sampling Method

There are 12 public hospitals in Addis Ababa. Nurses working in these 12 hospitals were the source population of this study. To obtain a representative sample, simple random sampling were applied to select five hospitals. Then nurses working in wards such as OR, recovery, SICU, surgical ward, orthopedic, gynecology and obstetrics were taken as study population. Then proportional number of participants were allocated for each selected hospital. Then participants were selected by simple random sampling based on the proportion of the number of nurses for each hospital.

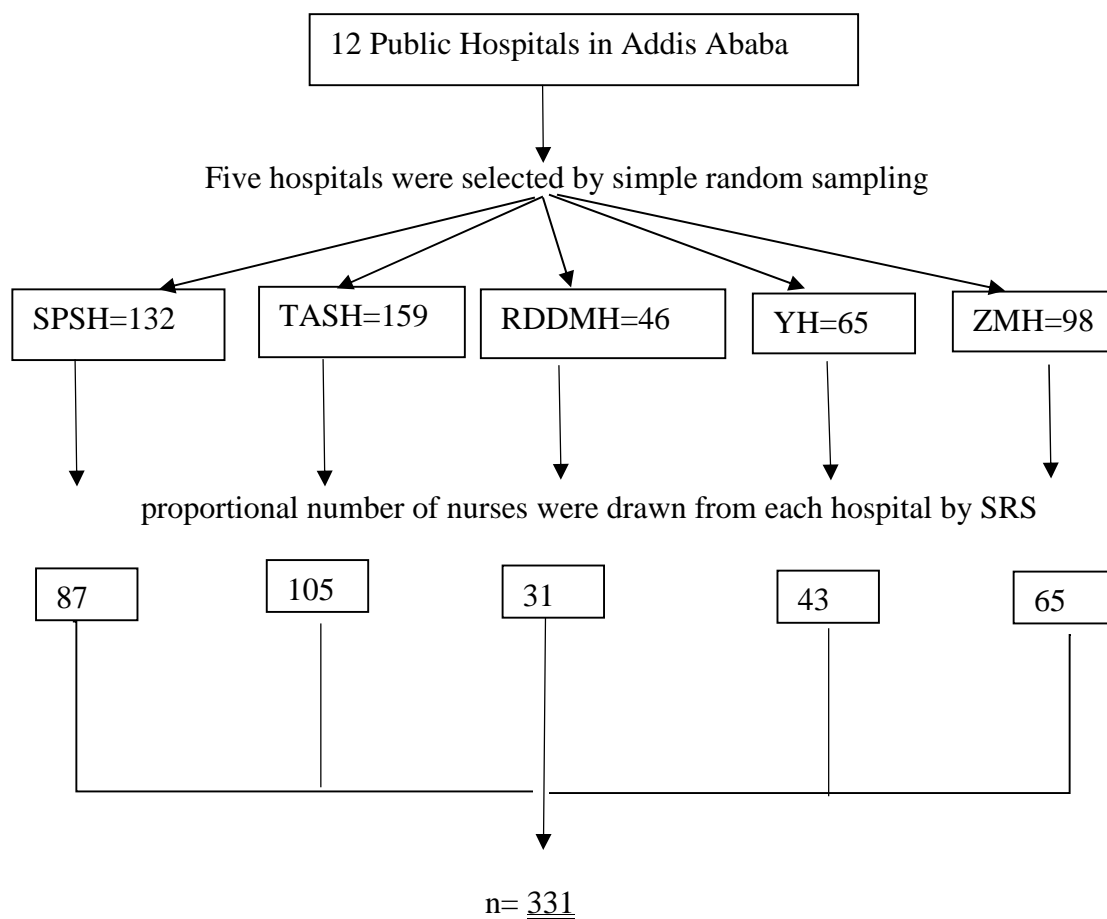


Figure 2: Schematic presentation of the sampling technique

4.7. Instrument and Data Collection Procedure

Self-administered structured questionnaire was used to collect the data from study participants. The tool was developed after intense review of literatures. It was prepared in English and pretest was conducted in 10% of participants to test the tool if it fits in the context of the country. Pre-tested participants are excluded from the actual study. The questionnaire contains three parts which include nurses' socio-demographic status, knowledge of POP assessment and management, and practice of POP assessment and management.

Data was collected by three health center BSc nurses who were recruited from different health centers. Training was given for data collectors by the principal investigator to make them familiar with the data collection tool. Principal investigator assisted and coordinated the data collectors as well as the participant nurses during data collection.

Data was collected from nurses that were selected from each hospital. The principal investigator took the responsibility of coordinating the nurses and discussing about the purpose of the study then based on their willingness to participate, questionnaire was distributed and orientation was given on how to fill the questionnaire and clarification for any difficulty was the duty of the data collectors and principal investigator. Finally completed questionnaire was returned to the data collectors.

