
**ADDIS ABABA UNIVERSITY**

**COLLEGE OF HEALTH SCIENCES**

**SCHOOL OF NURSING AND MIDWIFERY**

**POST GRADUATE PROGRAM**

# KNOWLEDGE, ATTITUDE, PRACTICE AND FACTORS ASSOCIATED WITH PAIN MANAGEMENT FOR HOSPITALIZED CHILDREN AMONG NURSES WORKING IN PUBLIC REFERRAL HOSPITALS OF AMHARA REGION, ETHIOPIA, 2018

**BY: ESMELEALEM MIHRETU (BSC)**

**A RESEARCH THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER'S OF SCIENCE IN PEDIATRICS AND CHILD HEALTH NURSING.**

**JUNE 2018**

**ABABA, ETHIOPIA**

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**JUNE 2018**
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## APPROVAL BY THE BOARD OF EXAMINATION

This thesis by Esmelealem Mihretu is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of master in pediatrics and child health nursing

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## STATEMENT OF DECLARATION

By my signature below, I declare and affirm that this thesis is my own original work in partial fulfillment of the requirements for the degree of master in pediatric and child health nursing. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All the sources of the materials used for this thesis and all people and institutions who gave support for this work are fully acknowledged. 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 thesis.



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## Acronyms and Abbreviations

| | |
|---|---|
| AOR | Adjusted Odd Ratio |
| APS | American Pain Society |
| COR | Crude Odd Ratio |
| CSA | Central Statistical Agency |
| CI | Confidence Interval |
| FLACC | Face, Leg, Activity, Cry and Consolably |
| FMOH | Federal Ministry of Health |
| HCP | Health Care Profession |
| IASP | International Association for the Study of Pain |
| KAP | Knowledge Attitude and Practice |
| NHANES | National Health and Nutrition Examination Survey |
| NSAID | Non-Steroidal Anti Inflammatory Drugs |
| PRN | When needed |
| SD | Standard Deviation |
| SPSS | Statistical Package for Social Science |
| USA | United State of America |
| UK | United Kingdom |
| VAS | Visual Analog Scale |
| VIF | Variance Inflation Factors |
| WHO | World Health organization |

# Contents

## List of tables

## List of figures

# Abstract

**Background:** Hospitalized children experience moderate to severe acute or chronic pain which minimizes their comfort and has become a major health problem in developed and developing countries. Unrelieved childhood pain causes unnecessary suffering and result in short- and long-term physical and emotional impacts in children and their families' lives. Managing pain properly can prevent children from unnecessary stay in hospitals and suffer from pain.

**Objectives:** The aim of this study was to explore the knowledge, attitude, practice and factors associated with pain management for hospitalized children among nurses working in Amhara public referral hospitals, Ethiopia

**Methods:** A quantitative cross-sectional design was conducted from February 27 to March 27, 2018 in selected public referral hospitals of Amhara regional state. A total of 289 nurses with a response rate (97.6%) participated in the study. Study participants were recruited by simple random sampling and semi structured self administered questionnaire was used to collect data. The collected data was coded and entered in to Epi data 4.2.0 and transferred to SPSS version 21 for further analysis. Logistic regression model was used for association between independent versus out-come variables and considering the AOR, 95% CI and $p < 0.05$ cutoff point as significant for all the independent variables.

**Result:** The knowledge scores of participants had a mean value of 5.57 (52.2%) out of 10. The mean score of attitude was 46.66 (46.7%) out of 57 and the mean score for the nurses' level of practices was found to be 5.42 (45.7%) out of 10. There was a significant relationship between nurses' knowledge scores and the level of education, attitude, and level of practice. Nursing work load, negative attitude, and lack training were factors for pain management practices. Finally, score of nurses' attitude was significantly associated with qualification, knowledge, practice and presence of assessment tool.

**Conclusion and Recommendation:** Results showed that nurses had poor performance and unfavorable attitude towards pain management. However, majority of Nurses were knowledgeable on some area of pharmacological and non-pharmacological pain managements for children. The hospital's administrative bodies should provide convenient training program regarding pain and its management to staff nurses.



**Key words:** Nurses, Knowledge, Attitudes, Practices, Barriers, Pain management, hospitalized children

# CHAPTER 1: INTRODUCTION

## 1.1. Background

Since pain is a complex, subjective phenomenon, defining pain has been a challenge. A revised definition of pain is stated that pain is a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive and social components. Each individual learns the application of the word through experiences related to injury in early life and an acknowledgement that early experience during childhood provides the basis for understanding the meaning of the word pain (1).

Although the Joint Commission on Accreditation of Healthcare Organizations established standards for pain assessment and management in response to the public outrage about the widespread problem of the under treatment of pain, still it has been identified as a major public health problem for hospitalized children and adolescents, and it is estimated that 15–25% of children suffer from either acute or chronic pain (2). Children suffer pain in the same way as adults; however, exposure to painful events in early childhood can have a direct effect on future neurobiological development. Various studies have shown that early exposure to painful experiences and undertreated pain at crucial developmental periods can cause changes in the activity and structure of the central nervous system and cause long-term effects in a child's perception of pain at later stages of childhood (3).

Pediatric and adolescent patients account for one-third of all patients seen in general Emergency departments and 70% of them are in moderate to severe pain and/or require a painful procedure (4). Unrelieved childhood pain causes unnecessary suffering and result in short- and long-term physical and emotional impacts in children and their families' lives, which are associated with social and psychological problems such as psychological distress, psychological vulnerability and anxiety (5).

The role of health care professions especially the nurse in pain management encompasses the entire nursing process, assesses for the presence of pain involves obtaining information about the location, duration and characteristics of the pain, as well as the impact of persisting pain on various aspects of the child's life such as sleep, emotional state, relationships, development and physical function.

Following this assessment, a detailed pain management plan, including pharmacological and non-pharmacological interventions, can be formulated and implemented together with the child's primary caregiver (6).

Non-pharmacologic approaches for the treatment of pain in children include psychological strategies, physical therapy, education and parental support. For children undergoing repeated painful procedures, cognitive-behavioral therapy interventions, which decrease anxiety and distress, can be quite effective. NSAIDS are very effective for the management of mild-to moderate pain or in combination with Opioid for more severe pain (7).

Proper administration analgesia is particularly important for ill patients because of its physiologic and psychologic benefits. The ability to deep breath and cough with minimal pain and discomfort enhances respiratory function, facilitates physiotherapy, expedite weaning from mechanical ventilation and encourages earlier mobilization, prevents thrombo-embolic complications and facilitates rapid recovery and discharge to the ward environment. This inevitably decreases complications and a protracted hospital stay (8).

Poorly managed acute pain has a negative impact on many organ systems, as well as negative physical and psychological consequences for patients of all ages. In addition to physical pain may not be the only consideration, as psychological factors such as fear, anxiety, demoralization, a feeling of helplessness, depression, fatigue, loss of control and sleep disturbance may also contribute to the patient's overall pain experience (9). Nurses require appropriate knowledge, skills and attitudes for adequate pain management that reduces child and parent anxiety and increases compliance and cooperation, thereby reducing some of the burden on medical staff and resources (10).

## 1.2. Statement of the problem

Although the relief of pain should be declared as a human right by World Health Organization (WHO), and the International Association for the Study of Pain (IASP), studies from different regions of the world continued to report that pain in hospitalized children is staggeringly prevalent but undocumented, untreated and a major problem in today's society (11-13). Research shows that 20% -35% of children and adolescents are affected by moderate to severe pain worldwide. These numbers make it easy to understand that pain is one of the most common reasons that children seek medical attention (14).

