ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCE
SCHOOL OF NURSING AND MIDWIFERY

PAIN MANAGEMENT KNOWLEDGE, ATTITUDE, AND ASSOCIATED FACTORS AMONG NURSES WORKING AT ADULT EMERGENCY DEPARTMENT OF PUBLIC HOSPITALS IN ADDIS ABABA, ETHIOPIA, 2025.

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LIST OF ABREVATIONS AND ACRONYMS

AaBET: ……Addis Ababa Burn, Emergency and Trauma

AHRI……..Armauer Hansen Research Institute

ALERT...…….Africa Leprosy Rehabilitation and Treatment

ANOVA……...…Analysis of Variance

APS……..American Pain Society

AU……African Union

AOR…….....Adjusted Odds Ratio

COR……Crude Odds Ratio

ED……...Emergency Department

HCPs……Health Care Professionals

KASRP……Nurses Knowledge Attitude Survey Regarding Pain

MOH……Ministry of Health

NIA…….Nurse Initiated Analgesia

NKAS ……..Nurses Knowledge and Attitude Survey

NPPM….....Non-pharmacological Pain Management

NRS…….Numerical Rating Scale

TASH……Tikur Anbessa Specialized Hospital

WHO……..World Health Organization

LIST OF TABLES

LIST OF FIGURES

Table of Contents

ABSTRACT

Background: Pain is a common phenomenon in emergency patients which can result in long-term issues and changes in physiological functions. Successfully managing pain necessitates a thorough understanding and proficient skills in knowledge and attitude. It is essential for nurses to possess a strong foundation of pain-related knowledge, favorable attitude and to cultivate effective pain management practices. Pain is often the most misinterpreted, inadequately diagnosed, and poorly managed medical issue.

Objective: This study aimed to assess pain management knowledge, attitude and associated factors among nurses working at adult emergency department of public hospitals in Addis Ababa, Ethiopia, 2025.

Methods: Institutional based cross-sectional study design was conducted from April 10-25, 2025. All Nurses working in the adult emergency department of selected public hospitals during data collection period were included by census method. Data was collected using structured self-administered questionnaire. Data analysis was done using SPSS version 26. Descriptive statistics like frequency, percentage, mean, and standard deviation were used to describe the distribution of data. Associations were analyzed using bivariate and multivariate logistic regression model. The findings were expressed with 95 % CI and odds ratio at P-value < 0.05.

Result: Overall 65.8% of nurses had an adequate knowledge of pain management with a mean score of 10.4254(2.8016 SD). In multiple variable analyses; receiving training (AOR 5.674, 95%CI; 1.839-17.51) and attitude status (AOR 2.3, 95%CI; 1.228-4.3) had a significant association with the level of knowledge. The magnitude of favorable attitude towards pain management among nurses was 56.6% with a mean score of 7.7588 (2.079 SD). Receiving training (AOR 2.03, CI95%:1.05-2.54**),** Knowledge level (AOR 2.3, 95%CI; 1.228-4.57) and educational level with odds ratio of (AOR 8.62, CI95%; 2.47-30.08)) had a significant association with attitude.

Conclusion and Recommendation: The study revealed that almost two-third of nurses working at adult emergency department had good knowledge and more than half of them had a favorable attitude toward pain management. Thus, the situation demands various educational and quality improvement initiatives that could enhance the nurse‘s knowledge and attitude in the area of pain management

Key words: Knowledge, Attitude, Nurses, Pain management, Emergency department.

1. INTRODUCTION

1.1. Background

Pain, defined as an unpleasant sensory and emotional experience associated with current or possible tissue harm, continues to be a major obstacle to effective healthcare and a leading cause of discomfort for individuals(1). An International Association for the Study of Pain(IASP) redefine Pain as it is a mutually recognizable somatic experience that reflects a person's apprehension of threat to their bodily or existential integrity(2). The American Pain Society (APS) introduced the “pain as the 5th vital sign” concept introduced in 1996 to reduce the challenges of underestimating and managing pain (3).

Pain is categorized as either acute or chronic based on how long it lasts. According to the APS, acute pain is typically defined as lasting less than 3 months, while chronic pain is considered pain that persists or recurs for more than 3 month (4). Pain is a complicated and varied experience that greatly affects patient results, particularly in emergency situations where conditions frequently require prompt and efficient pain relief. The World Health Organization (WHO) underscores that managing pain is a basic human right, yet numerous patients suffer from insufficient pain relief in emergency rooms(5).

Nurses are professionals who have more direct contact with patients than other healthcare providers and spend the majority of their time attending to patient needs. They play an essential role and are responsible for evaluating and treating patients’ pain(6).

Managing pain is the most frequent responsibility of nurses in the emergency department (ED), and the quality of care is strongly connected to the knowledge, attitude and practices of nurses concerning pain(7). Pain management skills are described as a series of actions that nurses should implement to effectively address patients' pain(8). These activities involve evaluating the patients' pain, implementing suitable nursing interventions to alleviate the patients' discomfort, and re-evaluating the patients' pain following an intervention. Establishing an appropriate environment for critically ill patients is a common objective for both physicians and nurses, as pain is a significant issue that can hinder patients’ ability to relax(9).

Pain management includes both medication-based and alternative treatment strategies. Non-pharmacological pain management (NPPM) refers to therapies that do not involve the use of

drugs(10). Non-pharmacological approaches should not substitute for medication but can enhance pharmaceutical treatments. These methods are particularly beneficial for addressing mild to moderate pain (11).

Pain is a personal and subjective experience shaped by factors such as age, gender, race, and psychosocial influences. It remains one of the most prevalent symptoms encountered by patients, with around 79% of those hospitalized experiencing it(12).

Nurses serve as the initial and ongoing contact for patients dealing with acute pain, placing them in an ideal position to address and manage this discomfort. One of the key strategies adopted in emergency departments for prompt symptom management is nurse-initiated intervention, which includes the administration of analgesics to patients experiencing acute pain(13). This study aims to assess pain management knowledge, attitude & associated factors among nurses working in adult ED.

1.2 Statements of the problem

Pain is the primary cause for visits to the ED, and studies have shown that over 70% of patients come in with pain as their chief complaint (14). Worldwide, the proportion of individuals experiencing pain in 2022 (34.1%) remained high when compared to the prior year in 2019 (33.3%)(15).

Individuals arriving at the emergency department with sudden pain should promptly receive interventions for pain management that are based on evidence. These strategies should involve assessing pain levels upon arrival, providing pain relief early, utilizing nurse-initiated analgesia (NIA), and regularly re-evaluating pain throughout their time in the emergency department(16).

Unrecognized and unmanaged pain by nursing staff can have severe consequences, greatly affecting the patient's physical, emotional, and spiritual health, which can subsequently impact their overall quality of life(17). Although managing acute pain in the ED should utilize a multidisciplinary strategy, nurses play a vital role in pain care. A prior systematic review revealed that inconsistencies or gaps in optimal pain management often stem from differences in practices among nurses working in ED(18).

The International Association for the Study of Pain and the World Health Organization has stated that pain poses a major global challenge in health care. Despite considerable financial investment and research dedicated to this issue, clinical practices still fall short of established guidelines. Pain is often not reported adequately, is insufficiently noted in medical records, and is

inadequately managed in both developed and developing nations(19). Research has shown that nurses employed in emergency departments have a low level of understanding, practice, and attitude concerning pain management. Additionally, insufficient knowledge, inadequate practices, and negative attitudes towards pain management significantly influenced the quality of pain management in the ED(20).