4.8. Study Variables

4.8.1. Dependent Variable

- POP management practice

4.8.2. Independent Variables

- Sociodemographic characteristics (sex, age, marital status, ethnicity, Religion, Educational status, Experience, working area)
- Training
- Availability of standardized tools
- Availability of pain drugs
- knowledge of POP management

4.9.Operational Definitions

- **Knowledge:** classified in to three categories High (with a score of 80.00-100%), moderate (with a score of 60.00-79.99%) and low (with a score of <60.00)(21).
- **Practice:** classified in to three categories High (with a score of 80.00-100%), moderate (with a score of 60.00-79.99%) and low (with a score of <60.00)(21).
- **Trained:** Nurses who have got at least one training on pain assessment and management either on the job or off the job.
- **Pain drugs are available** if at least one opioid drug (morphine) is available when prescribed.

4.10. Data Processing &Analysis

Data gathered from study participants was cleaned & checked for its completeness then coded and entered into computer software using Epi-info version 7 and exported into statistical package for social sciences (SPSS) version 20. Descriptive statistics such as, frequencies, proportions, Chi-square, Odds ratios with 95% confidence interval were computed and multiple regression methods was used. P-Value less than 0.05 was considered as a level of significance. Those variables that show significant association with the outcome variable were included in a single model and multiple logistic regressions were performed. Finally only those independent variables that maintain their association with outcome variables in multiple regressions were used to construct the final models. Results are presented in frequency tables, graphs and charts.

4.11. Data Quality Control

To assure the data quality, data collection tool was prepared after intensive reviewing of relevant literatures and similar studies. The questionnaire was prepared in English. Training was given for data collectors by the principal investigator. Pretest of the questionnaire was carried out on 33 nurses in Tirunesh Beijing hospital that were not be included in the study, based on the result necessary modification was followed .The

collected data was checked for completeness before data entry.

4.12. Ethical Consideration

Before data collection, ethical clearance was obtained from research and publication review committee and Department of nursing and midwifery of Addis Ababa University .Formal letter of cooperation was written to respective administrators.

Consent was obtained from the study participants after explaining the purpose of the study and all the participants were reassured of privacy. After getting informed consent, the data collectors started the data collection by considering the norms, values, beliefs, cultures and confidentiality of the participants.

4.13. Dissemination of the Study Result

The study result copies are given to Addis Ababa university department of nursing and midwifery and to relevant stakeholders. Finally the manuscript will be submitted to scientific journals for possible publication.

5. RESULTS

5.1. Socio demographic characteristics of respondents in selected hospitals of Addis Ababa, Ethiopia from March to April 2015

A total of 331 standardized structured questionnaire was distributed to both male and female nurses working in postoperative area. Seven respondents were excluded from the analysis for gross incompleteness and inconsistency of responses which made a response rate of 97.9%. Of all respondents 231 (71.3%) and 93(28.7%) were female and male respectively. Mean age of respondents was 30.35 ± 6.430 years with minimum age of 19 and maximum age of 56. Most of the respondents 180(55.6%) were orthodox Christian by religion and Amhara 157(48.5%) by ethnicity. A significant number 254(78.4%) of the respondents were bachelor degree holders. One hundred seventy (52.5%) of the respondents were single. From the total respondents 132 (40.7%) had 5 to 10 years of total work experience and 139(42.9%) had less than 2 years of experience in postoperative area. Ninety three (28.7%) of the respondents were working in surgical ward (Table 1).

Table 1. Sociodemographic characteristics of respondents in selected hospitals of Addis Ababa, Ethiopia from March to April 2015

Sr.No	Characteristics	Frequency	
		Number	%
1	Sex		
	Female	231	71.3
	Male	93	28.7
2	Age category		
	≤ 19	1	0.3
	20-24	43	13.3
	25-29	136	42.0
	30-34	73	22.5
	35-39	41	12.7
	40-44	16	4.9
	45-49	9	2.8
	5	1.5	

	≥ 50		
3	Ethnic origin		
	Amhara	157	48.5
	Oromo	102	31.5
	Tigre	41	12.7
	Other	24	7.4
4	Marital status		
	Married	151	46.6
	Single	170	52.5
	Divorced	0	0
	Widowed	3	0.9
5	Religion		
	Orthodox	180	55.6
	Muslim	59	18.2
	Protestant	79	24.4
	Catholic	6	1.9
	Other	0	0
6	Level of education		
	Diploma	61	18.8
	Bachelor degree	254	78.4
	Masters and above	9	2.8
7	Total work experience		
	Less than 2 years	36	11.1
	2 to 5 years	88	27.2
	5 to 10 years	132	40.7
	10 to 20 years	51	15.7
	> 20 years	17	5.2
8	work experience in postoperative area		
	Less than 2 years	139	42.9
	2 to 5 years	124	38.3
	5 to 10 years	51	15.7
	10 to 20 years	10	3.1