However, inadequate pain management is evident across all ages, previous reports have found that children receive less analgesia than adults in comparable situations which significant numbers of hospitalized children experience unacceptable levels of pain resulted from lack of knowledge with pain management practice among health care providers and myths about pain that infants and children do not feel pain (suffer less from it than adults) (15). According to the National Health and Nutrition Examination Survey (NHANES) data, 17 % of USA children, aged 4-18, experience frequent or severe pain, including migraine, over the course of a year (16). The same study conducted at large North American hospitals have found that a significant number of children (27–64%) are suffered from moderate to severe pain during hospital admission (17).

Surveys continue to show that children pain is poorly managed during invasive procedures in intensive care units despite good evidence to support effective pain management strategies. A recent survey of children (N=3,822) admitted to 32 units in eight Canadian pediatric hospitals found 78.2 % of them had undergone at least one painful procedure in the previous 24 hours, but only 28.3 % of those children received a pain management intervention (18). Another cross-sectional study conducted in Kenyatta national hospital general pediatric wards showed that 78% of children are suffered from moderate to severe pain (19).

In Ethiopia, it is hard to get relevant study that shows the prevalence of pain among hospitalized children and reports from FMOH shows that the care was neglected by health care providers. Thus, pain assessment with ultimate effective management is one of the most important aspects of patient care and is relevant to all nurses.

Since much of the responsibility for the patients' comfort rests with the nurses, they need to have solid foundation of knowledge and skills about pain assessment as well as positive attitude towards that aspect of care.

Worldwide, surveys of HCPs continue to reveal a deficit in their knowledge, skill and attitude about pain management options to provided care and improve life quality of patients. A recently survey conducted on 211 nurses from four hospitals in Jordan which evaluated nurses' knowledge and attitude regarding pain management showed that 52% nurses had poor knowledge (x=48%) (20). Another study done at Kenya showed that significant knowledge deficiencies with mean score of 47.2% exist regarding pain assessment and management for children (21). Since the late 1980s, children's pain has become recognized as both an important clinical problem and a focus for developmental and clinical research. However, pain management services are not readily available to children living in the developing world, where there are multiple barriers to care (22).

In Ethiopia, a national survey conducted by FMOH reported that health care providers believed pain is neglected in the country (23). Moreover, a survey among nurses in 23 health institutions in Western Ethiopia revealed that there was knowledge gap (x=49.8%) among health care providers about pain management for children (24).

Despite numerous factors surrounding pain management have been explored, little is known about the burden of unrecognized and undertreated pain to children in Ethiopia and in our region. Research related to nurses' knowledge and practices regarding pain assessment and management in hospitalized children also remain limited. To improve both the quality of care and healthcare outcomes, there is need to investigate the level of knowledge, attitude and practices related to pain assessment and management among nurses as well as barriers to practices. Based on the findings, strategies to improve the knowledge and practices of pain assessment among nurses may be designed, implemented and evaluated. Ultimately reducing or preventing hospitalized children's suffering through improved nursing practice. Approaches to strengthen enablers and reduce identified barriers may be implemented. Therefore, this paper aimed to identify nurses' knowledge, attitude, practice and factors associated with pain management in our set up and address these issues through researches and planned educational activities.

### 1.3. Significance of the study

As many studies show, pain is unrecognized and under treated by any health care professional all over the world. Thus managing pain properly is the only option that can prevent children from unnecessary stay in hospitals and suffer from pain.

In Ethiopia as well as in Amhara regional state, little is known about the burden of unrecognized and undertreated pain to children. Primarily assessing the knowledge and practice of nurses towards pain management will precisely help to identify the result and continue to deal with accordingly. This study will help to identify knowledge deficits regarding currently accepted principles of pain management practice as well as beliefs that could interfere with optimal care. Findings of this study will also contribute to:

Nursing practice**:** The findings of this study will create awareness to nurses in assessment and management of pain for hospitalized children and will help in developing clinical audits, other quality improvement projects. This may lead to the eventual improvement in the quality of care provided to the hospitalized children and all patients in general in the region.

Amhara regional health bureau and nursing administration**:** This may be first research on children pain management area of nursing in Amhara regional state and the findings of this study can be a milestone for future planning and policy making at the local levels of nursing administration in Amhara regional health bureau.

Nursing research and other nongovernmental organizations**:** The result of this study will be used as a reference for other researchers who have interest in the area for further investigation and will help to develop specific programs that could enhance nurses' knowledge, attitude and practice of pain management for hospitalized children.

# CHAPTER 2: LITRETURE REVIEW

## 2.1. Concept of pain

Pain is a nearly universal human experience and is the most common cause of seeking medical care. Traditionally, pain was considered merely a physical symptom of illness or injury brought about by a simple stimulus-response mechanism. Though the historic role of nurses were to relieve pain and suffering, there has been little understanding of the complexity of pain and only limited ways were developed to manage it. Recent research shows that feelings of pain have distinct relationships to the physical, emotional, and cognitive aspects of individuals. This view of pain has broadened our understanding of pain and given us new ways to understand its characteristics.

According to the Report of 2011 Institute of Medicine-Relieving Pain in America, approximately 116 million Americans are burdened with chronic pain. Three in five said that they experienced pain that lasted a year or more; more than 60% of USA nursing home residents report pain, most commonly attributable to arthritis, and 17% have substantial daily pain (25).

In another study done in London in 2008, reflects; pain in hospitalized children is often under treated. Little information exists to guide the process of organizational change with view to improving pain management practices (15). Apart from the obvious humanitarian issues in relieving pain sufferings, the burden of disease and the potential for suffering weighs heavily on Sub Saharan Africa. Estimates revealed that 36 of 57countries do not meet basic standards for healthcare in Africa. Almost 98% of the 10.5 million child deaths occurred in children from lower income countries (26).

## 2.2. Knowledge of Nurses towards pain management for children

Inadequate pain management has been shown to affect patient outcomes by potentially increasing hospital length of stay and delaying recovery; thus, the management of pain has major implications for nursing (15).

A descriptive cross-sectional study was conducted in Ruanda to assess the knowledge, attitude and practice among nurse working in three referral hospitals. The results from this study showed that nurses lack adequate knowledge and have poor attitudes toward pain management. The level of nursing education ($p<0.008$) and the hospital where nurses worked ($P<0.0001$) had a strong influence on attitudes toward pain management. The results above rightly suggest that having a high level of education in nursing significantly predicts one's perceptions of potential barriers to pain management ($p =0.008$). Also, the scores of nurses with a masters or a baccalaureate level were significantly higher than those of nurses with a diploma or a registered nursing assistant certificate(27).

A similar study conducted in Turkey showed that nurses had inadequate knowledge on pain management with mean score ($x=39.65\%$). The knowledge score were further analyzed with nurses' characteristics. Nurses with high level of master's degree or higher and those with baccalaureate training had a statistically significantly higher knowledge score than nurses with an associate degree ($p=0.001$). The difference between nurses according to the unit they worked in was the result of the higher scores of nurses working at surgical units than those working in medical units(28)

Another descriptive study conducted on 170 nurses at Mulago hospital in Uganda showed that however, majority of nurses (65.5%) knew that is important to assess for pain among hospitalized children, more than a quarter of the participants (35.5%) did not know that assessing for pain among sedated patients is important and almost three quarters (73.5%) felt that their knowledge related to pain assessment principles is not adequate and only (26.5%) felt that it is adequate (29).

Despite improvement in pain management and availability of clinical treatment guidelines, a cross sectional study with total sample of 396 nurses in Jordan showed that nurse have insufficient knowledge($x=24\%$) due to insufficient clinical training programs specifically in relation to pain assessment and management among children and low level of educational status(30). The same study by McCarthy et al in Morocco revealed that there was a general disregard for a child's self-report of pain. Unless a patient indicate that he had pain, either physically or verbally, both the physicians and nurses did not have the training required to detect and assess pain. Nurses usually became aware that a child was in pain if and only if he or she cried, screamed, did not play, did not eat or was too quiet (31).