A study carried out in Narjan, Saudi Arabia, focusing on emergency nurses' attitude and skill in pain management revealed that most nurses (92.8%) were in the low skill and poor attitude category, while only a small percentage (7.2%) displayed high-level skills. Various factors were found to have significant connections with pain management abilities, indicating that married nurses, those who handle both male and female patients, and nurses with higher educational qualifications showed more favorable attitudes, high skill and enhanced knowledge regarding pain management(1).

In a previous study conducted in Iran regarding nurses' understanding and attitudes towards pain management in emergency departments, it was noted that the respondents' age and gender influenced the nurses knowledge attitude survey regarding pain (NKASRP) score. Insufficient pain management in emergency settings may stem from nurses underestimating patients' levels of pain, as they often perceive patients' self-reports of pain as exaggerated(21)

Additionally In developing nations, illnesses, traffic accidents, and violence are common, resulting in unavoidable suffering. More than two-thirds of emergency department visits are due to acute pain(22). A study carried out in developing countries showed that the pain management practices of healthcare providers vary, with figures of 24% and 52.7% reported in Nepal, respectively(23, 24).

In Africa, approximately 95.2% of patients experience postoperative pain, which poses significant management challenges(25).According to a report by Human Rights Watch, particularly in Africa, merely 10% of patients have access to adequate pain management(26). Based on a research conducted in Khafr Elshiekh, Egypt, the findings of the study, along with existing evidence, indicate that all nurses in the sample exhibited inadequate knowledge, attitude and practices concerning nursing management for acute pain(27).

Although statistics on pain prevalence in Ethiopia is difficult to get, it is thought to be high due to a variety of contributing variables such as trauma and a growing burden of non-communicable illnesses. While pain is the most common presentation in the emergency department, it is often

overlooked and treated inadequately. In most of our emergency departments, it is not unusual to find individuals who have been in pain for hours without receiving treatment. As a result, the first step in designing a strategy is to support and educate nurses on pain management techniques. In Ethiopia, there are minimal data on the knowledge, attitude, and practice of nurses working in ED towards pain treatment, indicating that little or no attention is devoted to this area. As a result, it is important to close this gap. This study will then provide baseline data on nurses' existing knowledge and attitudes about pain treatment. As a result, it represents a huge step toward better pain treatment. This will have a good impact on enhancing the quality of care and, perhaps, reducing hospital stays, resulting in lower medical expenses. As a result, doing this research will have a substantial influence on future initiatives to enhance healthcare quality and patient outcomes. It can also assist any interested researcher in establishing baseline data for subsequent exploration in this field.

1.3 Significance of the study

The research will offer valuable insights that will aid healthcare facilities in preparing special care for emergency patients, which includes effective pain management. Many emergency patients experience various complications that hinder their recovery and functioning due to the lack of timely and appropriate pain management. Thus the findings from this research will support healthcare facilities in enhancing patient satisfaction and quality of care, which, in turn, improves patients' quality of life and reduces the duration of hospital stays.

This research may assist clinicians in acquiring updated knowledge and attitude concerning pain management while contributing to the formulation of protocols aimed at preventing complications resulting from poorly managed pain. Additionally, it encourages hospitals involved in the study to require their clinicians to establish early pain management plans for patients needing pain control.

The outcomes of this research will provide baseline data for future research and interventions regarding pain management and will serve as a reference for other researchers conducting studies on similar issues. Recognizing the factors related to pain management is crucial for effective program planning and organizing management protocols. This research aims to prompt the hospitals to implement standard pain management protocols, thereby influencing the Ministry of Health (MOH) to develop national-level pain management guidelines.

2. LITERATURE REVIEW

2.1 Introduction

Pain management is critical in ED treatment and acts as a crucial measure of care quality. Patient satisfaction in the ED may be judged by how much their pain lessens and how rapidly and safely acute pain is eased(28). The overall quality of care, as managing pain is integral to addressing the underlying condition. Consequently, enhancing pain control is a vital objective within emergency healthcare. Nonetheless, research indicates that both the assessment and follow-up of pain are often lacking, resulting in inadequate pain management(29).

Inadequate prescription practices and pain-assessment skills by healthcare practitioners, together with a lack of education and evaluation resources, are the main causes of barriers to effective pain treatment. Inadequate pain treatment may also result from parents' reluctance to talk about their child's pain levels. Ineffective pain management can result in needless suffering, higher rates of morbidity and death, and difficulties recovering(30).

2.2 Knowledge of nurses towards pain management

A study in Malatya, Turkey, found that 75.4% of nurses considered a patient's self-reported pain the most reliable measure for evaluations. However, nearly half of the nurses believed patients should endure pain before seeking relief and thought that sleeping patients were not in pain. Additionally, the use of pain assessment scales was infrequent, with only 35.1% of nurses documenting patients' pain levels(31).

A study conducted in East Azerbaijan, Iran, found that the average gross score of participants' knowledge on pain management was 12.51, indicating low knowledge for 84.8% of respondents. The results also showed that older nurses and those who had attended pain retraining courses exhibited significantly lower knowledge levels regarding pain management(32).

Previous research conducted in Iran showed that the average knowledge score among the nurses surveyed was 7.38 ± 2.16 (with a range from 1 to 14). The study concluded that all 400 (100%) of the participating nurses demonstrated a low level of knowledge(33).

A study carried out in Iraq found that over three-quarters (75.6%) of nurses had a moderate level of knowledge regarding pain management in the emergency department(34).

A study in Eritrea found that nurses had an average knowledge score of 49.5%, with those holding a Bachelor's Degree or prior training in pain management scoring significantly higher. Key barriers to effective pain management included overcrowding, lack of assessment protocols, high workloads, and insufficient pain assessment tools, highlighting the inadequate overall knowledge among emergency nurses(35). A prior investigation carried out in a hospital in the Amhara region of Ethiopia revealed that the average percentage score reflecting the emergency nurses' knowledge of pain management was 52.8% (SD = 13), indicating a lack of understanding. Previous training in pain management and the number of years spent working as an emergency nurse were linked to better knowledge regarding pain management(7).

2.3 Attitude of nurses towards pain management

A cross-sectional study carried out in China involving 4,668 registered nurses utilized a knowledge and attitude survey regarding pain (KASRP), revealing that 43.6% of the participants had not participated in any continuing education related to pain management. The average percentage score for the KASRP was (40.3 ± 7.95), and none of the participants scored 80% or above. Additionally, among the 40 items, only two had a correct response rate of 80% or greater. Factors such as education level, ethnicity, professional title, position, and department were identified as independent variables affecting attitude scores(36).

A study in Saudi Arabia revealed that many nurses have negative attitudes towards pain management, with a significant number advising patients to endure pain before receiving relief. While 78.9% of nurses viewed patients as the most reliable source for reporting pain, only 33.6% believed that placebos are ineffective, and 44.5% recognized that patients can be distracted from pain despite experiencing discomfort(37).

In a study in Iran, the average attitude score towards pain management among participants was 58.47, with 53.5% exhibiting a low attitude, while 35.5% showed a high attitude score. The average score for perceived barriers to pain management was 36.48, with a significant portion of respondents frequently experiencing barriers. Additionally, there was an inverse correlation between knowledge scores and perceived barriers, suggesting that higher knowledge may be associated with fewer perceived obstacles in pain management(33).