	> 20 years	0	0
9	Current area of practice		
	Surgical	93	28.7
	SICU	50	15.4
	OR	56	17.3
	Recovery	21	6.5
	Orthopedic	48	14.8
	Gynecology/obstetrics/emergency	56	17.3

5.2.Respondents Knowledge of POP assessment and management in selected hospitals of Addis Ababa, Ethiopia from March to April 2015

The result in fig 3 below indicates the nurse’s level of knowledge of postoperative pain assessment and management. It was derived from summation of correct answers of the 22 knowledge assessment questions for each respondent. Then based on the operational definition levels of knowledge were determined. From all participants, 162(50%) of the respondents knowledge was low, 131(40%) was moderate and only 31(10%) of respondents knowledge was good.

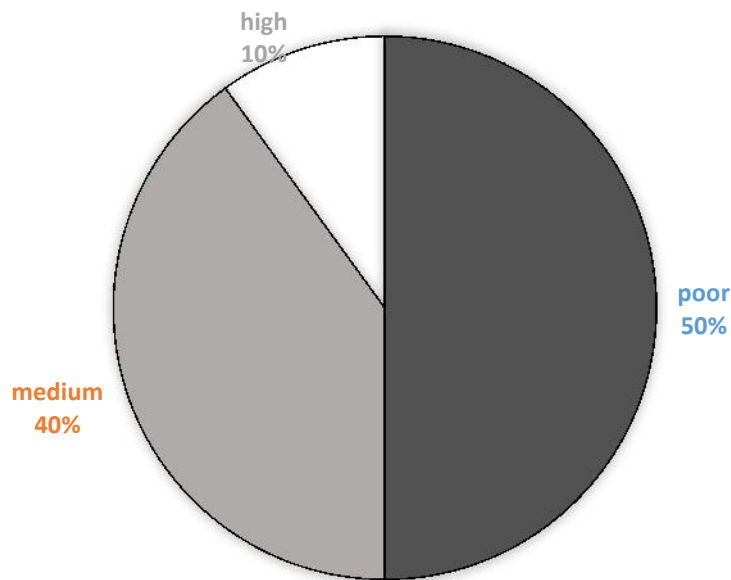


Fig 3- Nurses Levels Of Knowledge

Table 2 indicates the Proportion of respondents who correctly respond to Knowledge questions. It revealed that majority of respondents 255(78.7%) agreed that pain should be assessed before and after administration of pain drugs. Only 123 (38%) of respondents correctly answered item 202 which assessed knowledge with regard to vital signs as reliable indicators of intensity of a patient’s pain. Significant number of respondents 221(68.2%) agreed that Distraction, for example, by the use of music or relaxation, can decrease the perception of pain.

Table 2. Proportion of respondents who correctly respond to Knowledge questions regarding POP assessment and management of respondents in selected hospitals of Addis Ababa, Ethiopia from March to April 2015

Variables	No.	%
The most accurate judge of the intensity of the patient’s pain is the patient.	277	85.5
Vital signs are always reliable indicators of the intensity of a patient’s pain	123	38.0
patients who can be distracted from pain usually do not have severe pain	115	35.5
When a patient requests increasing amounts of analgesics to control pain, this usually indicates that the patient is psychologically dependent.	121	37.3
Paracetamol injection is used in managing surgical pain.	161	49.7
cold and heat such as warm bath, sitz bath, ice bags compress should be used in the management of surgical pain	218	67.3
Distraction, for example, by the use of music or relaxation, can decrease the perception of pain.	221	68.2
pharmacological methods: Opioids analgesic such as pethidine and Pentazocine are used to relieve pain in surgical patients	245	75.6
It may often be useful to give a placebo to a patient in pain to assess if he is genuinely in pain.	161	49.7
combining analgesics that work by different mechanisms may result in better pain control with fewer side effects than using a single analgesic agent	241	74.4

Pain should be assessed before and after administering pain drugs.	255	78.7
observation is part of the method used in surgical pain assessment	256	79.0
The side effects of narcotics should be observed at least 20 minutes after administration	243	75.0
If the source of pain is not known a pain drug should not be used during the pain evaluation period because this could mask the ability to correctly diagnose the cause of pain	147	45.4
Based on their cultural and spiritual beliefs Patients may think pain and suffering are necessary.	263	81.2
Patients should be encouraged to endure as much pain as possible before using an opioid.	159	49.1
After an initial dose of an opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response	262	80.9
Presurgery injection such as anesthesia is given for pain management.	252	77.8
Respiratory depression rarely occurs in patients who have been receiving stable doses of Opioids over a period of months.	226	69.8
Opioids should not be used in patients with a history of substance abuse.	148	45.7
Rating scale ranging from (0) "no pain at all to (10) the worst pain" is essential to adopt in pain assessment.	255	78.7
If a patient sleeps with no movement postoperatively, this indicates that patient is not in pain.	174	53.7

5.3. Practice of respondents in selected hospitals of Addis Ababa, Ethiopia from March to April 2015

The result in figure 4 indicates 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's correct answers 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.