A cross sectional self-administered survey in Hong Kong with 143 nurses was carried out to evaluate their Knowledge and Attitudes regarding Pain management, and the results showed that nurses have inadequate knowledge (x=47.72%) about both pharmacological and non-pharmacological interventions for pain (32).

Another study at Gardner-Webb University conducted on 50 nurses to explore nurses' knowledge and attitudes towards pain and pain management indicated that the mean score of nurses' knowledge was (x=70.25%) towards pain and pain management for hospitalized children. Specifically, knowledge deficits were seen in analgesic dosing, analgesic ceiling dose of opioids and discerning addiction from tolerance and physical dependence resulted from educational level (33).

A similar descriptive survey done in Bangladesh on 93 nurses to evaluate their knowledge and attitude towards pain assessment and management of post-operative children showed that Overall, nurses' knowledge was at the moderate level with a mean score (x=66.79%). This study also further analyzed that there was no relation between nurses knowledge and attitude, and their pain management practice (p=0.89) (34).

### 2.3. Practice of nurses towards pain management for children

A study done in Oakland University, examined the relationship between knowledge and attitudes about children's pain relief and nurses' analgesic administration practices. They observed the care of children and found that; out of 117 children who reported pain; 74% received analgesia and nurses administered a mean of 37.9% of available morphine and a mean of 36%-54% of recommended amount of morphine, acetaminophen and codeine (34). Another study conducted in Nigeria to identify factors associated with utilization of pain assessment tools in pain management among nurses working in selected hospitals showed that all (100%) nurses reported as they assess pain among patients able to self-report pain; but only (32%) have used a type pain assessment tools (35).

A survey in Canada also showed that the majority of nurses responded that frequent assessment and documentation of pain are equally important for patients' able (750 nurses, 94%) and unable (755 nurses, 94%) to communicate. However, nurses reported they were less likely to use a behavioral pain assessment tool than a self-report tool; 267 (33%) used a behavioral tool more

than 50% of the time for patients unable to communicate, whereas 712 (89%) used a self-report tool more than 50% of the time for patients able to communicate ($P < .001$). Fewer nurses (595, 74%) rated behavioral pain assessment as moderately to extremely important in guiding pain assessment compared with those rating self-report tools as moderately to extremely important ($P < .001$). Only 492 nurses (61%) reported that pain scores were discussed often or routinely during nurse to- nurse handover(36).

A similar study conducted in Canada showed that all most all nurses (98%) caring for critical ill patients used a tool to assess for pain in patient able to self report pain (37). As mentioned, self-report is considered the gold standard for pain assessment, yet a study of 20 nurses in USA found that only 65% of the group relied on patient self-report as the most important indicator for assessment of pediatric pain; 80% include behavioral manifestation; 50% include both and for pain management 75% of nurses identify pharmacological; and 60% of them identified non pharmacological approach (38).

A study done in London, nurses on children's surgical ward were observed for 5-hour periods during two to four shifts in Twycross; No positive relationship was found between individual nurses' level of knowledge and how well they actually managed pain. Even when the nurses had a good level of knowledge, this was not reflected in their pain management practices (39). Another cross section non experimental study done Malaysia on 266 nurses about pain management practice by nurses showed that a significant positive relationship between the nurses' attitude towards pain management and pain management practices ($p< 0.001$). Additionally, the study's findings revealed that the knowledge of pain management had a strong association with pain management practices ($p< 0.001$)(40).

A similar prospective descriptive survey with sample of 77 nurses who provide tertiary care hospital in north India was carried out to assess their knowledge, attitude and practices regarding pain in children indicated that nearly two-thirds (62.3%) felt that non-pharmacological measures are better to control pain rather than the drugs; of these the most common method reported was distraction like music. Majority (76.6%) of health care professionals' practices showed that they were willing for the parental presence during minor invasive procedure as it helped to calm the child and (72.7%) administered local anesthesia before suturing a minor laceration (41).

Another study done in Bangladesh on 93 registered nurses to evaluate the practice showed that Nurses' pain management practice was found at the moderate level ($x$ =78.16%). A remarkable barrier for pain management were absence of pain assessment scale in the hospital and nurses could not administer any pain drug without a doctors' prescription, even basic pain medication such as paracetamol (26).

### 2.4. Attitude of nurses towards pain management for children

Many health care providers believe that infants and children do not remember pain and both infants and children experience less pain than adults. A cross sectional study carried on 81 nurses in a tertiary care teaching hospital, India showed that 50 % of the respondents believed that infants and children perceive less pain than adults (42). Another study conducted in university hospitals of Wales, Cardiff showed that infants and children fell more pain in and display more distress that adults(43)

Unfortunately, many studies have indicated that nurse have a knowledge deficit regarding pain, literatures show that some nurses have negative attitudes and misconceptions about pain and usage of associated medications. A cross sectional study conducted on 111 pediatric nurses at Turkey evaluated that 38.2% of them have positive attitude to child's pain management (44).

Another study done in University of South Florida, USA reported that attitudes and knowledge towards pain management was not significant. Miller found that nurses may have very positive attitudes towards pain management without sufficient knowledge to effectively manage pain. Nurses in the study done by Miller had higher mean attitude score of 82.34% and mean knowledge score of 72.3%(45)

Personal values and beliefs of health care professionals about the meaning of pain treatment for children may interfere with the optimal recognition and treatment of pain for all children. A descriptive cross sectional study with a total of 50 nurses conducted at Bandar Abbas educational hospital, Iran showed that majority of nurses (90.3%) have positive attitude towards pain management in neonate and infants with the mean score of 54.22 out of 60. However Results showed that the nurses had poor performance regarding the assessment, measurement, and relief of pain (with mean value for the nurses' knowledge in pain management x=48.2%) (46). In the contrary, a comparative study conducted in UK, Sweden and South Africa to assess attitudes and

knowledge about pain and pain management of nurses working in children unit reported that there was a clear positive relationship between high level of knowledge and positive attitudes towards pain and pain assessment in children(47).

Another analytical study in a hospital care in West Africa was conducted to assess barriers preventing pediatric pain management in Africa. Nurses (n= 28) interviewed in this study believed that opioids caused addiction and that the patient's need for analgesia was a sign of weakness (even in children). They also believed that pain was an expected consequence of injury and that pain medication could interfere with healing (48)

## 2.5. Associated factors for pain management

### 2.5.1. Institutional factors

The availability of pain medication is essential for the treatment of pain. Unfortunately, pain relief, is to a large extent, unavailable to the poorest people in the world. Many hospitals have written and established measurable standards of care and pain services in order to achieve optimal management as their institutional goal. This is an essential component for quality pain management by an institution. This is done in order to resolve and remove the underlying causes of existing problems and is not about repeating solutions for dealing with same problems again. The supply of analgesic medicines, particularly narcotics, is problematic in most developing countries. A study conducted at a main hospital in Malawi showed that only aspirin (considered to be unsuitable for children) as an always available analgesic. No alternative analgesics are available for children at this hospital (49).

However, studies showed that in adequate pain management is resulted from lack of availability of assessment tools (74.1%), and lack of protocols and guidelines on pain assessment and management (74.1%) (29).

### 2.5.2. Personal factors of nurses

African health care workers are faced with limited access to literature, expensive text books on pain and a lack of available training, when attempting to learn about childhood pain; few African nurses and doctors are trained to recognize measure and assess pain and anxiety in pediatric patients (49).