A descriptive cross-sectional study in Zimbabwe found that registered nurses had inadequate knowledge about pain management, with a mean knowledge score of 64.5%, and their attitudes

were average, reflected in a mean score of 56%. Additionally, a significant portion of nurses expressed skepticism about patients' pain, with 70% wanting to verify its authenticity and 90% believing patients often exaggerate pain for attention, potentially hindering effective pain management(38).

A cross-sectional study conducted at an institution in western Ethiopia revealed that 47% (95% CI: 46.9–47.06) of nurses exhibited a positive attitude towards non-pharmacological pain management. The results also indicated that the nurse-to-patient ratio (AOR=10.36 (2.8, 38.4)), training (AOR=4.6 (1.4, 15.4)), and knowledge of non-pharmacological pain management (AOR=4.3 (1.74, 10.56)) were significantly related to nurses' attitudes towards non-pharmacological pain management(39).

A different study conducted in northern Ethiopia indicated that nurses exhibited a less favorable attitude towards pain management. The proportion of nurses with a positive attitude towards pain management was merely 51.7%, with an average score of 49.33 (SD 7.13). This scenario necessitates several educational and quality enhancement initiatives to improve nurses' attitudes in the field of pain management(3).

2.4 Factors associated with nurses towards pain management

The practices for managing pain within a healthcare system are influenced by three main obstacles: organizational challenges, barriers faced by healthcare providers, and patient-related barriers(40). Some of the most prevalent obstacles related to health systems include the absence of guidelines and protocols for assessing and managing pain, issues with timely administration of analgesics due to logistical challenges, insufficient monitoring and evaluation of quality improvement efforts, and a lack of accountability for ineffective pain management(35)

Factors related to healthcare providers, including insufficient knowledge of various analgesics and their correct dosages, significantly hinder effective pain assessment and management principles, leading to inadequate pain management in critically ill patients(41). Another barrier faced by healthcare providers is their inability to evaluate and recognize the presence of pain, as well as placing low importance on pain management and fearing the possibility of inducing opioid addiction(42).

Individual and cultural prejudices, along with issues in communication between the patient and the healthcare team, represent additional obstacles related to pain management(43). Factors related to patients can also play a role in inadequate pain management. Sedation or neurological

issues might hinder the ability to verbally, behaviorally, or physically convey pain. Additionally, patients may believe that pain is something to endure, perceive requests for pain relief as bothersome, or suffer from fatigue in communication(44).

A study in New Zealand found that 97% of participants believed pain management protocols were essential and supported the need for pain management training, although only a few emergency departments had a designated pain management champion. The main challenges identified were the difficulty of caring for acutely ill patients alongside those in pain (83%) and time constraints (80%), while participants generally had sound knowledge (71%) but lacked up-to-date information on opioids and had gaps in overall knowledge; notably, 90% acknowledged that the most accurate pain assessment comes from the patient(45).

CONCEPTUAL FRAMEWORK

The concept of this framework is adapted from a literature and modified accordingly to fit this study. According to this diagram the socio demographic factors, patient related factors and organizational factors affect nurses' knowledge and attitude of pain management (46-48).

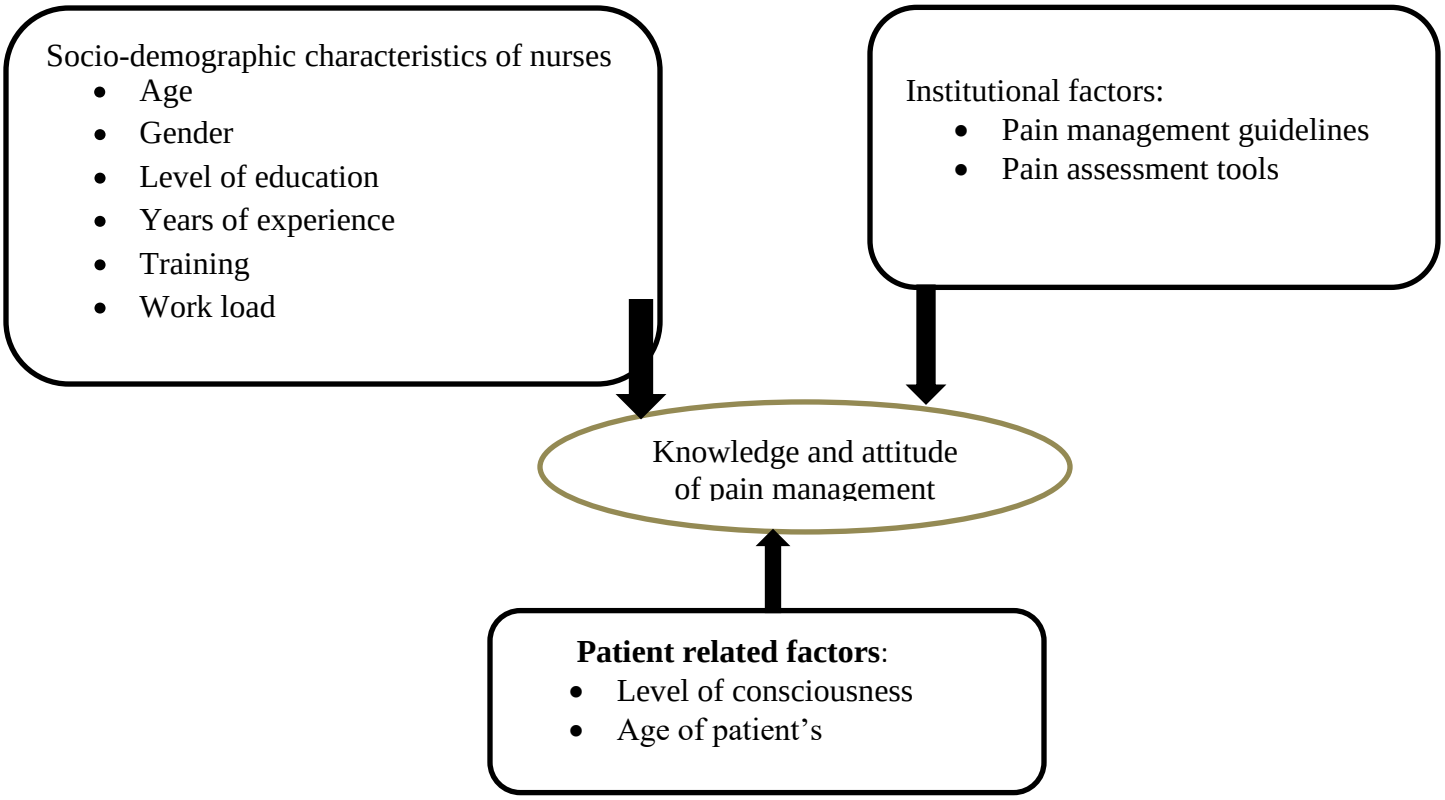

Figure 1: Conceptual frame work shows the factors related to nurses' knowledge and attitude toward pain management.

3. OBJECTIVES

3.1. General Objective

To assess pain management knowledge, attitude, and associated factors among nurses working at adult emergency department of public hospitals in Addis Ababa, Ethiopia, 2025.

