



ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF NURSING AND MIDWIFERY

**Assessment of the Practice of Non-pharmacological Post-operative
Pain Management and Associated Factors among Nurses
Working in Public Referral Hospitals of Amhara Regional State**

By Tadila Dires, (BScN)

Major Advisor Fekadu Aga, (MSc, PhD fellow)

Co-Advisor Tigistu Gebreyehannis, (MSc)

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Name of principal investigator	Tadila Dires
Name of advisors	1. Fekadu Aga 2. Tigistu Gebreyehannis
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Address of investigator	Email tediladires@gmail.com Phone number 0942836904

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ABBREVIATIONS AND ACRONYMS

CSA: Central Statistical Agency

DRH: Dessie Referral Hospital

FHRH: Felege Hiwot Referral Hospital

GURH: Gondar University Referral Hospital

IASP: International Association for Study of Pain

SPSS: Statistical Package for Social Sciences

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SUMMARY

Background: Non-pharmacological interventions defined as therapies that do not involve taking medicines or any other active substance. Such interventions may include exercise, massage, relaxation training, thermotherapy and psychological or behavioral management. Non pharmacological pain management is important when managing post-operative pain. Non-pharmacologic method have no side effects, have minimum risk, are not detrimental to patients, easy to administer and cost-efficient. These interventions should be implemented by nurses into routine plans of care for patients.

Objective: To assess practice of non-pharmacological post-operative pain management and associated factors among nurses working in public referral hospitals of Amhara regional state.

Method: Cross-sectional study design will be used. Data will be collected from March to April 2019 by using a structured self-administered questionnaire. Source population of the study will be nurses who work at post-operative units of public referral hospitals of Amhara regional state. The sample size of study is 300 nurses who work in post-operative unit of randomly selected referral hospitals of Amhara regional state. Correlation coefficient r will be used to measures the degree of association between dependent variable and continues in dependent variables. Differences between the groups in the mean values of the variables will be tested with ANOVA test. In addition, association between factors and nurses' practice of non-pharmacological methods will be tested by t test. I will also use multiple linear regression to asses significantly associated variable with significant p value <0.05 and 95 % confidence interval.

Conclusion and recommendation:

Key words: Non Pharmacological Pain Management, Post-Operative Pain, Nurse and Practice

Chapter 1

Introduction

1. 1. Background

International association for the study of pain (IASP) recognizes pain as unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage (1). Postoperative pain is a combined constellation of several unpleasant sensory, emotional and mental experiences precipitated by the surgical trauma and associated with autonomic, endocrine-metabolic, physiological and behavioral responses (2).

Postoperative pain can be divided into acute pain and chronic pain. Acute pain is experienced immediately after surgery (up to 7 days) and pain which lasts more than 3 months after the injury is considered to be chronic pain (3). Surgical tissue trauma leads to nociception activation and sensitization. Nociception refers to the processing of a noxious stimulus resulting in the perception of pain by the brain (3, 4). The components of nociception include transduction, transmission, modulation and perception. Hyper responsiveness is a hallmark feature of both acute and chronic pathologic pain. This is a result of changes in the nervous system response at peripheral and central location.

Peripheral sensitization occurs when tissue inflammation leads to the release of a complex array of chemical mediators, resulting in reduced nociception thresholds. This causes an increased response to painful stimuli (primary hyperalgesia). Responses in the central nervous system are primarily physiological. Central sensitization is a physiological process and only if there is continual firing of C-nociceptors overtime these processes will lead to more chronic pain syndrome (3, 4).

After surgery, in appropriately assessed and managed pain will lead post-operative complications like delayed discharge, increase in heart rate as well as blood pressure, poor gastric excretion that causes nausea, vomiting and paralytic ileus as well as an increase in adrenaline production due to the vast changes in the endocrine system (5). There are two main approaches that can be used when managing post-operative pain. These are use of pharmacological and

non-pharmacological intervention. These work best when used together, although there is a tendency in clinical practice to minimize the importance of non-pharmacological intervention and emphasize the importance of pharmacological (6).

Non-pharmacological interventions are defined as therapies that do not involve taking medicines or any other active substance. Such interventions may include, providing preparatory information, imagery, distraction, relaxation, breathing technique, positive reinforcement, thermal regulation, massage and positioning and creating a comfortable environment (7, 8). Non-pharmacological pain management is important when managing post-operative pain. Non-pharmacological interventions focus on different strategies physical and psychological, which provides relief to patients (6).

As non-pharmacological pain management involves use of psychological method, the use of psychological method reduces patient anxiety and improves satisfaction with treatment. These methods also led to a reduced consumption of analgesics postoperatively, or lower pain score on the second or third postoperative day. Psychological methods have potential benefit in patients with a high need for self-control and motivation for using them, such as reluctance to take drugs. The advantages of these methods are they have virtually no contraindications, unless instrumental equipment is required, they are easy to learn and can be performed by the patient at home (6, 9).

International council of nurses define nurse as a person who has completed a program of basic, generalized nursing education and authorized by appropriate regulatory authority to practice nursing in his/her country. So to ensure quality of care, nurses need to have adequate knowledge, skills, and attitudes towards non-pharmacological post-operative pain management (10). For an effective care to be provided to patients updated non-pharmacological approaches regarding pain management should be followed (11).