Nurses are often found to have knowledge deficit and negative feelings regarding pain assessment and pain management. This has an effect on optimal pain management for children. Pain management has to be based on a scientific rationally rather than individual nurses believes and perceptions. Appropriate education and evidence based knowledge can eradicate the myths and false believes of nurses under taking pain management in their practice (50). A study conducted in Turkey showed that educational status is also an influencing factor for nurses' attitude towards pain management in which diploma nurses have negative attitude to pain relief than degree and above qualifications(51). In The contrary studies done in Nepal reflects that no difference between diploma nurses and other higher qualified nurses attitude towards pain management in children(52).

Another study done in Uganda showed that however, nurses had good level of theoretical knowledge regarding children's pain management, this did not reflect in their practice. The explanation for the gap could be related nursing work load(84.1%), lack of education on assessment tools (82.4%), lack of familiarity with tools (78.2%), poor communication of pain assessment priorities at the unit (74.7% and poor documentation of pain assessment and management ( 77.6%) were major barriers that children still have suffered for moderate to severe pain (30).

### 2.5.3. Patient related factors

Individuals who are unable to communicate their pain are at a greater risk for under recognition and under treatment of pain. However, inability to communicate verbally doesn't indicate that an individual is free from experiencing pain; nurses usually became aware that a child was in pain if and only if the patient indicates that he or she had pain, either physically or verbally (31). A study conducted at Brazil reported that 11 out of 51 nurses don't have knowledge about neonatal pain; they believe as neonates don't feel pain (53).

Culture and language also play significant barriers on the child's ability to recount pain and anxiety to those responsible for care. Health professionals have to be sensitive to the variations in children's responses to pain, as well as communication styles, as the meaning of pain varies between cultures. In some instances, the communication that one is suffering from pain might not be acceptable or tolerated (54)

## 2.6. Conceptual framework

The concept of this framework is adapted from a literature and modified accordingly to fit this study. It shows the relationship of patient related factors, organizational factor and health care provider factors for the management of pain in hospitalized children.

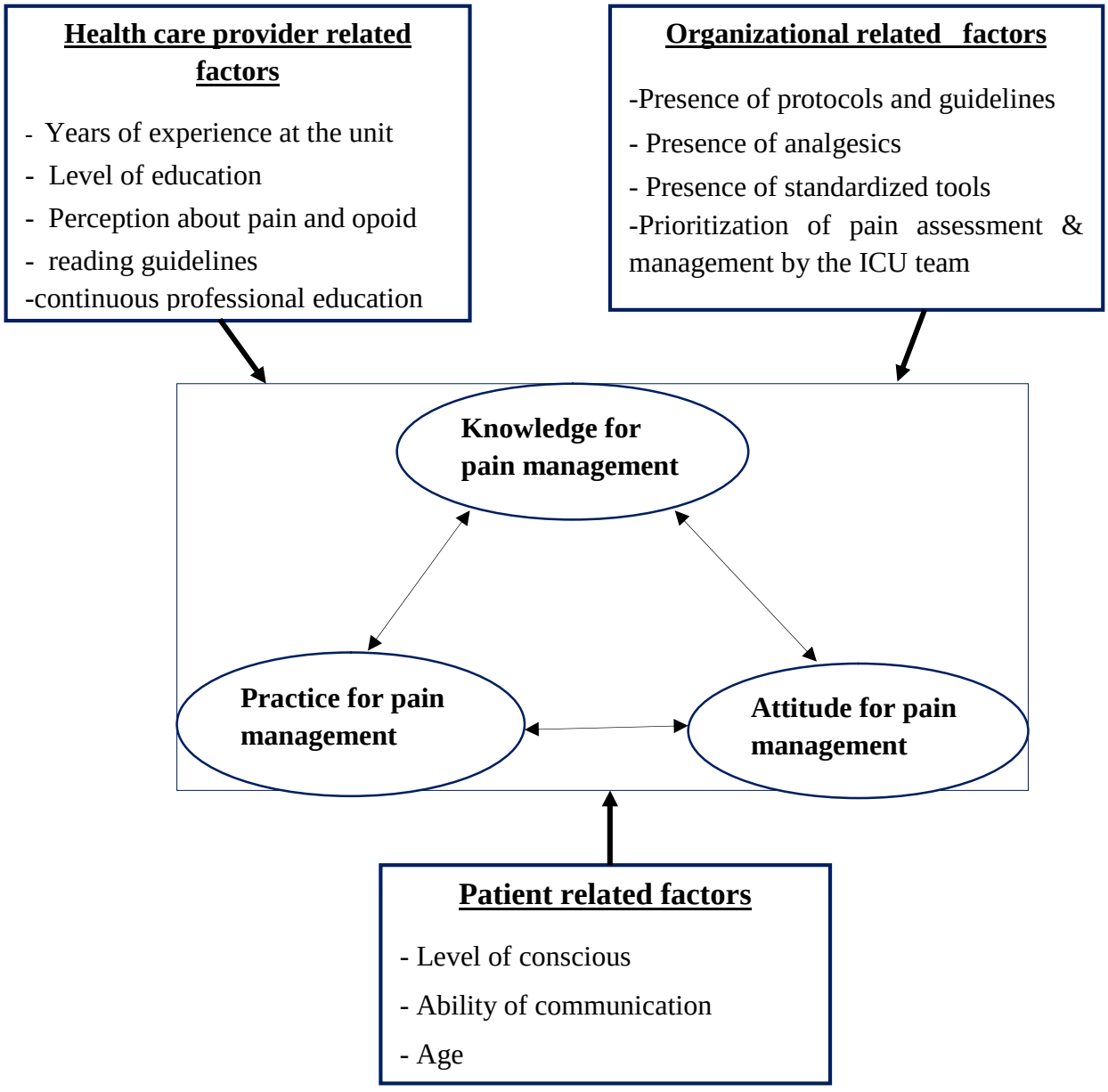


**Figure-1 Conceptual framework: reflects relationship between KAP and factors associated with pain management among nurses (Source: adopt and adapted from Basak et al. 2010).**

# CHAPTER 3: OBJECTIVES

## 3.1. General objective

To assess the knowledge, attitude, practice and factors associated with pain management for hospitalized children among nurses working in Amhara Public referral hospitals, 2018.

## 3.2. Specific objectives

- To evaluate Knowledge of nurses towards pain management for hospitalized children
- To assess the practice of nurses towards pain management for hospitalized children
- To evaluate the attitude of nurses towards pain management for hospitalized children
- To identify factors associated with pain management for hospitalized children

# CHAPTER 4: METHODS AND MATERIALS

## 4.1. Study area and period

The study was conducted in Amhara regional state. Based on 2011, figures from the Central Statistical Agency (CSA) of Ethiopia, the Amhara Regional state have an estimated total population of 18,167,982 consisting of 9,110,481 males and 9,057,501 females and 7,975,944 populations are found between 0-14 age categories. The health service system in Amhara region is typical of a growing state, consisting of 73 Hospitals (1 comprehensive specialized hospital, 5 referral hospitals, and 67 district hospitals), 523 Health Centers and 2,947 Health Posts with allover 10,001nurses in 2017.

The study was conducted between February26 to March 26 in 2018 in Amhara regional state public referral hospitals.

## 4.2. Study Design

An Institutional based cross-sectional study design was employed to evaluate the knowledge, attitude, practice and factors associated with pain management among nurses working in public referral hospitals of Amhara regional state, Ethiopia.

## 4.3. Populations

### 4.3.1. Source population

All Nurses who had been working in all Public Referral Hospitals of Amhara regional state, Ethiopia

### 4.3.2. Study population

All nurses who had been working in the selected Public Referral hospitals of Amhara regional state

### 4.3.3. Study Unit

All nurses who had been working in the selected public referral hospitals of Amhara regional state that fulfill the inclusion criteria.