3.2. Specific Objectives

1. To assess knowledge of pain management among nurses working at adult emergency department of public hospitals in Addis Ababa, Ethiopia, 2025.
2. To assess attitude of pain management among nurses working at adult emergency department of public hospitals in Addis Ababa, Ethiopia, 2025.
3. To identify factors associated with pain management among nurses working at adult emergency department of public hospitals in Addis Ababa, Ethiopia, 2025.

4. METHODOLOGY

4.1 Study area and period

The study was carried out at selected public hospitals in Addis Ababa from April 10 – 25, 2025. Addis Ababa is a capital city of Ethiopia & setting for the African Union (AU), with estimated population of 3,048,631 in an area of 540 square kilometers. The city is divided into 11 sub-cities. It is located at the heart of the country; at an altitude ranging from 2,100 meters at Akaki in the south to 3,000 meters at Entoto Hill in the North. The city has 13 public Hospitals (five are owned by Ethiopian federal ministry of health & 8 by the Addis Ababa city Administration Health Bureau(49). The research was conducted at selected 6 Addis Ababa public hospitals. These Six public hospitals was selected randomly by lottery method from a total of 13 public hospitals in Addis Ababa city for the study in order to address within the given resource and time.

Tikur Anbessa Specialized Hospital: Founded in 1964, it is a specialty hospital in Addis Abeba, Ethiopia. Black Lion Hospital is the country's largest public hospital. The Ministry of Health (MoH) donated Black Lion Hospital to Addis Ababa University in 1998 to serve as the faculty's principal teaching hospital. The faculty is the oldest and biggest of the country's health training institutes, with the most senior professionals(50).Currently there are 50 nurses working in the adult ED. Thus, all nurses who met the inclusion criteria included in this study.

Yekatit 12 Hospital Medical College: which is located in Addis Ababa, Ethiopia is a tertiary level referral and teaching hospital which provides health care services to patients from different parts of the country. There are 24 nurses working in the adult ED of the hospital and all who met the inclusion criteria included in the study. The hospital's adult ED head nurse used as source of information.

Addis Ababa Burn, Emergency and Trauma (AaBET) Hospital: is a newly established 250-bed teaching and public referral hospital in Addis Ababa, Ethiopia, affiliated with St. Paul's Hospital Millennium Medical College (SPHMMC). It is the only trauma center in the city. It has 82 nurses working in adult ED. The hospital's adult ED head nurse used as source of information

African Leprosy Rehabilitation and training center (ALERT): a medical facility in Addis Ababa focuses on Hansen's disease (leprosy). Originally named All Africa Leprosy Rehabilitation and Training Center, it now includes tuberculosis in its official name. ALERT

offers leprosy training for Addis Ababa University's medical students and houses Armauer Hansen Research Institute (AHRI) for leprosy research. The facility includes 240 bed teaching hospital with dermatology, ophthalmology, and surgery departments, as well as an orthopedic workshop and rehabilitation program(51). Currently there are 40 nurses working in the adult ED.

Zewditu Memorial Hospital: located in central Addis Ababa was originally established by the Seventh-day Adventist Church but was later nationalized during the Derg regime in 1976. Today, it is operated by Addis Ababa city administration and is known as Ethiopia's premier hospital for treating ART patients. Zewditu memorial hospital has become the largest HIV clinic in Ethiopia (52). There are 31 nurses currently working in adult ED of the hospital.

Menelik II Referral Hospital in Addis Ababa, Ethiopia, is an esteemed public healthcare facility established in 1909 and named after Emperor Menelik II. Operated by Addis Ababa City Administration, it offers specialized services in various fields such as cardiology, neurology, and oncology. With a capacity of over 600 beds, the hospital serves over 15,000 patients daily and employs more than 2,300 staff members(53). There are 26 nurses currently working in the adult ED of the hospital.

4.2. Study design

Institutional based cross-sectional study design was employed.

4.3 Source population

All nurses working at adult emergency department of public hospitals in Addis Ababa.

4.4 Study population

All Nurses working at adult emergency department of selected public hospitals in Addis Ababa.

4.5 Inclusion criteria

- All nurses working at adult emergency department of selected public hospitals during data collection period and will to take part in the study was included.

4.6 Exclusion criteria

- Those who were not present during data collection period for different reasons like sick leave, annual leave and maternity leave.
- Nurses in managerial position

4.7 Sample size determination

In those six hospitals setting, there are total of 253 nurses working in the adult ED. Hence this number is small to use single population proportion formula for sample size calculation; all nurses working in the adult ED of selected hospitals was included by census method and used as a sample.

4.8 Sample selection

Simple random sampling method used to select 6 hospitals among 13 public hospitals in Addis Ababa; which are TASH, ALERT, AaBET, Menelik, Yekatit 12 and Zewditu memorial hospitals. Census sampling method was applied to all subjects present in those 6 hospitals adult ED and full fill the inclusion criteria was included in the study.

4.9 Study variables

4.9.1 Dependent variables

- Knowledge of nurses towards pain management
- Attitude of nurses towards pain management

4.9.2 Independent variables

- **Demographic and professional characteristics**: Age, Gender, Marital status, Work experience, Educational level and previous training.
- **Institutional factors**: Pain assessment tools, Pain management guidelines, Work load.
- **Patient related factors**: Level of consciousness, Age.

4.10 Operational definitions

- **Adequate knowledge**: having adequate knowledge means responding correctly to the knowledge questions mean and above.
- **Inadequate knowledge:** having inadequate knowledge means responding correctly to the knowledge questions below mean level(3).
- **Favorable Attitude:** It is the category of nurses when they scored mean and above value for attitude questions.
- **Unfavorable Attitude:** It is the category of nurses when they scored less than the mean value for attitude questions(3).

4.11 Data collection instruments and techniques

Data were collected using a structured and pretested self-administered questionnaire used to assess the knowledge and attitude of pain management and associated factors among nurses working at adult emergency department. The structured self-administered questionnaire consist 4 parts; socio demographic characteristics of nurses, knowledge of nurses about pain management; attitude related items and factors associated with nurses towards pain management questions were asked to each study participant. The questionnaires for this study were used from a previously validated KASRP and nurses knowledge and attitude survey(NKAS) tool which was extracted from other research conducted before in the same topic (3, 43, 47, 48, 54, 55). The questionnaire was comprised of 16 yes/no knowledge questions and 14 attitude questions. Answers were evaluated based on their compatibility with pain therapy criteria widely accepted by international pain management guidelines. The tool was prepared and administered in English. The internal consistency of 30 knowledge and attitude assessment items were good as evidenced by the overall Cronbach's Alpha and reliability of the items was α=0.78. Data were collected by two BSc nurses with one supervisor and the investigator was responsible for the overall management of the process.

4.12 Data quality assurance

Pre-test was carried out on 5% of the sample at saint peter specialized hospital before the actual study is done. Questionnaires were revised, modification and adjustment was done according to the findings. The training was given for data collectors and supervisor for one day to ensure all the group members had the same information about the study instrument and follow the same survey administration procedures. The principal investigator collected the filled questionnaire and checked for missed values and completeness daily. Data was collected using kobo toolbox.