1.2. Statement of the Problem

In the United States of America (USA) 80% of patients who undergo surgery report postoperative pain, with 88% of these patients reporting moderate, severe, or extreme pain levels (12). In Africa a study in Nairobi showed that the prevalence of postoperative pain after day care surgery was found to be 58% within 30 minutes postoperatively, 55.3% after 24 hours, and 34.7% after 48 hours following surgery (13). In our country a study in Mekele revealed that the prevalence of moderate to severe post-operative pain in hospital was 30.5 % (14). The finding of this study suggests that post-operative pain was not effectively managed. A Study in Jimma also showed that incidence of postoperative pain was 91.4% and 80.1% of the patients were undertreated (15). A study in Gondar also showed that moderate to severe pain was reported in 57% of patients in the immediate post-operative period and 78% in the 1st 12 hour (16).

Factors affecting the degree of post-operative pain include the patient's previous experiences and mental preparation, intra-operative pain management, the nature and duration of surgery, the site and size of the incision and the extent of surgical trauma (17). Inadequately managed pain can lead to adverse physical and psychological patient outcomes. Continuous, unrelieved pain activates the pituitary-adrenal axis, which can suppress the immune system and result in postsurgical infection and poor wound healing. Sympathetic activation can have negative effects on the cardiovascular, gastrointestinal, and renal systems, predisposing patients to adverse events such as cardiac ischemia and ileus. Unrelieved pain reduces patient mobility, resulting in complications such as deep vein thrombosis, pulmonary embolus, and pneumonia. Postsurgical complications related to inadequate pain management negatively affect the patient's welfare and the hospital performance because of extended lengths of stay and readmissions, both of which increase the cost of care (18).

Drug overdose is the major cause of accidental death in the United States of America, with 52,404 lethal drug overdoses in 2015 (19). Opioid addiction is leading this epidemic, with 20,101 overdose deaths related to prescription pain relievers. Overdose death rates, sales and substance use disorder treatment admissions related to prescription pain relievers increased. Among adults with prescription opioid use, 12.5% reported misuse; of these, 16.7% reported a prescription opioid use disorder. The most commonly reported cause for misuse was to relieve

physical pain 63.4 % (19, 20). Non-pharmacologic pain management is an effective way to reduce pain severity and it can be independently used by nurses. Non-pharmacologic method have no side effects, have minimum risk, are not detrimental to patients, are easy to administer and are cost-efficient. These interventions should be implemented by nurses into routine plans of care for patients (21, 22)

Absence of pain is a basic human right therefore nurses need to be equipped with the necessary information so that they are able to effectively manage pain (23). There is a need for more training in modern pain management, including non-pharmacological methods. Nurses should be aware of their responsibility to keep their knowledge updated about effective pain relief after surgery. Nurses pain management is not satisfactorily effective and frequencies of non-pharmacologic methods of nurses were very few in pain management (24, 25).

A study in Jimma showed that postoperative pain management was suboptimal among postoperative patients of the surgical wards(15). The finding of this study also revealed that 83% of patients did not receive support from the health care providers with regard to non-pharmacological pain management. A study in Arsi showed that only 59.4% of nurses agreed that distraction, by the use of music or relaxation, can decrease the perception of pain (26). Though non-pharmacological pain management techniques are used as complementary and alternative to the drug therapy, little is known about its scope of application, practice, contributory and hindrance factors (27). Therefore, this study aimed at exploring the practice of non-pharmacological post-operative pain management among nurses in Amhara regional state.

1.3. Significance of the study

Nurses have a key role in effective post-operative pain management of patients. The outcome of the study will give information on nurses' practice of non-pharmacological post-operative pain management and will inform health managers in devising techniques to influence its application in the course of patient care. The finding of this study may also contribute the staff nurses, the nurse managers, the hospital administrators and the health care planners' efforts for the improvement of non-pharmacological post-operative pain management practice among nurses in public referral hospitals of Amhara regional state. It makes an important addition to the existing literatures to aid for further researchers.

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CHAPTER 2

LITERATURE REVIEW

Effective pain management is essential during the post-operative period to prevent unnecessary distress or suffering, minimize potential complications and promote recovery (6). One of the effective, post-operative pain management strategies is non-pharmacological management. This section of the proposal synthesizes the available research and theoretical literature related to non-pharmacologic post-operative pain management.

2.1. Practice of Non-Pharmacological Post-Operative Pain Management

A study in China showed that 75% of nurses used preparatory information that includes informing the patient about preoperative procedures, postoperative placement, postoperative limitations, 61% of nurses always used distraction, 57% always used breathing techniques, and 54% always used relaxation (28). The finding of this study also showed that 42% of nurses were sometimes used imagery method and 38.61% always used positioning as a pain-relieving method, whereas 49% of nurses were sometimes using massage, 50% of nurses seldom used thermal regulation, including cold and heat application and Comforting/reassurance and creating a comfortable environment were the methods always used by 69% and 66% of the nurses respectively.