### 4.3.4. Eligibility criteria

#### 4.3.4.1. Inclusion criteria

Volunteer nurses who had been working in the selected public referral hospitals of Amhara regional state during data collection period were included in the study.

#### 4.3.4.2. Exclusion criteria

Nurses who were new employees for the facility with less than 6 months work experiences, free service nurses and students were excluded from the study.

### 4.4. Sample size determination

The actual sample size for the study was determined by using single population proportion formula for single proportion population, $n_i = \frac{(Za/2)^2 p(1-p)}{(d)^2}$

Where $n_i$ = Initial estimated sample size

Z = Confidence level (alpha, α)

P = prevalence

d = marginal error

To determine the sample size the following assumption was used.

The proportion of Nurses who had adequate knowledge and good practice on pain management taken from a previous related study conducted at mekelle city which is 58.6% & 56% respectively (55) and nurses who had positive attitude towards pain management was assumed as 50% since there is no previous related study, A 95% confidence level, margin of error (0.05).

$$n_{i(1)} = \frac{(1.96)^2 \times 0.586(1-0.586)}{(0.05)^2} = 372.79 \approx 373$$

$$n_{i(2)} = \frac{(1.96)^2 \times 0.56(1-0.56)}{(0.05)^2} = 378.60 \approx 379$$

$$n_{i(3)} = \frac{(1.96)^2 \times 0.5(1-0.5)}{(0.05)^2} = 384.16 \approx 384$$

Therefore, nurses who had positive attitude on pain management (p=50%) was given large sample size (384) and was used to calculate the final samples for this study.

Since the total population (nurse working in all public referral hospitals) was 899 nurses, which was less than 10,000 I used the correction formula: $n_f = \frac{n_i}{(1+\frac{n_i}{N})}$;

Where $n_f$ = final sample size

$n_i$ = initial sample size

N = total population

$$n_f = \frac{384}{(1+\frac{384}{899})} = \frac{384}{\frac{1283}{899}} = 269.06 \approx 269$$

Taking none-response rate to be 10% using previous related research response rate =

$$269 \times 10\% \approx 26.9 = 27;$$

The final sample size was: 269+27 = 296 nurses.

### 4.5. Sampling procedure

There are five public referral hospitals in Amhara regional state; Lottery method had been used to select three public referral hospitals in the region. The three referral hospitals were: FelegeHiwot referral hospital, Dessie referral hospital and DebreMarkos referral hospital.

Then the number of study units to be sampled from each facility was determined using proportional to size allocation formula: $= \frac{n_{f \times n_i}}{N}$

Where: $n_i$ = number of nurses in each referral hospitals

$n_f$ = final sample of the study

N = total number of nurses in selected referral hospitals.

FelegeHiwot referral hospital =219*296/571=113.52 ≈ 113

Dessie referral hospital =181*296/571=93.82 ≈ 94

DebreMarkos referral hospital =171*296/571=88.64 ≈ 89

Simple random sampling technique had been used to select sampled nurses from each hospital. Each study unit in the population who were present during data collection had been represented by a slip of paper, these were put in a box and had been mixed, and a sample of the required size had been drawn from the box.

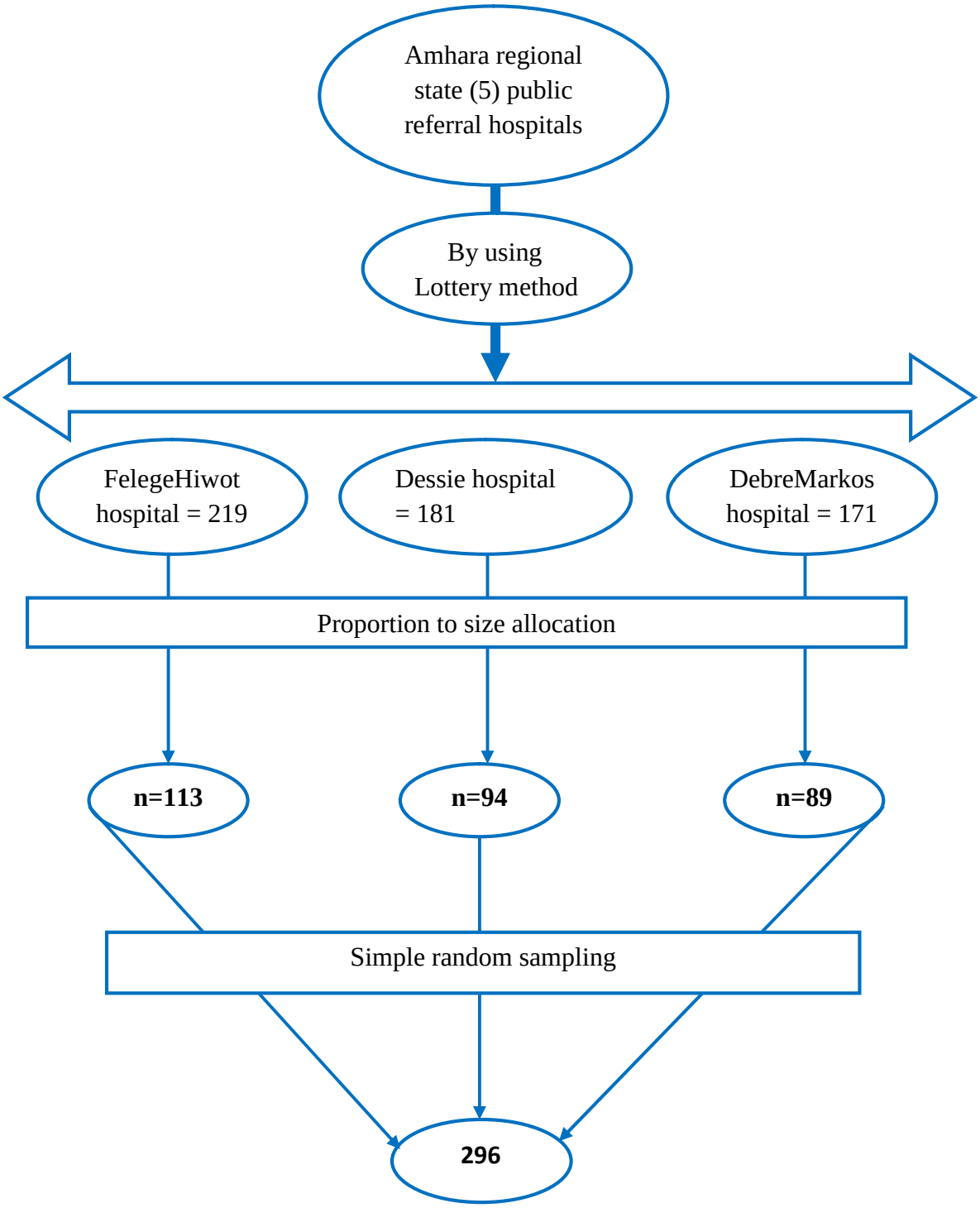


**Figure-2 Schematic Presentation of Sampling Procedure, Public Referral Hospitals of Amhara Regional State, Ethiopia, 2018**

### 4.6. Data Collection tools and methods

A self-administered semi structured questioner adopted from a research conducted at Mekelle city (Remla. M, 2017) and Iran (Asadi-Noghabi, Fariba et al. 2014) and modified after intensive literature reviews was used to collect the data. It had been designed to include part I: as socioeconomic variables such as age, gender, educational level, position, years of experience and current work place (wards). Part II: contain questions that can measure the level of knowledge of nurses, part III: had questions that can measure practice of nurses for pain management, part IV: contain questions that can measure attitudes of nurses for pain management and finally part V: had been designed to identify factors associated with pain management for hospitalized children. Six trained diploma nurses and three BSc nurses supervisor were recruited and participated throughout the data collection and trained for one day by the principal investigator on the study instrument and data collection procedures. The aim of the study, consent form, confidentiality issue and informed consent had been explained and ensured to all of the study subjects and data collection method had been employed in a separate and quite room. Data collectors were supervised at each site. The principal investigator and the supervisors collect the filled questionnaire and had been checked for missed values and completeness on daily basis.