4.13 Data processing and analysis

The collected data was checked for consistency and completeness, data cleaning done. Then exported to SPSS version 26 for analysis. Descriptive statistics such as frequency, percentage, means, and standard deviation was calculated. The Binary logistic regression model used to analyze the relationship between independent and outcome variables. Variables which had a P-value less than 0.25 in bivariate analysis were then entered to multivariable model. Model goodness tested with Hosmer-lemeshow which was >0.05. In multivariable analysis, variables

having P-value less than 0.05 was decided statistically significant and reported using adjusted odds ratio with 95% confidence interval. Multicollinerity checked by variance inflation factor and it was <3.The results were presented using appropriate table & graphs.

4.14 Ethical consideration

Ethical approval letter was obtained from Addis Ababa University, College of Health Science Department of Emergency and Critical Care Nursing. Letter of permission obtained from Medical Director of the study settings before the actual data collection period. Permission letter then provided to respective head nurses of adult ED. Information was given to study participants about the purpose and procedure of study and oral consent was obtained from each participant nurses.

5. RESULTS

5.1 Socio-demographic characteristics

In this study, 228 participants were included in the analysis with a response rate of 90%. 17 nurses were excluded by exclusion criteria and 8 questionnaires were incomplete. The mean age of participants was 29.69 with a standard deviation of ± 3.58. Majority of the participants 151(67.1%) were male and 78(22.9%) were females. From the respondents 76.73% were with the age of range of 21-30 followed by 31-40 age range with 23.2%.

Table 1: Socio-demographic characteristics of nurses working at adult ED of selected public hospitals in Addis Ababa, Ethiopia, 2025.

S.No	Variable	Category	Frequency(N=228)
1	Gender	Male	153
		Female	75
2	Marital status	Single	146
		Married	82
3	Experience as a nurse	<2years	7
		2-5years	50
		6-10years	125
		>11years	46
4	Educational level	Degree	196
		Masters	32
5	Previous Training	Yes	72
		No	156
6	Age category	21-30	174
		31-40	53
		41-50	1
7	Work load	Yes	176
		No	52

5.2 Knowledge of nurses towards pain management

The rate of correct answer for knowledge assessing questions ranged from 25.9% (for the worst-answered item) to 76.3% (for the best- answered item) by nurses. 174(76.3%), of participant nurses correctly answered that distraction does not guarantee the absence of pain whereas only 59(25.9%) of respondents correctly answered anticonvulsants do not produce optimal pain relief.

More than two-thirds, 161(70.6%), of the respondents answered that Patients may sleep despite severe pain. 165(72.4%) of study participants correctly answered that elderly can tolerate opioids. Two-third, 152(66.7%) of participants were answered that the preferred route administration of narcotic pain relievers to patient is intravenous.

Using independent sample t-test, there was no significant difference between males (mean 0.69) and females (mean 0.64) in the mean score of nurses' knowledge towards pain management with p value 0.123,marital status(p=0.160),work load(p=0.754) as regards the mean score of nurses' knowledge towards pain management. In one way ANOVA analysis also there is no significant association between experience categories (p=0.101) towards pain management knowledge.

Table 2: Description of knowledge of nurses working at adult ED towards pain management in public hospitals of Addis Ababa, Ethiopia, 2025.

S.N	Variable	Response(N=228)	
		Yes	No
1	Vital signs are reliable indicators of pain intensity.	93	135
2	Pt who distracted from pain doesn't have severe pain.	74	174
3	Pt may sleep despite severe pain.	161	67
4	Respiratory depression occurs in patients receiving stable dose of opioid over a month.	116	112
5	Combining analgesics can result better pain control	159	69
6	Promethazine & hydroxyzine are reliable potentiates of opioid analgesics.	61	167
7	Opioids should not be used in patients with a history of substance abuse.	112	116
8	Morphine have a dose ceiling effec	110	118
9	Elderly pt can tolerate opioids.	165	63
10	Pt should encourage enduring pain as possible before using an opioid.	91	137
11	Do you adjust after an initial doses of opioid analgesic	162	66
12	Gave sterile water for the patient's to determine if the pain is real	97	131
13	IV route is preferred in brief severe pain	152	75
14	Anticonvulsant drugs produce optimal pain relief	169	59
15	Benzodiazepines are effective pain reliever	84	144
16	Narcotic opioid addiction is chronic neurobiological disease	168	60

The mean score of total correct answer was 10.4254 with a Standard deviation of 2.8016 (10.4254±2.8016) out of a possible 16 knowledge items ranging from a minimum of 2 to maximum of 16 correct answers. Overall, the knowledge of participant nurses on pain management; most of them 150(65.8%)) have an adequate knowledge of pain management whereas 78(34.2) of them have inadequate knowledge scoring less than mean for the knowledge assessing questions.

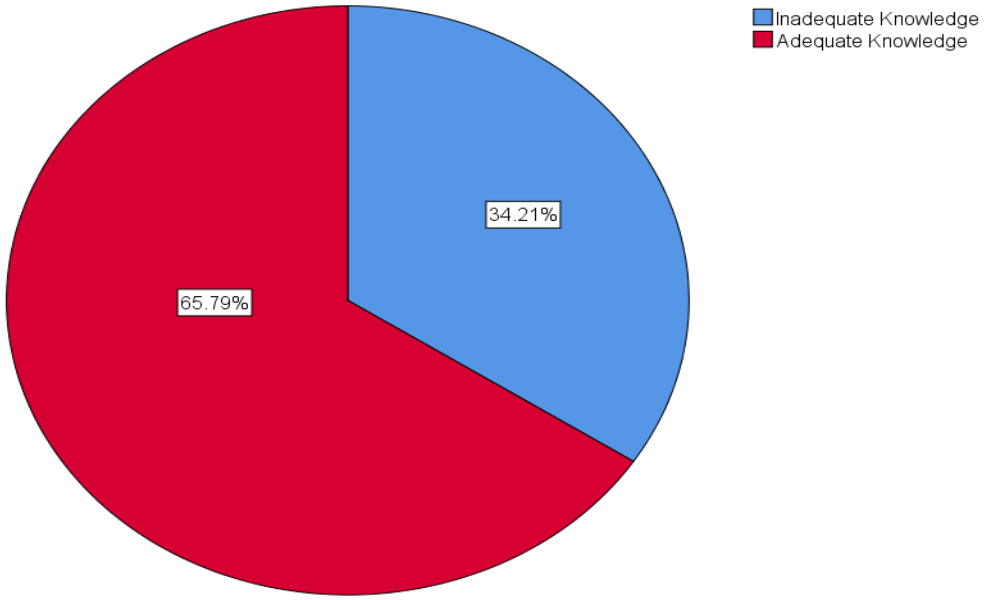

Figure 2: Pain management knowledge of nurses working at adult ED of public hospitals in Addis Ababa, Ethiopia, 2025.

5.3 Attitude of nurses towards pain management

148 (68.4%) of the respondents agreed that a lack of pain expression does not mean a lack of pain, the same number of respondents 148 (69.4%), agreed that giving narcotics on regular basis is preferred over PRN. From the respondents,134(58.8%) of the study participants agreed that the most accurate judgment of the intensity of the patient's pain is the patient himself/ herself.165(72.4%)of respondents agreed that, for effective pain treatment of cancer pain, it is necessary to continuously assess the pain and the efficacy of therapy.

In an independent sample t-test, there is no a significant difference between males (mean 0.61) and females (mean 0.48) in the mean score of nurses' attitude towards pain management with p value 0.68, work load (0.895) and marital status (0.353).In one-way ANOVA analysis, there was no significant difference between age categories (p=0.445) and work experience (p=0.72) towards attitude of pain management.