Other study in Bangladesh showed that 51.7% of nurses were used non pharmacological method to reduce patients pain (29). Among these 45.5% of nurses were suggested patients to read religious books such as Quran, positioning comfortably, reassurance were used by 9.1% of nurses and 19.5% of nurse knew non-drugs methods useful for combining with treatment of post-operative pain were relaxation, music, and massage. A study conducted in Finland showed that nurses were commonly used non drug intervention to relieve children's pain, such interventions were emotional support, helping with daily activities and creating a comfortable environment(30).

Another finding in Lativa revealed that psychological preparation and giving information to patients about the post-operational stage pain and possible pain relief therapies increases efficiency of pain management (31). A study conducted in Australia regarding non-pharmacological management showed that nurses were not giving massage, relaxation, distraction, pressure application, positioning or education for patients (32). A Study carried out in Palestine showed that 50.2% of women used more than two comfort measures to relief their pain after caesarian section and 14.5% of women were not used any comfort measures (33). The finding of this study showed that 44.0% women were encouraged by nurses to use non pharmacological measures but 18.8% had never been encouraged.

According to study conducted in South Africa 68% of patients who were distracted by different methods do not have severe pain (34). Distraction in the form of visitors, watching television or reading can assist patients to cope with pain. The finding of this study also revealed that 75 % of nurses were used comfort measures like change of position and massage to provide pain relief in orthopedic patients. In Ghana majority (97.6%) of nurses provided clean, calm, and a well-ventilated ward environment for patients postoperatively and another highly effective intervention (97.0%) used by nurses were encouragement of early ambulation/exercise (35).

In Nigeria 92.6% of nurses were agreed that cold and heat such as warm bath, site bath, ice bags compress were used in the management of surgical pain (36). This study also showed that 92.6% of nurses were agreed that use of diversional therapy such as listening to music, watching T.V, reduces patient's pain perception and giving health education about surgical procedure is an important part of surgical pain management. In Cairo few nurses in different critical care units used non pharmacological methods like putting the patient in comfortable position (6.7%) (27). In this study nurses were not absolutely applying breathing techniques, massage, distraction, applying guided imagery, providing quiet Comfortable room and patient education.

A study in Addis Ababa showed that 90.9% of nurses arrange the environment to be calm and quiet in order to help children sleep easily after surgery (37). In addition to this 76.7% of nurses talk with children with a soft voice to comfort them when they are in pain ,31.9%

distract children from pain by using several techniques (such as giving them toys for playing, listening to music, telling stories, touching them) after surgery. In Jimma the most frequent used non-pharmacological ways of managing pain were tolerating pain (84.4%), changing position (83.7%), and having family support (81.9%) (15) but 83% of the patients did not receive support from the health care providers (15). In Arsi 59.4% of nurses were agreed that distraction like using of music or relaxation, can decrease the perception of pain(26)

2.2. Factors Associated With Practice of Non-Pharmacological Post-Operative Pain Management

2.2.1. Socio demographic characteristics

Study in China and Saudi Arabia indicated that age was significantly related to nurses use of non-pharmacological methods (28, 38). From these a study in china revealed that older nurses (age group 32–43 and 44–54 years) were giving information about preoperative procedures, postoperative placement ,postoperative limitations as well as providing verbal rewarding and positioning more than those aged 20–31 years (28). These studies also show that there was a positive relationship between educational levels and nursing use of non-pharmacological methods. A study in Cairo revealed that nurse’s education has no statistically significant association with the non-pharmacological pain alleviating methods they used (27). A Study in Addis Ababa showed that education had significant association with the practice of postoperative pediatrics pain management(37). It also showed that nurses who had diploma were less likely to practice post-operative pediatrics pain management than first degree and above holders. In Tigray professionals who had highest qualification of MSc were 2.876 times more likely to practice non-pharmacologic labor pain management methods than Professionals who had lower level qualification of diploma (39).

In Saudi Arabia year of experience has association with practice of non-pharmacological pain management (38). In China nurses with 10–20 years’ experience were providing information on postoperative positioning, postoperative limitations and used positioning most frequently (28). However, nurses with 5–10 years’ experience paid more attention to creating a comfortable environment. In Cairo nurses work experience had statistically significant association with the non-pharmacological pain alleviating methods they used (27). This study

showed that nurses with the longest experience (over 20 years) used more methods than others, and those with 2–4 years of experience used fewer methods than other groups. In Addis Ababa nurse with less than 1 years of experience were less likely to practice post-operative pediatrics pain management than those who have more than 5 years of experience (37).

2.2.2. Nurses related factors

Different studies globally showed that lack of knowledge were barrier to the use non-pharmacological pain management (27, 28). From these a study in Cairo showed that 75 % of nurses didn't use non pharmacological pain management due to lack of knowledge(27). In china lack of knowledge concerning pain management was 63% and hinders nurses' use of non-pharmacological pain management (28). In Saudi Arabia attendance of training courses have a positive association with practices of non-pharmacological pain management of nursing staff (38). In Addis Ababa attitude and knowledge were significantly associated with post-operative pediatrics pain management practice (37). This means that nurses who have positive attitude towards the postoperative pediatrics pain management were 2.37 times more likely to practice than those who have negative attitude.

2.2.3. Health care system related factors

Studies done in Finland (40) Saudi Arabia (38) and Cairo (27) showed that lack of time is the most common factors which hinder nurses from practicing non-pharmacological pain management methods. These studies also revealed that scarcity of pain management equipment was also the identified factors which limit nurse's practice of non-pharmacological pain management method. Different studies also showed that nurses work load was one of the identified barrier for non-pharmacological pain management practice (26, 27, 40, 41).