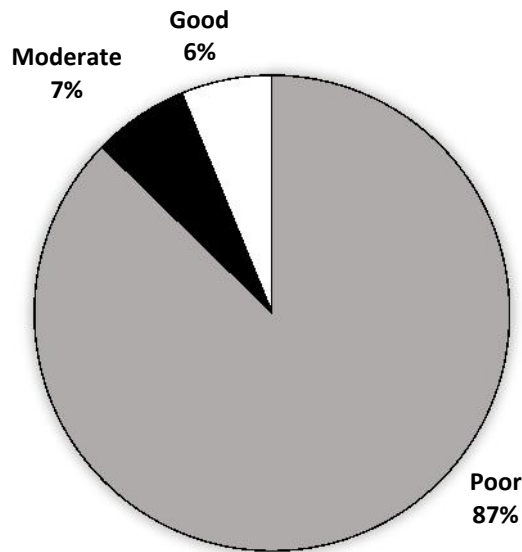


FIG 4. LEVELS OF PRACTICE OF RESPONDENTS

Table 3 shows the distribution of nurses' practice of POP among selected hospitals. Even though a significant number 151(46.6%) of the nurses assess pain for patient able to communicate pain, only 57(37.7%) use PAT. Almost half of the respondents who assessed pain 74(49%) document findings after pain assessment. More than half 177(54.6%) of nurses responded that morphine was not available at all while 24(7.4%) respond that it was always available.

Only 61(38.9%) nurses have got training related to pain assessment and management and 84(25.9%) of respondents said that pain guideline was available in their organization.

Nurses were asked for barriers of pain assessment and 71% reported that nursing work load was the main barrier, 31.2% said that lack of familiarity with assessment tools and 28.1% reported lack of protocols as barriers of pain assessment.

Table 3. Proportion of respondents who correctly respond to Practice questions regarding POP management in selected hospitals of Addis Ababa, Ethiopia from March to April 2015

Variables	Number	%
Nurses assess for pain for patient able to communicate pain	151	46.6
use of a pain assessment tool	57	37.7
Type of tool used to assess pain		
Verbal rating scale	39	68.4
Numeric rating scale	17	29.8
Graphic rating scale	10	17.5
Visual analog scale	12	21.1
Picture/face scale	5	8.8
Other	0	0
Frequency of use of a pain assessment tool		
Always	30	52.6
Frequently	11	19.3
Occasionally	14	4.3
Rarely	2	0.6
Never	0	0
Nurses who document the findings after pain assessment	74	49.0
Frequency of documentation of pain assessment		
Always	35	47.3
Sometimes	11	14.9
Once every shift	22	29.7
Rarely	6	8.1
Other	0	0
Reasons for not documenting pain assessment		
Nursing workload	230	92
No designed area for charting	150	60
Lack of education on assessment tools	103	41.2
	113	45.2

Lack of availability of pain assessment tool	177	70.8
Lack of familiarity with assessment tools	71	28.4
Lack of protocols for pain assessment		
Respondents utilization of drugs for severe pain management		
NSAIDs	152	46.9
Mild Opioids	25	7.7
Strong Opioids	147	45.4
Rate of availability of morphine in stock		
Sometimes	78	24.1
Not available at all	177	54.6
Most of the time	45	13.9
Always available	24	7.4
Procedures for which nurses assess the need for administration of analgesia before the procedures are done		
Endotracheal suctioning	201	62.0
Wound care	150	46.3
Patient repositioning	87	26.9
Invasive line placement	81	25.0
Drainage removal	48	14.8
Spontaneous breathing (weaning) trial	28	8.6
Type of pain relief selected for the patient should be based on the type of surgery	163	50.3
Nurses discussed pain scores and management during nurse-to-nurse report	222	68.5
Nurses always agree with patients' statements about their pain	276	85.2
Respondents rate their own knowledge about pain assessment and management		
Excellent	46	14.2
Good	180	55.6
Average	90	27.8
Poor	8	2.5

Nurses who received training related to postoperative pain assessment and management	61	38.9
How do you receive training on POP Assessment and management?		
Lecture	43	32.8
Course	23	18.0
Conference	19	21.3
Workshop	41	27.9
Nurses satisfied with the training	57	93.4
Availability of a pain guideline or standard in the organization	84	25.9
Frequency of reading guidelines		
Always	55	65.5
Monthly	14	16.7
Quarterly	8	9.5
Yearly	7	8.3
Barriers to assess pain in postoperative patient		
Nursing workload	230	71.0
Lack of familiarity with assessment tools	101	31.2
Lack of protocols for pain assessment	91	28.1
Lack of availability of pain assessment tool	71	21.9
Other	0	0
Barriers in giving pain medication to postoperative patient		
Lack of availability of drugs	205	63.3
Fear of opioids complication	189	58.3
Nurses are not allowed to give pain medications	52	16.0
Other		0 0