Table 3: Description of attitude items towards pain management among nurses working at adult ED of public hospitals in Addis Ababa, Ethiopia, 2025.

S. N	Variable	Response(N=228)	
		Correct	Incorrect
1	Lack of pain expression does not mean lack of pain?	148	80
2	Giving narcotics on a regular schedule is preferred over PRN schedule	148	80
3	Increasing amounts of analgesics to control pain, indicates psychologically dependency?	152	76
4	Pt should experience discomfort prior to giving the next dose of pain medication?	145	83
5	Narcotics on a PRN likely to develop clock watching behaviors?	131	97
6	Most accurate judge of the intensity of the pain is a patient	134	94
7	Pt receiving an analgesic medication on a PRN basis, can request pain medications before the pain returns?	68	160
8	Narcotics can cause respiratory depression: should not be used in pediatric patients?	129	99
9	In children diversional activities are indicated rather than actual pain?	68	160
10	The most suitable dose of morphine for a pt in pain is a dose that best controls the symptoms.	67	161
11	If the cause of patient's pain is not known, opioid analgesics should not be given during pain management	144	84
12	For effective treatment of cancer pain it is necessary to continuously assess the pain and the efficacy of therapy?	165	63
13	Do you agree that it is the patient's right to expect total pain relief as a consequence of treatment?	163	65
14	Do you agree that you have to trust a patient whenever they complain of feeling pain?	107	121

The mean score of total correct answer for attitude items were 7.7588 with a standard deviation of 2.079 out of 14 possible items ranging from a minimum of 3 to maximum of 14 correct answers. Overall 129(56.6%) of respondents have a favorable attitude towards pain management with a mean score of 7.7588 (±2.079SD) for correct answers.

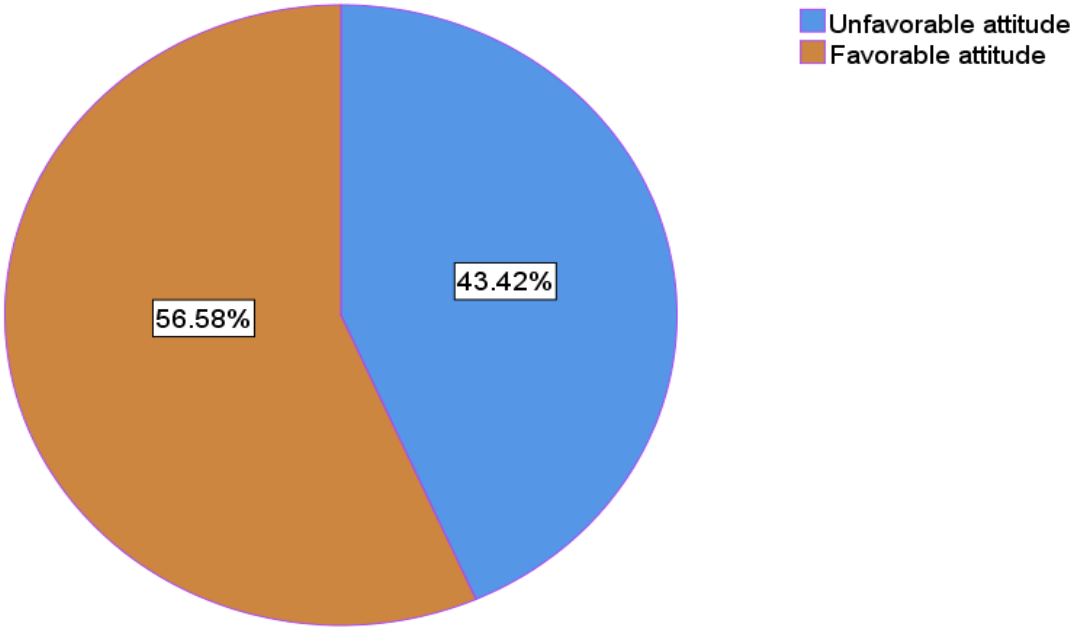

Figure 3: Pain management attitude of nurses working at adult ED of public hospitals in Addis Ababa, Ethiopia, 2025

5.4 Factors associated with knowledge of nurses toward pain management

About 129(56.6%) study participant nurses revealed that they have pain management guideline in their hospital where majority 60(48.3%) of them read the guideline occasionally followed by those who has read sometimes 51(41.1%). Majority 156 (68.4%) nurses did not get training related to pain management but only 72(31.6%) of them have had previous training on pain management. 182 (79.8%) of participant nurses believe that a patient's inability to communicate can affect pain assessment and management. Majority 177 (77.6 %%) of nurses reveal that they have workload in their working unit. The participant nurses who thinks that sedatives can affect pain management accounts 149 (65.4%) and the rest 79(34.6%) didn't think so.

Variables which have a significant association (P<0.05) with the level of knowledge in the bivariate logistic regression are; educational level, receiving training related to pain

management, having guideline and attitude status tends to have a significant association with the level of pain management knowledge. Thus findings in bivariate regression showed that nurses who hold MSc degree were 3times more likely to have adequate knowledge than those hold BSc degree and those who have guideline in their hospital were almost 2 times likely to have adequate knowledge than those who have not.

In multiple variable analyses; receiving training (AOR 5.674, 95%CI; 1.839-17.51) and attitude status (AOR 2.3, 95%CI; 1.228-4.3) have a significant association with the level of knowledge. It revealed that nurses who received previous training were five times more to have adequate knowledge towards pain management than those who did not receive training regarding pain management and those who have favorable attitude also found 2 times to have adequate knowledge than those with unfavorable attitude.

Table 4: Bivariate and multivariate logistic regression on factors associated with pain management knowledge among nurses working at adult ED of public hospitals in Addis Ababa, Ethiopia, 2025.

S.No	Variable	Response	Knowledge		OR (95% CI)		
			Adequate	Inadequate	COR	AOR	P value
1	Having pain management guideline	Yes	78((79.5 %	29(22.5 %)	1	1	1
		No	72(55.5%)	49(37%)	1.83((1.046-3.2)*	1.84(.995-3.42)**	.052
2	Received training related to pain management	Yes	63(87.5%)	9(12.5 %)	1	1	1
		No	88(56.4%)	68(43.5 %)	5.5(2.58-11.5)*	5.68(1.84-11.5)**	.0.003**
3	level of education	MSc	27(84.4%)	5(15.6 %)	1	1	1
		BSc	113(57.6 %)	83((42.3%)	3.705 (1.182-8.687) *	2.581(.692-9.63)**	.158
4	Attitude	Favorable	100(77.5 %)	29(22.5 %)	1	1	1
		Unfavorable	50(50.5%)	49(49.5 %)	3.379(1.8-5.9)*	2.567(1.03-6.38)**	.042**

* COD= crude odds ratio significant at p < 0.05, CI- 95 % (Confidence Interval),
** AOR=Adjusted odds ratio significant at (p< 0.05)

5.5 Factors associated with Attitude of nurses towards pain management

Variables which have a significant association (P<0.05) with the level of attitude in the bivariate logistic regression are; educational level, receiving a training related to pain management, having guideline and knowledge level are happen to have a significant association with the nurses attitude status of pain management .Thus in bivariate regression nurses who have guideline in their hospital were found 1.34times more likely to have favorable attitude than those who did not have pain management guideline.