### 4.7. Data quality assurance

Semi structured Questionnaires, which fit with the context, had been prepared using expert in English. Training was given both to data collectors and supervisors. To ensure the validity and reliability of the data collection tool, pre-test was done on 5% of the total sample size calculated working in Debertabor referral hospital two weeks before the actual data collection and the questionnaire had been checked for its clarity, understandability and simplicity. After pre-test, the questionnaires was reviewed and reformatted based on the inputs and comments generated by seniors. The filled questionnaire was presented to the principal investigator and checked for its completeness to assure the quality of data. Both the Principal investigator and recruited supervisors had been responsible for supportive supervision on the spot and on reviewing all filled questionnaires on daily basis.

### 4.8. Study variable

#### 4.8.1. Dependent Variables

- ✓ Knowledge related to pain management
- ✓ Practices related to pain management
- ✓ Attitude related to pain management

#### 4.8.2. Independent variables

- **Demographic characteristics**: Age, Position, Gender, Level of education Years of working experience, years of unit experience, pain in-service education.
- **Patient related factors**: Ability of communication, Level of conscious, Age, culture
- **Health care provider factors**: Belief,
- **Organizational factors**: Protocols of the hospital, Pain management guidelines, Availability of drugs

### 4.9. Data management and Analysis

The collected data was cleaned for completeness and consistencies before data entry. Responses in each question were coded for simplicity of data entry. The coded data was entered in to Epi data 4.2.0 and SPSS version 21 statistical software was used for data analysis. In the first step the descriptive analysis, such as, percentages, frequency distribution and measures of central tendency was computed. Both bivariate and multivariate logistic regression models were computed to see the association between independent versus out-come variable. The assumptions of, interaction, and multi co-linearity effect was also considered. Then factors with p- value < 0.25 in bivariete analysis were entered into multivariate logistic regression models in order to control the effect of confounding factors and $p < 0.05$ cutoff point was considered as statistical significant for all the independent variables. Then the result was presented with text, graphs, figures and tables.

### 4.10. Operational definitions

**Adequate knowledge** - Ten yes/no questions with total score ranging from 0-10 points was used to evaluate the Level of knowledge on pain management among Nurses for hospitalized children(n=296) and those who scored 5.74 and above have adequate knowledge.

**Inadequate knowledge** - those who scored below 5.74 to knowledge items (with total score ranging from 0-10 points).

**Good practice** - Is the performance of nurses based on standard principles related to pain assessment and management who scored 5.42 and above from ten questions with total score ranging from 0-10 points.

**Poor practice** - below the standards and scored less than 5.42 for selected practice items.

**Favorable attitude**- 19 attitude items based on a 3-point rating scale ranging from 1 (disagree) to 3 (agree) with total score ranging from 19-57 points was used to evaluate nurses attitude towards pain management and those nurses who scored 41.66 and above have positive attitude.
**Unfavorable attitude** - those who scored below 41.66 on attitude items

**Hospitalized children** - children admitted to the governmental institution to get medical attention by HCPs.

**Pain Management** - nursing practice of assessing, diagnosing, planning, and intervening and evaluate children in pain in the hospitals.

### 4.11. Ethical Consideration

Ethical clearance was obtained from Institutional Review Board of Addis Ababa University, College of health sciences and official letter was gained from Amhara regional health bureau. Letter of permission was secured from administrative bodies of the hospitals to communicate with relevant bodies in the health institutions. All of the study participants' were informed about the purpose of the study, about their right to participate or to terminate at any time if they want and respondents were ensured about the confidentiality of information obtained. Beneficence of the participants was maintained throughout the study.

### 4.12. Dissemination and Utilization of Findings

The result of the study will be submitted and presented to Addis Ababa University College of health sciences. The result of the study will also be submitted to public referral hospitals of Amhara regional state and health bureau. Finally, the result will be published in national and international journal for further use and also be presented in different conferences like health related seminars; especially on children's health care.

# CHAPTER 5: RESULTS

## 5.1. Socio-demographic characteristics

A total of 289 with response rate (97.6%) nurses were participated in this study The analysis of socio-demographic profile of nurse population showed that there were 137(47.4%) male and 152(52.6%) female with the total respondents mean age of 32 years (Range= 20 - 60) years with (SD= +/- 6.777) age group. Most of them 161(55.7%) were youth with age group of 20-30 years. And of all participants, majorities 262(90.7%) were registered staff nurses and 27(9.3%) were head nurses. All most half of the participants 130(45.0%) had 2-5 years of nursing experience and 24(8.3%) had more than 10 years of nursing experience. Out of the total participants 225(77.9%) were qualified for degree level of education in Nursing and 278(96.2%) were full-time workers (table -1).

Sixty four of participants (22.1%) were from medical ward, 54(18.7%) were from PICU/AICU, 52(18.0%) of them were from surgical ward and 41(14.2%) were from the Emergency Department, 48(16.6%) pediatrics departments; while 30(10.4%) were from Operation room of the hospitals (figure-3).

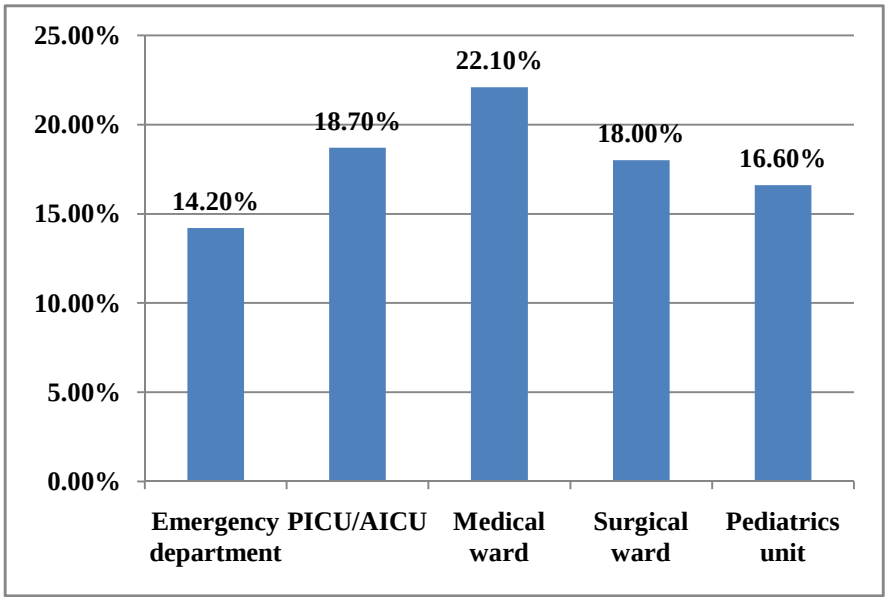


**Figure-3 Percentage distribution of participants by current worksite working public referral hospitals, Amhara region, Ethiopia, 2018**