Table 4 below shows the association of Sociodemographic variables and level of knowledge with level of pain management practice. On crude logistic regression analysis, male's level of practice is more significant than females [**Crude OR =0.242(95% CI: 0.096, 0.614)**] and also on multivariate logistic regression analysis this association was significant [**AOR=0. 257 (95% CI: 0. 070, 0. 949)**]. A significance level of P<0.05 was accepted as statistically significant.

Nurse's current area of practice also had significant association with nurses POP management practice. Practice of nurses in SICU was better than those in surgical ward with [**COR=8.667(95% CI: 1.764, 42.586)**] and [**AOR =12.333 (95% CI: 1.949, 78.019)**]. Finally, knowledge of respondents had significant association with their practice by crude odds ratio [**COR=0.281(95% CI: 0.094, 0.834)**] but it didn't show association by adjusted ratio.

Table 4-Bivariate and multivariate logistic regression analysis of Sociodemographic factors and knowledge associated with practice of nurses about postoperative pain management.

Characteristics	Overall practice			
	Poor n (%)	Good n (%)	COR(95% CI)	AOR (95% CI)
Sex				
Female	223(96.5)	8(3.5)	0.242(0.096,0.614)*	0.194(0.053,0.714) **
Male	81(87.1)	12(12.9)	1	1
Qualification				
Diploma	57(93.4)	4(6.6)	1.083(0.349,3.363)	2.409(0.662,8.763)
Bachelor degree/ masters and above	247(93.9)	16(6.1)	1	1

Total years of experience				
Less than 5 years	119(96.0)	5(4.0)	0.518(0.184,1.463)	0.697(0.209,2.326)
Greater than 5 years	185(92.5)	15(7.5)	1	1
Experience in Postoperative area				
Less than 5 years	250(95.1)	13(4.9)	0.401(0.153,1.053)	0.600(0.192,1.881)
Greater than 5 years	54(88.5)	7(11.5)	1	1
Current area of practice				
Surgical	91(97.8)	2(2.2)	1	1
SICU	42(84.0)	8(16.0)	8.667(1.764,42.586)*	9.761(1.858,51.274)**
OR	52(92.9)	4(7.1)	3.500(0.620,19.767)	3.024(0.501,18.248)
Recovery	19(90.5)	2(9.5)	4.789(0.634,36.153)	6.095(0.744,49.939)
Orthopedic	46(95.8)	2(4.2)	1.978(0.270,14.498)	1.855(0.229,15.046)
Other(Gynecology, Emergency)	54(96.4)	2(3.6)	1.685(0.231,12.312)	1.740(0.224,13.538)
Knowledge level				
Poor	155(95.7)	7(4.3)	0.235(0.069,0.796) *	0.627(0.114,3.465)
moderate	123(93.9)	8(6.1)	0.338(0.102,1.117)	0.394(0.097,1.593)
good	26(83.9)	5(16.1)	1	1

COR=Crude odd ratio, AOR=Adjusted odd ratio, CI=confidence interval

*Variables which had association with POP management practice by COR

** Variables which had association with POP management practice by AOR

6. Discussion

There is limited information about the POP management practice in Ethiopia. Thus this study has tried to assess POP management practice and associated factors among nurses in five selected public hospitals in Addis Ababa, Ethiopia.

In this study majority, 283(87.3%) of the respondents practice was low, 21(6.5%) was moderate and only 20(6.2%) of respondents practice was good. This indicates that though most of the respondents were professionals and experienced, the overall level of practice of respondents was low. It is lesser as compared to a study in Bangladesh which showed that practice of nurses is at moderate level (21). This might be due to nursing work load, lack of analgesia, knowledge deficit, lack of pain guidelines and lack of interest toward the profession.

This study illustrated that 46.6% of nurses assess pain for patient able to communicate pain. This result was lesser as compared to studies in Nigeria (95.8%), Uganda (90%) (9, 10). It might be due to work load, knowledge deficit regarding postoperative pain assessment. From those who assessed pain, 37.7% used PAT and was higher as compared to a study in Uganda 4% but lesser when compared with a similar study in Ireland 57.4% (6, 10). This may be due to unfamiliarity with PAT and lack of availability of PAT.

This study showed that 49% of respondents document the findings after pain assessment. It indicates that documentation of the findings of POP assessment and management outcomes was poor. This figure was consistent with a similar study conducted in Jordan 48.7% (11). This may be related to lack of knowledge of importance of documentation.