In multiple variable analysis; receiving training (AOR 2.03, CI95%:1.05-2.54), Knowledge level (AOR 2.3, 95%CI; 1.228-4.57) and educational level with odds ratio of (AOR 8.62, CI95%; 2.47-30.08)) have a significant association with attitude. Accordingly those who took pain management training tend to have 2 times more favorable attitude towards pain management than those who did not. Regarding educational level holding MSc degree found 8 times more likely to have favorable attitude towards pain management compared with BSc degree holders and those with adequate knowledge also 2 times likely to have favorable attitude when compared with those who have inadequate knowledge towards pain management.

Table 5: Bivariate and multivariate logistic regression on factors associated with attitude of pain management among nurses working at adult ED of public hospitals in Addis Ababa, Ethiopia, 2025.

S.No	Variable	Response	Attitude		OR (95% CI)		
			Favorable	Unfavorable	COR	AOR	P value
1	Having guidelines	Yes	65(53.7%)%)	42(39.3%)	1	1	1
		No	65(60.7%)	56(46.3%)	1.34(1.9-5.98)*	1.4(.792-2.53)	.24
2	Received training	Yes	52(72%)	20(28%)	1	1	1
		No	77(49%)	79(51%)	2.66(2.05-6.86) *	2.03(1.05-2.54)**	.035**
3	level of education	MSc	29(90.6%)	3(9.4%)	1	1	1
		BSc	100(51) %)	96(49%)	9.28(2.4-31.4) *	8.62(2.47-30.08)**	0.001**
4	Knowledge	Adequate	100(66.67%)	50(33.3%)	1	1	1
		Inadequate	27(34.6%)	51(65.4%)	3.379(1.909-5.98) *	2.33(1.24-4.35)**	.008**

* COD= crude odds ratio significant at p < 0.05, CI- 95 % (Confidence Interval),
** AOR=Adjusted odds ratio significant at (p< 0.05)

6. DISCUSSION

The research evaluated the knowledge, attitudes, and factors related to pain management among nurses employed in an adult emergency department. According to the results of this research, the majority of participating nurses, 174 (76.3%), fell within the age range of 21-30; this aligns with findings from a study conducted at the University of Gondar in northern Ethiopia(3). The possible reason for consistency of findings might be the similarity of study population, setting and area (Nurses, Hospital, Ethiopia).

In this study 65.79% of nurses had an adequate knowledge about pain management which is consistent with the study done at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia where 66.9% of the study participants had adequate knowledge of pain management with a mean score of 7.14(3). The possible reason for the similarity between the current study and Northwest Ethiopia might be using a similar study design (cross- sectional) and comparable study population (nurses in specialized hospitals).

However the result of this study was lower than the studies done in Uganda and Saudi Arabia,75% (56), 87.5%(57) where these percentages of the study participants had an adequate knowledge towards pain management respectively. A possible explanation for this variation could be related to factors such as socioeconomic status, the setting of the study, sample size, and the different tools used for data collection. In terms of sample size, this study had a larger participant group (n = 228), while the Uganda study had a smaller one (n = 67). The current research was carried out in multiple centers (6 public hospitals), which might have contributed to the discrepancies, although the same set of 16 knowledge questions was utilized. Differences in socioeconomic status may also influence the knowledge levels seen in Saudi Arabia.

On the other hand the finding of the study was higher than that in the studies done in Eritrea, 49.1%(35), Zimbabwe 35.5%(38), Turkey 41%(8), Variations in sample size and methodology between the two studies could account for this difference. Additionally, the discrepancies may arise from differences in study settings, variations in sample sizes, the tools utilized, and the different outcomes assessed; as this study included nurses with master's degrees, it may have contributed to a higher level of knowledge among the participants.

The study revealed that nurses who had received previous training has significant association in the multivariate logistic regression (AOR 5.68, CI95% 1.84-11.5), where those who have previous training 5.68 times more likely to have adequate knowledge than those who did not. Those who have favorable attitude also 2.5 times likely to have adequate knowledge which in line with a previous study conducted in Addis Ababa where nurses who has taken previous pain management training and those with good attitude had a higher knowledge with (AOR 10.8,1.07-109.42) and (AOR 6.17,1.38-27.56) respectively (47). This study revealed there was no association between knowledge level with work experience and work load among nurses which is against a study conducted in Amhara region where work experience found to have positive association with level of knowledge while work load had negatively associated with knowledge level(7).

More than half (56.5%) of the study participants had a favorable attitude towards pain management. This finding was consistent with studies done in Gondar University 51.7% (3), Jimma western Ethiopia 49.8%(58), and Zimbabwe 56%(38). This finding was lower than studies done in Uganda, 75%(56) in which study participants were having a favorable attitude towards pain management. The potential reason for this discrepancy might stem from variations in the study environment, differences in sample sizes, and the distinct tools utilized. For instance, in Uganda, 89% of study participants had undergone training in pain management, whereas only 31% had done so in this study. Additionally, unlike the previous research conducted in Uganda, this study did not include Doctorate nurses. Conversely, the results from this study were more favorable than those from Iran, where only 35.5% of participating nurses exhibited positive attitudes toward pain management(33). The reason behind these differences might be study setting difference and the difference in tool/ instruments used.

Nurses who have ever taken training on pain management were about 2 times more likely to have a favorable attitude toward pain management than those who have not (2.03 1.05-2.54)). This is in line with study done in Uganda, revealing a positive relationship between attitude and training(56). This study's most notable conclusion is the positive relationship between previous training, advanced education, and good knowledge and nurses' favorable attitudes about pain management. Nurses who had received training, held an MSc degree, and had good knowledge of pain management displayed a positive attitude toward pain management. This finding

complements a prior study that emphasizes the importance of education and training in molding healthcare practitioners' attitudes(39). The findings highlight the importance of continued pain management training programs for nursing personnel. Institutions should emphasize the development of comprehensive educational frameworks that address identified knowledge gaps and promote good attitudes toward pain treatment. By investing in focused training efforts, healthcare institutions may increase the competency of their nursing staff, resulting in better patient care results furthermore; future study should look at the influence of socioeconomic variables on nurses' knowledge and attitudes about pain management, as well as how institutional policies might improve ongoing professional growth in this vital field.

As strength this study focuses on a vital element of patient care: managing pain in the emergency department, emphasizing its significance in enhancing patient outcomes. The study's result adds to the scarce research on pain management among emergency department nurses, offering useful insights for future research and enhancements in practice. Using self-reported assessments for knowledge and attitudes can lead to bias, as participants might exaggerate their skills or give ideally acceptable answers. The other limitation was minimal sample size which cause a wide interval and low response rate which happened for different reason. This study was limited only to public hospitals in Addis Ababa. It would have been possible to assess differences between public and private hospital nurses’.

7. CONCLUSION

This study revealed that almost two-third of nurses working at adult emergency department of public hospitals in Addis Ababa had a good knowledge and more than half of nurses’ had favorable attitude towards pain management. The educational level and on job training was found to have statistically significant association with level of knowledge and attitude.

8. RECOMMENDATION

1. **Hospitals** would be better arrange an educational program as a post graduate program for BSc degree nurses that may help improve the knowledge and attitude on pain management.