A study done in Cairo university hospital revealed that working unit has no statistically significant association with non-pharmacological pain management practice of nurses (27). Result from various studies revealed that lack of pain management policy to support and encourage the use of non-pharmacological methods was the identified factors which impede the practice of non-pharmacological pain management (32, 36, 42).

2.2.4. Patient related factors

According to the study done in United States of America medication-related beliefs such as patient perception that medications are more effective was identified as one of important factor that hinder non pharmacological pain management practice as reported by providers (43). A Study in Saudi Arabia also showed that patients want pill over non pharmacological pain management(38). Different studies showed that patient unwillingness was the most common factor that prevents nurses from using non-pharmacological methods of pain management(38, 43). Study done in Cairo showed that patient instability was one of the identified barriers of non-pharmacological pain management practice of nurse(27).

2.3. Conceptual Framework

This conceptual framework describes factors that are related with practice of non-pharmacological post-operative pain management. These factors includes socio demographic factors like age, level of education, year of experience, nurse related factors like knowledge, attitude and attendance of training and, health care system related factors like equipment supply, work load, availability of pain management policy and patient related factors includes willingness, stability, and medication related belief of the patient. As indicated by different studies there is an assumption that these factors has association with nurses practice of non-pharmacological post-operative pain management (27, 28, 32, 33, 36-43).

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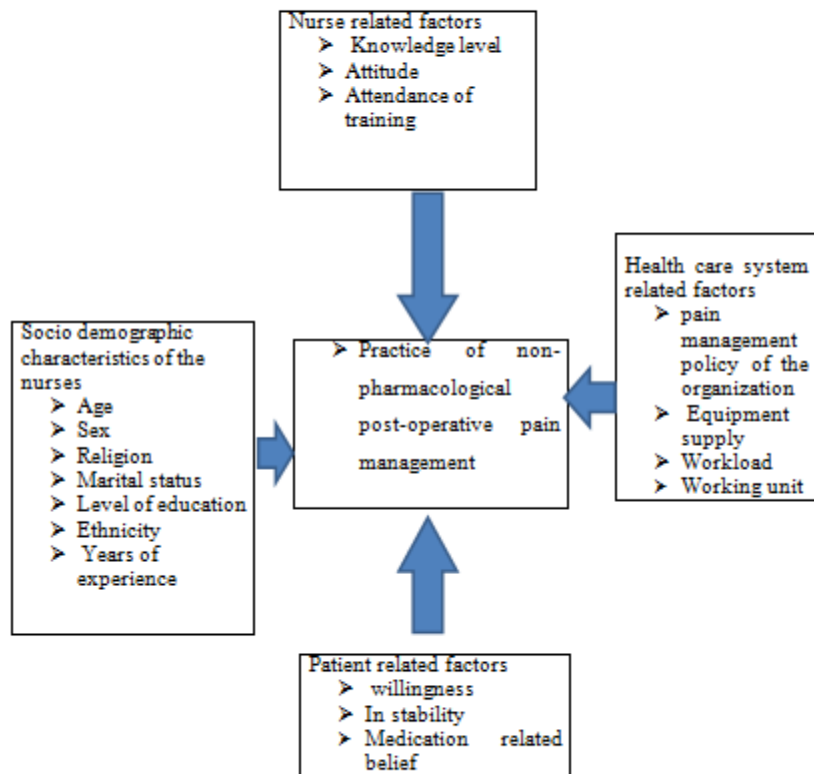


Figure 1 Conceptual framework on Practice of non-pharmacological post-operative pain management and associated factors among nurses working in public referral hospitals of Amhara regional state

CHAPTER 3

OBJECTIVES OF THE STUDY

3.1. General Objective

To assess the practice of non-pharmacological post-operative pain management and associated factors among nurses working in public referral hospitals of Amhara regional state

3.2. Specific Objectives

- To assess practice of non-pharmacological post-operative pain management among nurses working in public referral hospitals of Amhara regional state, from March to April 2019
- To identify factors associated with practice of non-pharmacological post-operative pain management among nurses working in public referral hospitals of Amhara regional state, from March to April 2019

CHAPTER 4

MATERIALS AND METHODS

4.1. Study Area

Amhara Regional State is located in the northwestern part of Ethiopia. Amhara Region borders Tigray Regional State in the North, Afar Regional State in the East, Oromiya Regional State in the South, Benishangul-Gumuz Regional State in the Southwest, and the country of Sudan in the west. Based on the 2007 figures from the Central Statistical Agency (CSA) of Ethiopia, Amhara Region has an estimated total population of 20,136,000. Its capital city, Bahir Dar is found 578 km far from Addis Ababa to the Northwest of Ethiopia. In the region, there are five referral hospitals namely: Gondar University referral hospital, Felege Hiwot Referral Hospital, Debre Markos Referral hospital, Debre Birhan referral hospital, and Dessie Referral Hospital.

4.1.1. Felege Hiwot Referral Hospital

Felege Hiwot Referral Hospital (FHRH), a tertiary referral hospital located in Bahir Dar. It has over 600 members of staff employed by the Hospital and a further 200 employed by the University of Bahir Dar. As the report of 2018 the hospital has 102 nurses working in different post-operative unit.