The present study indicates that 54.6% of study participants responded that morphine was not available at all. It indicates poor management practice of POP. It was consistent with WHO 2006 report, Ethiopian morphine per capita consumption was found 0.0002 mg/capita. It was low as compared to global mean of 5.85mg (8).

In this study nurses knowledge was found 162(50%) poor, 131(40.4%) moderate and 31(9.6%) good. This indicates nurse's knowledge was poor. It was consistent with a study done in western Ethiopia (49.8%) poor. But it was inconsistent with similar studies in Uganda which showed that 71.8% of nurses were good, Nigeria (60%) good (6, 9, 11, 27, 30, 31). This might be due to lack of adequate on the job training and it might also be due to pre-service curriculum difference.

This cross sectional study revealed that 62% of nurses said Vital signs are always reliable indicators of the intensity of a patient's pain as compared to 26.9% in Bangladesh. Similarly, it was found 64.5% of nurses said that patients who can be distracted from pain usually do not have severe pain while it was 23.7% in the same study in Bangladesh(21).

Most of respondents 78.7% agreed that pain should be assessed before and after administering pain drugs. However it was lesser when compared with similar study in Bangladesh which was found 96.8% nurses agreed (21).

In this study 68.2% of respondents agreed that distraction, for example, by the use of music or relaxation, can decrease the perception of pain and this figure was found to be lesser than similar studies done in western Ethiopia and Nigeria showed 78.1% and 92.6% respectively (9, 25).

Concerning training related to POP assessment and management this study showed that a lesser proportion 38.9% of nurses had training. It indicates that the majority of nurses didn't get training regarding POP assessment and management. It was found lesser as compared to 69% in Uganda and 62.8 % in Ireland(6).

The present study showed 25.9% of respondents said that pain guideline was available in their organization. This indicates that access of pain guidelines was difficult. But it was higher as compared to a study conducted in Bangladesh 18.3% (21).

This study also revealed that nursing work load, lack of familiarity with PAT and lack of protocols were barriers of pain assessment identified by 71%, 31.2% and 28.1% of nurses respectively. reasons revealed by a study in Uganda for not assessing pain from postoperative patients were nursing work load, lack of availability of PAT, lack of education on assessment tools, lack of familiarity with PAT and lack of guidelines for pain assessment by 84.1%, 74.1%, 82.4%, 78.2% and 74.1% of nurses respectively (10).

In the present study sex showed significant association with pain management practice. Males had better practice than females. This is due to educational level difference. About 91.4% of males were bachelor and master's degree holders as compared to 83.6% females. In addition to that proportion of males who had greater than five years of work experience in postoperative areas was 24.7%. Which was higher than females 16.5%. It may also be due to biological differences where males may have a better ability to cope with increased workload and males have lesser rate of burnout, and females may have lesser concentration on their work because their attention may be attracted to family affairs at home.

This study also showed association between nurses working area and level of practice. POP management practice of nurses in SICU was better than nurses in surgical ward. This may be due to SICU is a critical patient care area well educated as well as trained nurses may be assigned and that may affect the level of practice.

7. Strengths and limitations of the study

This study has tried to assess the level of practice of POP management and factors affecting it.

At the time of designing the research proposal and before data collection well defined inclusion and exclusion criteria was set, data collectors were trained, questionnaires were tested and necessary corrections were made, and most of the questions of the quantitative study were closed ended. Probability sampling method was used to give equal chances for all study populations and can be generalized for the general population (nurses working in postoperative areas of public hospitals in Addis Ababa). In addition to that, the field activities of the data collectors were closely observed, high response rate the data was entered, and cleaned thoroughly by the principal investigator. These were the strengths of the study which are highly believed to minimize the possibility of systematic bias.

However, since it was a snapshot study it may provide different result through time. Lack of similar studies especially in Ethiopia was a limitation for additional comparison. Since it was study focused on practice, it was better if it considers participant observation. But there was a limitation of time to do that and it may have an impact on the overall result of the study.

8. Conclusion and Recommendation

8.2. Conclusion

Even though the majority of nurses are professionals majority of them have poor knowledge and practice. This indicates that postoperative pain was undertreated, and patient's right to get rid of pain was not respected.

Some Sociodemographic characteristics like sex and working areas showed significant association with level of practice. However, knowledge had no association with levels of practice.

8.1. Recommendation

The researcher recommends continuous professional development is the key to improve the quality of care for postoperative patients. In addition to that an ongoing on the job training and refreshment courses are recommended. Proficiency assessment for professionals at regular intervals may also encourage health care workers to update themselves and this in turn may affect the level of knowledge and practice. Stakeholders should provide PATs and pain guidelines as they may help professionals to improve their practice. The training curriculum should be reviewed to include more content on pain management.