**Table-1 Distribution Socio-demographic characteristics of nurses in public referral hospitals of Amhara regional state, Ethiopia, 2018 (N= 289)**

| Variables | Responses | Frequency (n =289) | percent (%) |
|---|---|---|---|
| **Sex** | Male | 137 | 47.4 |
| | Female | 152 | 52.6 |
| **Age in years** | 20-30 | 161 | 55.7 |
| **(Mean=31.9, SD=6.77)** | 31-40 | 95 | 32.9 |
| | 41-50 | 26 | 9.0 |
| | >50 | 07 | 2.4 |
| | Degree | 225 | 77.9 |
| **Qualification** | Diploma | 52 | 18.0 |
| **Attained** | Master | 12 | 4.2 |
| | < 2 years | 47 | 16.3 |
| **Work experiences** | 2-5 years | 130 | 45.0 |
| | 6-10 years | 88 | 30.4 |
| | >10 years | 24 | 8.3 |
| **Ever worked in** | Yes | 180 | 62.3 |
| **Pediatrics ward** | No | 109 | 37.7 |
| **Unity experiences** | <= 2 years | 147 | 81.7 |
| **(in pediatrics unit)** | 2-5 years | 24 | 13.3 |
| | >=5 years | 09 | 5.0 |
| **Employment status** | Full time | 278 | 96.2 |
| | Part time | 11 | 3.8 |

### 5.2. Knowledge of Nurses towards pain management

Majority of the participants 157(54.3%) responded that nurses provide the most accurate rating and health officers 49(17.0%) are the least to accurately rate pain intensity and manage pain. And also most of the respondent 76.5% knew that frequently assessing and documenting pain is important where as 23.5% responded not important for patients able to communicate.

Most of the participants 259(89.6%), 248(85.8%) and 161(55.4%) knew Paracitamol, Diclofenac, and Ibuprofen analgesics in their institution respectively, where as 268(92.0%), 251(86.9%), and 188(65.4%) didn't know Codeine, Panadol and Morphine Opioid analgesics existence in their institution respectively. But more than half of the participants 154(53.3%) knew that an opoid analgesic for a brief, severe sudden onset of pain like trauma or post operative is recommended to be administered through Intravenous route.

Majority of the participants knew the importance to manage pain among; post operative patient 263(91.0%), trauma patients 240(83.0%), and Burn 202(69.9%). But more than half of participant 221(76.5%), 177(61.2%) and 185(64.0%) did not know that managing pain for patient receiving sedatives, patients with Glasgow Coma Scale < 8 and End-of-life patients is important respectively ( table 2).

**Table-2 Distribution of participants by their knowledge on pain assessment concepts**

| Variable | Frequency (n=289) | Percent (%) |
|---|---|---|
| **Most accurate rating of pain intensity provided by** | | |
| Physician | 83 | 28.7 |
| Nurse | 157 | 54.3 |
| Health officer | 49 | 17.0 |
| **Important to assess pain for these patients;** | | |
| **Postoperative** | | |
| Yes | 263 | 91.0 |
| No | 26 | 9.0 |
| **Medical(non surgical) patients** | | |
| Yes | 148 | 51.2 |
| No | 141 | 48.8 |
| **Patient with Glasgow Coma Scale < 8** | | |
| Yes | 112 | 38.8 |
| No | 177 | 61.2 |
| **Trauma** | | |
| Yes | 149 | 83.0 |
| No | 49 | 17.0 |
| **Burns patients** | | |
| Yes | 202 | 69.9 |
| No | 87 | 30.1 |
| **End-of-life patient** | | |
| Yes | 104 | 36 |
| No | 185 | 64 |
| **Patients receiving sedatives** | | |
| Yes | 221 | 76.5 |
| No | 68 | 23.5 |

As shown in Table 3 below, more than half of the participants did not know that assessment for need of analgesics before, during, and after the following procedures is important; repositioning 211(73%), spontaneous breathing(weaning) trial 202(69.9%), and securing IV lines 226(78.2%).

**Table-3 Distribution of participants by their knowledge on other pain assessment concepts**

| Variable | Frequency (n=289) | Percent (%) |
|---|---|---|
| **Important to assess for the need of preoperative analgesia for the procedure;** | | |
| **Patient repositioning** | | |
| Yes | 78 | 27.0 |
| No | 211 | 73.0 |
| **Endotracheal suctioning** | | |
| Yes | 169 | 58.5 |
| No | 120 | 41.5 |
| **Wound care** | | |
| Yes | 214 | 74.0 |
| No | 75 | 26.0 |
| **Drain removal** | | |
| Yes | 113 | 39.1 |
| No | 176 | 60.9 |
| **Post operatively** | | |
| Yes | 251 | 86.9 |
| No | 38 | 13.1 |
| **Spontaneous breathing(weaning) trial** | | |
| Yes | 202 | 69.9 |
| No | 87 | 30.1 |
| **Securing IV lines** | | |
| Yes | 226 | 78.2 |
| No | 63 | 21.8 |

The overall mean score was 5.74 (SD, 1.872) with median score 6.00%; and 2 and 10 was the minimum and the maximum results observed in this study. All most half 138(47.8%) of the participants felt that their knowledge is not adequate and 151(52.2%) felt that is adequate for child pain management (figure-4)

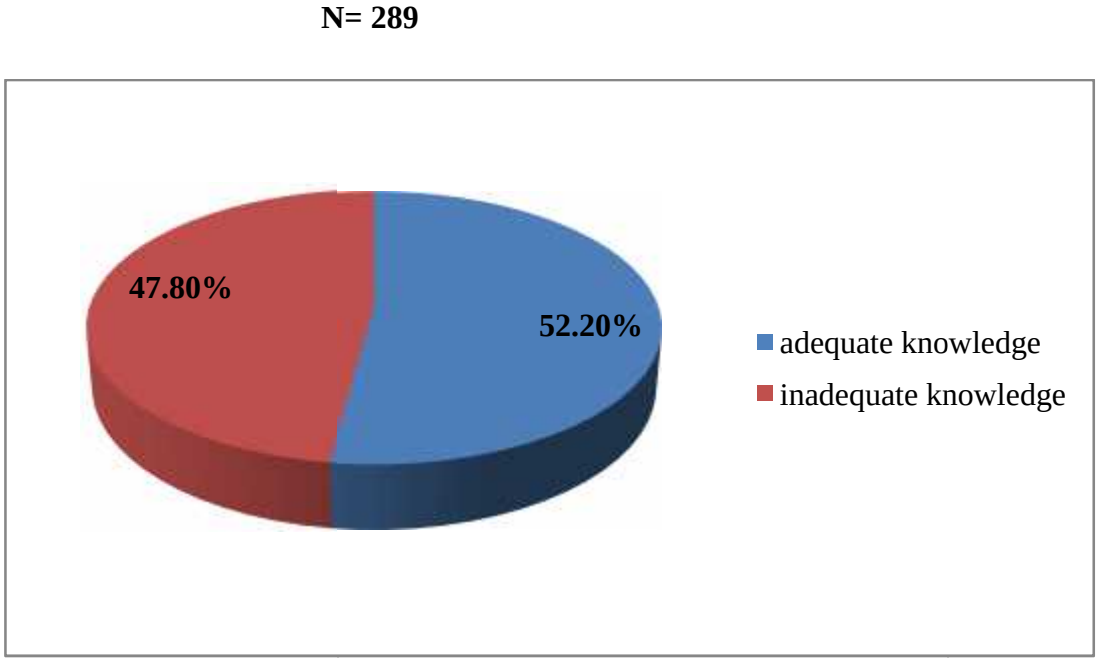


**Figure-4 Distribution of total nurses according to their level of knowledge public referral hospitals, Amhara state, Ethiopia, 2018**

Analysis of the responses to an open-ended question revealed some reasons for not giving analgesics for acute appendicitis and sudden abdominal crump. Only 52 participants, the following were mentioned as a reason for not giving analgesics; giving anti pain masks the sign and symptom result in false diagnosis 45(86.6%), giving anti pain causes for rupture of appendices 5(9.6%) and it prolonged the pain 2(3.8%). More than half 169(58.4%) of the respondents also described; shock 84(49.2%), disability 27(15.9%) and anxiety and depression 58(34.9%) as some of the consequence of unrelieved pain.