4.1.2. Gondar University referral hospital

Gondar University referral hospital is a tertiary teaching hospital serving about 5 million people. The hospital has 518 beds and serves 350 to 400 patients each day. GURH report, in 2018 it has total of 450 nurses from these 110 nurses are working in post-operative unit

4.1.3. Dessie Referral Hospital

Dessie is located 401 kilometer away from the capital, Addis Ababa. The hospital has 240 beds and serving for about seven million people living in the catchment areas. According to DRHs 2018 report, it has 264 nurses among these 88 nurses are working in post-operative unit.

4.1.4. Debre Markose Referral Hospital

Debre Markos hospital is one of the referral hospitals in Amhara Regional State and it potentially serves for more than five million people of the East Gojjam Zone and West Gojjam Zone. Currently the hospital has 42 nurses who are working in different post-operative unit.

4.1.5. Debre Brhan Referral Hospital

Debre Berhan Referral Hospital is the government hospital in Deber Brhan city serves for a catchment population of 2.8million people. It is a teaching hospital for nursing, health officer, medicine, and midwifery and pharmacy students. Currently Debre Brhan Referral Hospital has 68 nurses who are working in different post-operative unit.

4.2. Study Design and Study Period

In this study institution- based cross sectional study design will be used from March to April 2019.

4.3. Population

4.3.1. Source Population

All employed nurses working in post-operative units of the public referral hospitals of Amhara regional state

4.3.2. Study Population

Nurses working in post-operative units of selected referral hospitals of Amhara regional state will be the participants of study

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion Criteria

Nurses who have been working at post-operative unit during data collection period

4.4.2. Exclusion Criteria

Nurses on annual leave

Nurses on maternity leave

Nurses who are seriously ill

4.5. Study Variables

4.5.1. Dependent Variable

Practice of non-pharmacological post-operative pain management.

4.5.2. Independent Variables

Socio demographic characteristic: age, sex, marital status, religion, year of experience, ethnicity and level of education

Health care system related factors: pain management policy of the organization, workload, equipment supply and working unit

Nurses related factors: knowledge level, attitude, and attendance of training

Patient related factors: willingness, stability and medication related belief

4.6. Operational Definitions

Practice: There are questions categorized as cognitive behavioral method, physical method, creating comfortable environment and family/patient involvement to reduce pain. Graded as not at all, very seldom, sometimes, nearly always and always. The scoring is not at all-0, very seldom-1, sometimes-2, nearly always-3 and always-4. Cognitive behavioral method scores between 0-72, physical method scores between 0-16, creating comfortable environment scores between 0-36 and family/patient involvement to reduce pain scores between 0-8.

Knowledge: There are eight knowledge question graded as yes-1 or no -0, the scoring is between 0-8.

Attitude: There are 10 question and graded as disagree–0, neutral- 1, agree- 2, the scoring is between 0-20.

4.7. Sample Size Determination and Sampling Procedure

4.7.1. Sample size determination

The sample size has been determined using the formula for single population proportion by assuming 5% marginal error and 95% confidence interval ($\alpha=0.05$) and the proportion (p) = 50% since there was no research done in the same setting as this study concerning non pharmacologic postoperative pain management practice of nurses.

$$n = \frac{(z_{\alpha/2})^2 p (1-p)}{d^2}$$

n =the minimum sample size required, p = estimated proportion of non-pharmacological postoperative pain management practice

$Z_{\alpha/2}$ = the value of standard score at 95% confidence interval (1.96)

d = the margin of error between the sample and the population

$$Z=1.96, P=50 \%, d= 5\% =0.05, n= \frac{(1.96)^2 \times 0.5 (1-0.5)}{(0.05)^2} = 384$$

$$(0.05)^2$$

Since the total population is less than ten thousand correction formula is needed

$$n_f = n_i \times \frac{N}{n_i} + N$$

$$n_f = 384 \times 300 / 384 + 300 = 168$$

By taking additional 10% contingency for non-response rate, the sample size is: $168 + 10 \%$ (non-response rate) = 185

Since the total population of the study subjects (nurses who working in the post-operative unit) of the three selected hospitals are 300 so the researcher will include all available subjects using a census method.

4.7.2. Sampling technique and procedure

Three referral hospital are randomly selected from the five referral hospital these includes GURH, FHRH and DRH. This study will involves a sample of 300 nurses who works in selected three referral hospitals of Amhara regional state, who meets inclusive criteria.

Sampling procedure

Table 1: sampling procedure of practice of non-pharmacological post-operative pain management and associated factors among nurses working in public referral hospitals of Amhara Regional State

No	Hospitals	No nurses
1	GURH	110
2	DRH	88
3	FHRH	102
Total		300

4.8. Data Collection Method

4.8.1. Data Collection instrument

Self-administered questionnaires will be used in this study. The questionnaire contain five sections

Section one -The socio demographic characteristics of the respondent

Section two -knowledge level of the respondent, there are eight yes or no questions which are developed by reviewing previous articles (8, 29, 44). Yes score-1 no scores -0 so the scoring is between 0-8.