This research initiates another preferably observational study in a greater number of clinical settings with a larger sample size to enhance generalizability.

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Annexes

Annex I: Information Sheet

Name of organization and Sponsor: Addis Ababa University College of Health Science School of Allied Health Science Department of Nursing and Midwifery.

This Self-administered Questionnaire is designed to assess adult post-operative pain management practice among nurses working at TASH, SPSH and RDDMH. In addition, data collectors may observe you while you are giving care to patients in pain. All the respondents are kindly requested to fill all the questions below. Your Response is important to the result of the research. You are selected by simple random sampling technique.

Benefit and Risk

Participating in the study does not involve risks. Your participation in this research may not give you direct benefit but your participation is likely to help us in identifying the real knowledge and practice of POP assessment and management among nurses and will have the benefit of introducing currently available assessment tools, the need for special trainings, curriculum modification and guideline development.

You will not be provided any incentives to take part in this research.

If you have any questions about the research and your rights, you may contact:

1. Mulugeta Emiru -principal investigator Tel. +251-911-02-3792

Email: tomulere@gmail.com

2. Mr. Yosief Tsige – Advisor

Tel. +251-911-30-582

Email: josephTsige@yahoo.com

Annex II: Informed Consent

Dear nurses (participants)!

Good day! My name is from Addis Ababa University, College of Health Science; School of Allied Health Science Department of Nursing and Midwifery. I am here to study about adult postoperative pain management practice among nurses working in Addis Ababa hospitals and you are chosen to participate in this study.

The purpose of this study is to generate important information on adult postoperative pain management practice and also to identify the determinant factors of POP assessment and management which to improve the service provision and to achieve changes in practice of POP. In order to attain this study objectives your good will and kindly participation is needed. Confidentiality is strictly protected and none of your response will be reported separately. Therefore, there is no need to write your names or ID numbers on these questionnaires. It is your right to participate or to refuse in this study. However, your sincere responses will help us to generate valuable information to attain the purpose of the study. So please take a few minutes to answer to the questions.

Are you willing to participate in this study? Put “X” mark in the box you chosen.

Yes

No

Annex III: Questionnaire

Name of your department _____

Questionnaire # _____

Date of interview _____

Time of interview _____

Part I: Socio Demographic Characteristics of respondents

Instruction: Please circle the number of your choice.

Items no.	Questions	Response
101	Sex	1. Male 2. Female
102	How old are you?	_____ years
103	What is your ethnicity	1. Amhara 2. Oromo 3. Tigre 4. Others _____
104	What is your marital status?	1. Married 2. Single 3. Divorced 4. Widowed
105	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify) _____
106	What is your level of qualification?	1. Diploma 2. Bachelor degree 3. Master's degree and above

107	How many years of work experience do you have?	<ol style="list-style-type: none"> 1. Less than 2 years 2. 2 to 5years 3. 5 to 10 years 4. 10 to 15 years 5. 15 to 20 years 6. 20 to 30 years 7. 30 to 35 years 8. 35 to 40 years 9. >40 years
108	How long had you been working in postoperative area	<ol style="list-style-type: none"> 1. Less than 2 years 2. 2 to 5years 3. 5 to 10 years 4. 10 to 15 years 5. 15 to 20 years 6. 20 to 30 years 7. 30 to 35 years 8. 35 to 40 years 9. >40 years
109	Where is your current area of practice?	<ol style="list-style-type: none"> 1. Surgical 2. ICU 3. OR 4. Recovery 5. Orthopedic 6. Other (specify)_____

Part II: Respondents knowledge to POP assessment and management related questions

Instruction: Please circle the number of your choice.

Item No.	Items	response
201	The most accurate judge of the intensity of the patient's pain is the patient.	<ol style="list-style-type: none"> 1. Yes 2. No
202	Vital signs are always reliable indicators of the intensity of a patient's pain	<ol style="list-style-type: none"> 1. Yes 2. No
203	patients who can be distracted from pain usually do not have severe pain	<ol style="list-style-type: none"> 1. Yes 2. No
204	When a patient requests increasing amounts of analgesics to control pain, this usually	<ol style="list-style-type: none"> 1. Yes 2. No

	indicates that the patient is psychologically dependent.	
205	Paracetamol injection is used in managing surgical pain.	1. Yes 2. No
206	cold and heat such as warm bath, sitz bath, ice bags compress should be used in the management of surgical pain	1. Yes 2. No
207	Distraction, for example, by the use of music or relaxation, can decrease the perception of pain.	1. Yes 2. No
208	pharmacological methods: Opioids analgesic such as pethidine and Pentazocine are used to relieve pain in surgical patients	1. Yes 2. No
209	It may often be useful to give a placebo to a patient in pain to assess if he is genuinely in pain.	1. Yes 2. No
210	combining analgesics that work by different mechanisms may result in better pain control with fewer side effects than using a single analgesic agent	1. Yes 2. No
211	Pain should be assessed before and after administering pain drugs.	1. Yes 2. No
212	observation is part of the method used in surgical pain assessment	1. Yes 2. No
213	The side effects of narcotics should be observed at least 20 minutes after administration	1. Yes 2. No
214	If the source of pain is not known a pain drug should not be used during the pain evaluation period because this could mask the ability to	1. Yes 2. No