2. **Each Hospitals and ministry of health** should develop mandatory continuing training workshops focused on pain management for nurses practicing in emergency departments to keep them updated on best practices and new research findings.

3. **Nurses** would be better read guidelines and standard protocols which match their tasks assigned specifically to them and use pain assessment tools before pain management and hospitals should avail those materials for nurse's consumption.

4. **For researchers:** It is recommended to conduct further research which is needed to determine how best to break down current factors to effective pain management.

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ANNEXES

Annex I: Information sheet

Dear respondent my name is Mosisa Ayano I am a graduate student at Addis Ababa University emergency and critical care department. As part of the requirements for the Master of Science degree in emergency and critical care nursing, I am conducting a study about nurse's knowledge, and attitude of pain management and associated factors in adult emergency department. You are being invited to participate in this research study. Before you decide to participate, you need to understand what participation consists of and the purpose of this study. The purpose of this study is to assess the level of knowledge and attitude among nurses working in adult emergency department. To attain this study objective your goodwill and kindly participation are needed. Confidentiality is strictly protected and none of your responses 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 the questions. If you choose to participate, you may withdraw your participation at any time during the survey. Completion of the survey will serve as your consent to participate. There will be no direct benefits to you for participation in this study. I hope that information obtained from this study may be useful to the body of nursing to increase understanding in pain management.

Are you Volunteer to participate?
1. If yes continue to the next page
2. If no stop

Participant signature_____ Date_____
Supervisor, Name_____Signature_____Date_____

Annex II. Consent form

First I would like to thank you for taking your time and participating in our study. In signing this document, I am giving my consent to participate in the study entitled “Pain management knowledge, attitude and associated factors among nurses working at adult emergency department of public hospitals in Addis Ababa, Ethiopia”. I have been informed that my participation in this

study is willing full and voluntary even I have right to refuse or interrupt the filling of questionnaire and my name will not be mentioned on the questionnaire. I, undersigned, understood the purpose of the study & fully agree to participate in the study.

Signature of the participant---------- Date ----------

Thank you!

Name of investigator: Mosisa Ayano

Address of investigator: phone no: - +251984944290

-Email: mosisibn@gmail.com

Annex III: Questionnaire

Questionnaire to assess Pain management knowledge, attitude and associated factors among nurses working at adult emergency department of public hospitals Addis Ababa, Ethiopia, 2025.

Part I. Socio demographic characteristics of respondents

S. no	Question	Response
1	Gender	1. Male 2. Female
2	Age	------- years
3	Marital status	1. Married 4. Widowed 2. Single 3. Divorced
4	What is your educational qualification?	1. Diploma 2.BSc 3. MSc
5	What is your work experience as a nurse?	_____years
6	Have you ever taken pain management training?	1. Yes 2. No

Part II. Knowledge of pain management assessing questions extracted from (3, 43, 47, 54).

Number	Question	Yes No
1	Are vital signs always reliable indicators of patients' pain intensity?(False/No)	A) Yes B) No
2	Patients who can be distracted from pain usually do not have severe pain?(False/No)	A) Yes

		B) No
3	Patients may sleep despite severe pain(True/Yes).	A) Yes B) No
4	Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over months(True/yes).	A) Yes B) No
5	Combining analgesics that work by different mechanisms (e.g. combining opioids with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.(True/yes)	A) Yes B) No
6	Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiates of opioid analgesics, are they?(False/No)	A)Yes B) No
7	Should opioids not be used in patients with a history of substance abuse?(False/No)	A) Yes B) No
8	Does morphine have a dose ceiling (i.e., a dose above which no greater pain relief can be obtained?(No)	A) Yes B) No
9	Can elderly patient tolerate opioids for pain relief? (True/yes)	A) Yes B) No
10	Should patients be encouraged to endure as much pain as possible before using an opioid?(No)	A) Yes B) No
11	Doses should be adjusted following the individual patient's response; do you adjust after an initial dose of opioid analgesic given?(True)	A)Yes B) No
12	Is giving sterile water by injection (placebo) is a useful test to determine if the pain is real?(No)	A) Yes B) No
13	Do anticonvulsant drugs such as gabapentin produce an optimal pain relief after a single dose?(No)	A) Yes B) No
14	Are benzodiazepines effective pain relievers even if the pain is not due to muscle spasm too? (No)	A)Yes B) No
15	Narcotic/opioid addiction is defined as a chronic neurobiological disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.(Yes)	A) Yes B) No
16	The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or post op pain is IV route.	A. Yes B.No

Part III. Attitude items among nurses towards pain management extracted from(3)

1	Do you agree that lack of pain expression does not mean lack of pain?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
2	Do you believe giving narcotics on a regular schedule is preferred over PRN schedule for continues pain?	A. Strongly disagree B. Disagree C. Neutral

		D. Agree E. Strongly agree
3	When a patient requests increasing amounts of analgesics to control pain, do you agree that his usually indicates that the patient is psychologically dependent?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
4	Do you agree a patient should experience discomfort prior to giving the next dose of pain medication?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
5	Would you believe that patient receiving narcotics on a PRN basis may likely to develop clock watching behaviors?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
6	Do you agree that the most accurate judge of the intensity of the patient's pain is the patient him/ herself?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
7	When a patient in pain is receiving an analgesic medication on a PRN basis, should it be appropriate for the patient to request pain medications before the pain returns?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
8	Would you believe that as narcotics can cause respiratory depression, they should not be used in pediatric patients?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
9	Do you agree that children cry all the time; therefore, diversional activities are indicated rather than actual pain?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree

10	Do you agree for that the most suitable dose of morphine for a patient in pain is a dose that best controls the symptoms; there is no maximum dose (i.e.a level that must not be)?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
11	If the cause of patient's pain is not known, opioid analgesics should not be given during pain management	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
12	For effective pain treatment of cancer pain do you think that it is necessary to continuously assess the pain and the efficacy of therapy?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
13	Do you agree that it is the patient's right to expect total pain relief as a consequence of treatment?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree
14	Do you agree that you have to trust a patient whenever they complain of feeling pain?	A. Strongly disagree B. Disagree C. Neutral D. Agree E. Strongly agree

Annex IV: Assurance of principal investigator

I, the undersigned, hereby declare that the research entitled "Pain management knowledge, attitude, and associated factors among nurses working at adult emergency department of public hospitals in Addis Ababa, Ethiopia, 2025" has not been presented or submitted to any other university or institution for academic credit or publication".

I affirm that all sources of information and ideas utilized in the development of this thesis have been properly cited and referenced, ensuring due acknowledgment of the contributions of others. I take full responsibility for the content of this thesis and assert that it is a product of my own intellectual endeavor.

Principal investigator:

Name: Mosisa Ayano Kuma
Signature:_____
Date _____

Approval of advisor

Name of advisor: Asmamaw Abebe (MSc, Ass't prof)
Signature: _____
Date _____

Approval of Co- Advisor

Name of advisor: Wagari Tuli (MSc,Ass't prof)
Signature: _____
Date _____

Approval of examiner

Name of examiner_____
Signature_____
Date_____

PAIN MANAGEMENT KNOWLEDGE, ATTITUDE, &ASSOCIATED FACTORS AMONG NURSES WORKING AT ADULT EMERGENCY DEPARTMENT OF PUBLIC HOSPITALS IN ADDIS ABABA, ETHIOPIA, 2025. BY: Mosisa Ayano

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