Section three -Attitude of the respondent, there are ten question in order to assess the attitude of the respondent towards non-pharmacological pain management, developed from different literature (8, 29, 38). The scoring system consists of 0= disagree, 1= neutral 2= agree so the scoring is between 0-20.

Section four -Questions on practice of non-pharmacological post pain management is developed from previously published similar articles(8). The non-pharmacological methods will be divided into: I, cognitive-behavioral methods (including preparatory information, imagery, distraction, relaxation, breathing technique and positive reinforcement), II, physical methods (including thermal regulation, massage and, positioning), III creating a comfortable environment, and IV family/patient involvement to reduce pain. The Scoring System is based on likert scale of five grades ranging from 0-4. Grade 0= not at all, 1 = very seldom, 2= sometimes, 3 =nearly always, and 4= always. Cognitive behavioral method scores between 0-72, physical method scores between 0-16, creating comfortable environment scores between 0-36 and family/patient involvement to reduce pain scores between 0-8.

Section five - Questions on factors associated with non-pharmacological pain management practice are developed by reviewing of different article these factors involves health care system related factors, nurse related factors and patient related factors.

4.8.2. Data collection procedure

Data collectors

Three diploma nurse data collectors and three BSc nurses supervisors will be recruited for the data collection. Training will be given for data collectors and supervisors on purpose of the study, procedure and duration of data collection before the actual data collection time. Data will be collected through structured self-administered questionnaire. First informed voluntary written consent will be obtained from each study participants. The data collectors will give the questionnaire to them.

Data Quality Control

The following will be attempted to assure the data quality. Since English is the media of instruction in all Ethiopian nursing schools English version of self-administered questionnaire will be used. Pretest will be conducted on 5% of the sample at DebreTabour Hospital and the necessary corrections will be made based on the results of the pre-test. Training will be given for data collectors and supervisors for one day on data collection tools. A brief introductory orientation will be given for the study participants by data collectors about the purposes of study. The principal investigator (PI) and the supervisor will monitor the data.

4.8.3. Data Processing and Analysis

The collected data will be checked for its completeness and cleaned before entry into computer. Then the questionnaire will be coded and data will be entered into Epi data version 3.1. Then the data will be exported to SPSS version 24 for analysis.

The questions on non-pharmacological method are divided into the different categories that used to reduce pain including cognitive-behavioral methods, physical methods, comfortable environment, and patient /family involvement. The cognitive-behavioral methods included preparatory information, imagery, distraction, relaxation, breathing technique, and positive reinforcement. The physical methods include questions about thermal regulation, massage, and positioning. There are also questions related to a comfortable environment. Finally, questions about using family or patient involvement to reduce pain. Descriptive statistics will

be used to summarize data including the mean, deviation from the mean, variation and percentage. Correlation coefficient r will be used to measure the degree of association between dependent variable and continues in dependent variables. Differences between the groups in the mean values of the variables will be tested with ANOVA test. In addition, association between factors and nurses' practice of non-pharmacological methods will be tested by t test. I will also use multiple linear regression to assess significantly associated variable with significant p value <0.05 and 95 % confidence interval.

4.9. Ethical Consideration

An ethical clearance will be obtained from Institutional Health Research Ethics Review Committee (IHRERC) of Addis Ababa University College of Health science. Support letter will be written to the selected public referral hospitals in which the study will be conducted. Through cooperation and support study participants will sign informed voluntary consent before the initiation of the data collection. To insure confidentiality there will be no information identifying the participants in particular.

4.10. Dissemination of the Result

The findings of the research will be presented on defense to School of Nursing and Midwifery, Addis Ababa University and the hard copy will be submitted for Addis Ababa University and to each hospital where the study conducted. Finally, efforts will be made to present the findings on national and international conferences and to publish the article as well.

5. WORK PLAN

Table 2: study plan for activities on practice of non-pharmacological post-operative pain management and associated factors among nurses in public referral hospital of Amhara regional state.

S.No	Activities	responsible bodies	October	November	December	January	February	March	April	May	June
1	title selection and topic title defense	principal investigator									
2	proposal writing	principal investigator									
3	submission of 1 st draft proposal	principal investigator									
4	submission of 2 nd draft proposal	principal investigator									
5	final submission proposal of and defense	principal investigator									
6	training of data collectors and pretest	principal investigator									
7	data collection	Data collectors									
8	data entry and analysis	principal investigator									
9	reporting finding	principal investigator									
10	submission of first draft and research defense	principal investigator									

11	final research submission	principal investigator								
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6. BUDGET REQUIREMENT (LOGISTICS)

Table 3: Budget breakdown of practice of non-pharmacological post-operative pain management and associated factors among nurses in public referral hospitals of Amhara regional state

S.no	Budget category	Unit cost(ETB)	Multiplying factor	Total cost (ETB)
1	Personnel Costs	Daily per diem	No. of staff x No. of working days	
	Principal investigator	250	1*20	5,000
	Transport fee			3000
	Supervisor	150	3*20	9,000
	Data facilitator	100	3*20	6,000
	Data entry	150	2*2	600
	Sub total			23,600
	Training costs	Cost per item	No. of days	Total cost (ETB)
	Trainers cost	Varies	1	1,250
	Health break (for tea/ coffee)	Varies	1	210
	Sub-total			1,460
	Stationary costs	Cost per item (ETB)	Number of item	Total cost (ETB)
	Questionnaire duplication	0.5	2,088 page	1,044