	correctly diagnose the cause of pain	
215	Based on their cultural and spiritual beliefs Patients may think pain and suffering are necessary.	1. Yes 2. No
216	Patients should be encouraged to endure as much pain as possible before using an opioid.	1. Yes 2. No
217	After an initial dose of an opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response	1. Yes 2. No
218	presurgery injection such as anesthesia is given for pain management	1. Yes 2. No
219	Respiratory depression rarely occurs in patients who have been receiving stable doses of Opioids over a period of months.	1. Yes 2. No
220	Opioids should not be used in patients with a history of substance abuse.	1. Yes 2. No
221	Rating scale ranging from (0) "no pain at all to (10) the worst pain" is essential to adopt in pain assessment.	1. Yes 2. No
222	If a patient sleeps with no movement postoperatively, this indicates that patient is not in pain.	1. Yes 2. No

Part III: Items to assess practice

Direction: Read the questions carefully and circle your choice. For short answer items use the space provided.

S .no	Items	Response
301	Do you provide direct nursing care to POP patients?	1. Yes 2. No
302	Do you assess for pain for patient able to communicate pain?(If your answer is No please go to item 306)	1. Yes 2. No
303	Do you use a pain assessment tool?	1. Yes 2. No
304	If your answer is yes to item 303, Please, name the tool(s) you use _____	
305	How frequent do you use a pain assessment tool?	1. Always 2. Frequently 3. Occasionally 4. Rarely 5. Never
306	If you do not use a pain assessment tool, please describe your method of assessing pain for patients able to report pain:_____	
307	Do you document the findings after pain assessment for patients able to communicate? (If your answer is No please go to item 309)	1.Yes 2.No
308	How frequent you document pain for a patient able to report pain?	1.Whenever necessary (PRN) 2.Less than hourly 3.1 to 4 hourly 4.4 to 8 hourly 5.Once every shift 6.Other_____

309	If your answer for question 307 is No, what was the reason? You can choose multiple options	<ol style="list-style-type: none"> 1. Nursing workload 2. Lack of availability of pain assessment tool 3. Lack of education on assessment tools 4. Lack of familiarity with assessment tools 5. Lack of protocols for pain assessment 6. No designed area for charting 7. Patient instability e.g. unstable hemodynamics 8. Low priority of pain management by unit team 9. Patient inability to communicate 10. Other(specify)_____
310	Which drugs you use for severe pain management?	<ol style="list-style-type: none"> 1. NSAIDs 2. Mild Opioids 3. Strong Opioids
311	How do you rate availability of morphine in your stock	<ol style="list-style-type: none"> 1. Always available 2. Most of the time 3. Sometimes 4. Not available at all
312	<p>For which procedures you assess the need for administration of analgesia before the procedures are done?</p> <p>You can choose multiple options</p>	<ol style="list-style-type: none"> 1. Patient repositioning 2. Endotracheal suctioning 3. Wound care 4. Drainage removal 5. Invasive line placement 6. Spontaneous breathing

		(weaning) trial
313	Type of pain relief selected for the patient should be based on the type of surgery	1. Yes 2. No
314	Are pain scores and management discussed during nurse-to-nurse report?	1. Yes 2. No
315	Do you always agree with patients' statements about their pain?	1. Yes 2. No
316	How do you rate your current knowledge about pain assessment and management?	1. Excellent 2. Good 3. Average 4. Poor
317	Have you received training related to postoperative pain assessment and management during your professional development?	1. Yes 2. No
318	How do you receive training on POP Assessment and management?	1. Lecture 2. Course 3. Conference 4. Workshop 5. Never received training
319	If yes, are you satisfied with the training?	1. Yes 2. No
320	Do you have a pain guideline or standard in your organization?	1. Yes 2. No 3. Not sure
321	If yes, How often you read guidelines?	1 Always 2 Monthly 3 Quarterly 4 Yearly

Thank you for your cooperation

Assurance of Principal Investigator

I signed to accept all responsibilities for the scientific and ethical conduct of the research project. I will provide timely progress report to my advisor and seek the necessary advice and approval from my primary advisors in the course of the research. I will communicate timely to my advisors and all stakeholders involved in the study including any source of funding and support for this research.

Name of the student: Mulugeta Emiru (BSc)

Signature: _____

Date: _____

Advisor: Mr. Yosief Tsige (BSc, MSC.)

Signature: _____

Date: _____