	Note book	10	7	70
	Pen	5	7	35
	Sub-total			1,149
	Grand total			26,209
	Budget Summary			
	Budget Category	Unit costs		Total cost (ETB)
	Personnel costs	Varies		23,600
	Training costs	Varies		1,460
	Stationary costs	Varies		1,149
	Grand Total			26,209

Budget Source: Addis Ababa University

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ANNEX I

INFORMATION SHEET

Participant Information Sheet

My name is.....I am working as data facilitator for the study being conducted in this institution by Tadila Dires who is studying her Master's Degree at Addis Ababa University College of Health science. I kindly request you to lend me attention to explain you about the study.

Title of the study: practice of non-pharmacological post-operative pain management and associated factors among nurses working in Public Referral Hospitals of Amhara Regional State

Purpose: The finding of this study will provide pertinent information regarding practice of non-pharmacological post-operative pain management and associated factors among nurses for better professional caring and it will provide information about the existing gap.

Procedure and duration: I will collect the data using structured self-administered questionnaire the questionnaire contain five sections please fill all the information asked on the questionnaires' and if you get any difficulty and confusion on the questions you can ask me at any time in between. So I kindly request you to lend me your time and thank you in advance for doing so.

Risks and benefits: The risk of being participant in this study is null, but only taking few minutes from your time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for regional health bureau policy makers and the hospital administrators to take interventional activities in order to fill the identified gaps.

Confidentiality: The information you provide us will be confidential. There will be no information that will identify you in particular. The findings of the study will be general for the study participants and will not reflect anything particular of individual persons. The questionnaire will be coded to exclude showing names.

Rights: Participation for this study is fully voluntary. You have the right to declare to participate or not in this study. If you decide to participate, you have the right to withdraw from the study at any time and this will not label you for any loss of benefits which you otherwise entitled. You are not expected to answer any question that you do not want to answer.

Contact address: If there are any questions any time about the study or the procedures, please contact us by the following address:

The Principal Investigator: Ms. Tadila Dires Mobile phone: +251-942-83-69-04: Email address: tediladires@gmail.com,

ANNEX II

Informed Voluntary Consent:

I have read the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participants and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate on the study with my initials (signature).

Signature of participant nurse_____

Name and signature of data collector _____

Thank you for your cooperation

N.B: This is to be signed face to face in the presence of participant nurse and data facilitator and the copy is provided to the participant nurse

ANNEX III

Questionnaire

Section I: Socio demographic characteristics of the respondent

Ser.No	Socio demographic characteristics	Response	Skip
1	Sex	1. Male 2. Female	
2	Age in year	_____	
3	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
4	Level of education	1. Diploma 2. BSc 3. Masters	
5	Work experience (year)	1. In nursing 2. In post-operative unit	
6	Ethnicity	1. Amhara 2. Oromo 3. Tigray 4. Other specify	
7	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Other specify	

Section II: Knowledge question

Ser.No	Questions	Yes	No
1	Provision of a suitable room temperature and good air condition can alleviate pain		
2	Provision of the patient with a possibility to rest by minimizing noise can alleviate pain		
3	Including family members in the pain management regimen can increase patient's ability to manage pain		
4	Use of non-pharmacological pain management therapies has value to the patient		
5	Try to focus a patient's thoughts/ attention away from pain can decrease pain		
6	Asking the patient to suggest ways to relieve his/her pain can increase patient's ability to manage pain		
7	Patients who can be distracted from pain usually do not have severe pain		
8	Teaching the patient the correct breathing technique can alleviate his/her pain?		

Section III. Attitude questions

Ser No.	Questions	Agree	neutr al	Disag ree
1	Are you willing to provide information on issues related to non-pharmacological methods to sick people?			
2	Are you willing to provide non-pharmacological methods to people who have pain?			
3	Do you agree with that, patient should be advised to use non-pharmacological means with pain medications?			
4	Do you think that preparing a patient carefully for a procedure by telling him/her about what will be done, can decrease pain?			

5	Are you willing to encourage the patient to think about / imagine pleasant and positive matters when s/he feels pain?			
6	Do you agree with that, teaching the patient the correct breathing technique can alleviate his/her pain?			
7	Do you agree with encouraging the patient by rewarding s/he verbally (say that s/he has done well so far) when he / she feels pain?			
8	Do you think that encourage the patient to relax different parts of his/ her body can alleviate the sensation of pain			
9	Do you think that interior decoration of the unit (colors, lighting, furniture...) affects patient's ability to manage pain?			
10	Are you willing to encouraging family members to bring some of the patient's belongs to the unit			

Section IV Non-pharmacological practice Questionnaire

The following statements pertain to the practice of non-pharmacological methods in pain management among your post-operative patients. In each item choose alternative that best represents your own actions.

Answer each item, unless otherwise mentioned (e.g. if you do not use one of the listed methods, choose the alternative = not at all)

Alternatives

0= not at all

1 = very seldom

2= sometimes

3= nearly always

4=always

Question on Cognitive Behavioral Method

Ser.No	Questions	No t at all	Ver y seld om	so me tim es	Ne arl y alw ays	Al wa ys
1	I use non pharmacological pain management therapies for post-operative patient who feels pain					
2	If you choose any of the alternative 1-4 in item 1 from the following which interventions that you provide to your patients					
3	I prepare a patient carefully for a procedure by telling him/her about what will be done.					

	3.1 If you choose any of the alternative 1-4 in item 3 which of the following matters do you discuss with the patient before the procedure?					
	3.1.1 What kind of procedure will be done					
	3.1.2 Where will the procedure be done					
	3.1.3 by whom will the procedure be done					
	3.1.4 why is it important to do the procedure					
	3.1.5 how long will the procedure last					
	3.1.6 preparations for the procedure(abstaining from food, premedication)					
4	I encourage the patient to think about/imagine pleasant and positive matters when he/she feels pain					
5	I try to focus a patient's thoughts/attention away from pain					
	5.1 If you answered any of the alternative 1-4 of Item 5, which of the following things do you use as distraction					
	5.1.1 talking about the daily lives					
	5.1.2 books/magazines					
	5.1.3 watching television/videos					
	5.1.4 listening to music					
	5.1.5 other, what.....					
6	I encourage the patient to relax different parts of his/her body to alleviate the sensation of pain					
7	I teach the patient the correct breathing Technique to					

	alleviate pain (ask him/her to take deep and slow breaths)					
8	When a patient has pain, I encourage the patient by rewarding he/she verbally (say that he/she has done well so far)					

Question on Physical Method

1	I use cold application to relieve pain (cold pack, cold food/drink)					
2	I use heat application to relieve pain (heating pad, warm bandages)					
3	I use massage to relieve pain					
4	I alleviate the patient's pain by position changes					

Question on Creating Comfortable Environment

1	I spend time with the patient when he/she feels pain					
2	I verbally comfort and reassure the patient					
3	I use touching as a method of pain relief (stroke the patient's head, hold his or her hand)					
4	I try to alleviate pain by making the environment comfortable for the patient					
	4.1 If you answered any of the alternative 2-5 in item 4, which of the following methods do you use to make the patients environment comfortable					
	4.1.1 I provide a suitable room temperature and good air conditioning					
	4.1.2 I provide the patient with a possibility to rest by minimizing noise					
	4.1.3 I encourage family members to bring some of the patient's belongings to the unit (pictures, pillow)					

	4.1.4 I think interior decoration of the unit (colors, lighting, furniture) affects patients ability to manage pain					
	4.1.5 Other specify.....					

Questions on Family or Patient Involvement to Reduce Pain

1	I ask the patient to suggest ways to relieve his/her pain in the unit					
2	I include family members in the pain management regimen					

Section V: Questions on factors associated with non-pharmacological post-operative pain management practice

Ser. No	Questions	Responses
1	Working unit	1. Surgical ward 2. Gyni ward 3. Orthopedics 4. Recovery room 5. Other post op unit specify...
2	Is there pain management policies available in your Hospital?	1. Yes 2. No
3	Is there non-pharmacological pain management equipment available in your working unit?	1. Yes 2. No
4	If yes, which one is available?	1. Cold pack 2. Warm bandage 3. Ventilator 4. Other specify.....
5	How many patients do you care per shift?	
6	Have you ever attended any non-pharmacological pain management training course	1. Yes 2. No
7	Are the patients willing to use non-pharmacological pain management method	1. Yes 2. No
8	If no ,what are the factors that hinders the patient from using non-pharmacological method	1. Medication related belief(medications are more effective) 2. Family/Patient Want Pill 3. Other specify....

THANK YOU SO MUCH!

ANNEX IV

Dummy table

Table 1 Socio demographic characteristics of the respondents

Variable	Frequency (%)	Test of association
Sex Male Female		
Age (year) 20-29 years 30 - 39 years 40-49 years 50 - 59 years		
Marital status Single Married Divorced Widowed		
Level of education Diploma BSc MSc		
Work experience(year) in nursing <1 year 1-5 years 6-10 years 11-15 years More than 16 years		
Work experience(year) in post-operative unit <1 year 1-5 years 6-10 years 11-15 years More than 16 years		
Ethnicity Amhara Oromo Tigray Other		
Religion Orthodox Muslim Protestant		

Table 2 Results of multiple regression analysis predicting the practice of non-pharmacologic post-operative pain management

Model	B	Std. Error of B	β	R^2	ΔR^2	Collinearity Statistics	
						Tolerance	VIF

$\beta \Delta R^2 = R^2$ Change; VIF = Variance inflation factor

ANNEX V

DECLARATION SHEET

By my signature below, I declare and affirm that this proposal is my own work. I have followed all ethical principles of scholarship in the preparation of this proposal; all scholarly matter that is included in the proposal has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every effort has been made to avoid plagiarism in the preparation of this proposal.

STUDENT

NAME: TADILA DIRES

SIGNATURE: _____

DATE:

RESEARCH ADVISORS:

NAME	RANK	SIGNATURE	DATE
MR. FEKADU AGA	_____	_____	_____
	RANK	SIGNATURE	DATE
MR. TIGISTU GEBREYEOHANNIS	_____	_____	_____
	RANK	SIGNATURE	DATE
NAME OF EXAMINER	_____	_____	_____