**Table-4 Ten questions to evaluate the level of knowledge on pain management among nurses for hospitalized children, Amhara region, 2018 (n = 289) with mean score 5.74 out of 10 score**

| S. no | Questions | | Frequency (n=289) | Percentage (%) |
|---|---|---|---|---|
| **1** | Narcotics on a regular schedule is preferred over ”PRN” schedule for continuous pain | Yes<br>No | 161<br>128 | 55.7<br>44.3 |
| **2** | Accurate judge of the intensity of the patient’s pain is the patient | Yes<br>No | 133<br>156 | 46.0<br>54.0 |
| **3** | Distraction by use of music or relaxation decrease feeling of pain | Yes<br>No | 228<br>61 | 78.9<br>21.1 |
| **4** | Increasing narcotic analgesic requirement are signs, patient is becoming addicted | Yes<br>No | 142<br>147 | 49.1<br>50.9 |
| **5** | Severe chronic pain often need higher dosages of pain medications than acute pain | Yes<br>No | 159<br>130 | 55.0<br>45.0 |
| **6** | Narcotics for pediatric patients can cause respiratory depression | Yes<br>No | 137<br>152 | 47.4<br>52.6 |
| **7** | Analgesics for chronic joint pain cases as needed | Yes<br>No | 201<br>88 | 69.6<br>30.4 |
| **9** | Reports of patient / family, narcotic causing euphoria, should be given a lower dose of the analgesic | Yes<br>No | 171<br>118 | 59.2<br>40.8 |
| **10** | Do children need better attention for managing their pain? | Yes<br>No | 222<br>67 | 76.8<br>23.2 |

## 5.3. Factors related to knowledge of nurses for pain management

Bi-variate logistic regression was used among different variables to determine the set of predictor variables which predicted knowledge of pain management. Ward that currently giving services, qualification, employment status, having specific protocols about pain management, read guidelines for managing children’s pain, nursing work load, lack of training, lack of familiarity with analgesics, patient instability, poor documentation of pain assessment and management, common pain management guidelines improves quality of care, being a child has an impact on the management of pain, attitude and practice towards pain management had association with nurse’s knowledge on pain management for hospitalized children in bivariate logistic regression analysis ($p< 0.25$).

All variables that have association with the outcome variables in bivariate logistic regression analyses were included in the multiple logistic regression models. After controlling for the effects of potentially confounding variables using multiple logistic regression; qualification of nurse, Ward that currently giving services, lack of training on child pain management, nurses' attitude and their clinical practice towards pain management remained significantly associated with nurses' knowledge towards pain management for hospitalized children ($p< 0.05$).

Variance inflation factors and tolerance tests were used to test multi-co linearity effect between predictor variables and rule of thumb was applied to decide whether the independent variables have co- linearity effect or not. The variance inflation factor (vif) and tolerance test of co-linearity statics between attitude and practice on knowledge of nurses towards pain management in children was (1.155) and (0.866) respectively which is less than five (< 5). This result showed that there was no multi co-linearity effect between attitude and practice on knowledge of nurses towards pain management in children.

Degree and above nurses were 2.6 times more likely knowledgeable on pain management for hospitalized children than diploma nurses [AOR=2.621; 95% CI :( 1.215, 5.652)]. Similarly those nurses currently giving services in pediatrics/adult intensive care unit were nearly 2.7 times [AOR=2.747; 95% CI: (1.200, 6.289)] more likely knowledgeable for child pain management than nurses work in other units.

Nurses who had lack of training on pain management were 52.9% [AOR= 0.471; 95% CI: (0.238, 0.934) less likely know about pain management for hospitalized children than those had training. Additionally nurses who had favorable attitude towards pain management for hospitalized children were 2.6 times [AOR= 2.642; 95% CI: (1.443, 4.838) more likely know about child pain management compared to those nurses with unfavorable attitude. Finally nurses who had good clinical practice were 2.7 times [AOR=2.694; 95% CI: (1.448, 5.012) more likely knowledgeable than those who had poor practice on pain management for hospitalized children (Table 5).

**Table-5 Socio-Demographic and Other Determinant Variables on knowledge of nurses for pain management for hospitalized children in public referral hospitals, Amhara region, 2018 (n=289)**

| Characteristics | | Knowledge | | Odds Ratio (95% CI) | |
|---|---|---|---|---|---|
| | | inadequate | adequate | COR (p < 0.25) | AOR (p < 0.05) |
| | | Freq (%) | Freq (%) | | |
| Unit currently giving service | Other than PICU/AICU | 120(87%) | 115(76.2%) | 1 | 1 |
| | PICU/AICU | 18(13%) | 36(23.8%) | 2.087(1.122,3.8833)* | 2.368(1.070,5.242)** |
| Employment status | part time | 1 (0.7%) | 10 (6.6%) | 1 | 1 |
| | full time | 137 (99.3%) | 141 (93.4%) | 0.103(0.013,0.815)* | 0.341(0.037,3.119) |
| qualification of respondent | Diploma | 16(11.6%) | 48(31.8%) | 1 | 1 |
| | Degree & above | 122(88.4%) | 103 (68.2%) | 3.553(1.905,6.629)* | 2.621(1.215,5.652)** |
| have specific protocols about pain management in your institution | No | 101 (73.2%) | 78 (51.7%) | 1 | 1 |
| | Yes | 37 (26.8 %) | 73 (48.3%) | 2.555(1.559,4.186)* | 1.936(0.983,3.812) |
| Have you read any Guidelines for managing children's pain | No | 103 (74.6%) | 86 (57.0%) | 1 | 1 |
| | Yes | 35 (25.4%) | 65 (43.0%) | 2.224(1.348,3.670)* | 1.006(0.510,1.983) |
| Nursing workload | No | 48 (34.8%) | 26 (17.2%) | 1 | 1 |
| | Yes | 90 (66.2%) | 125 (82.8%) | 0.390(0.225,0.675)* | 0.776(0.376,1.603) |
| Lack of training | No | 82 (59.4.%) | 35 (23.2%) | 1 | 1 |
| | Yes | 56 (40.6%) | 116 (76.8%) | 0.285(0.174,0.468)* | 0.471(0.238,0.934)** |
| Lack of familiarity with analgesics | No | 93 (67.4%) | 59 (39.1%) | 1 | 1 |
| | Yes | 45 (32.6%) | 92 (60.9%) | 0.310(0.191,0.503)* | 0.636(0.333,1.215) |
| Patient instability e.g. unstable hemodynamic | No | 69 (50.0%) | 50 (33.1%) | 1 | 1 |
| | Yes | 69 (50.0%) | 101(66.9%) | 0.495(0.308,0.797)* | 0.618(0.321,1.191) |
| Poor documentation of pain assessment and management | No | 79 (57.2%) | 65 (41.4%) | 1 | 1 |
| | Yes | 59 (42.8%) | 86 (58.6%) | 0.564(0.354,0.900)* | 0.517(0.262,1.017) |
| Do you think having common pain management guide lines improves quality of care | No | 67 (48.6%) | 43 (28.5%) | 1 | 1 |
| | Yes | 71 (51.4%) | 108 (71.5%) | 2.370(1.458,3.854)* | 1.092(0.585,2.039) |
| Do you think being a child has an impact on the management of pain | No | 79 (57.2%) | 63(41.7%) | 1 | 1 |
| | Yes | 59 (42.8%) | 88 (58.3%) | 0.535(0.335,0.853)* | 0.849(0.461,1.561) |
| Attitude category | unfavorable attitude | 103 (71.1%) | 51(33.8%) | 1 | 1 |
| | favorable attitude | 35(28.9) | 100(66.2%) | 5.770(3.463,9.616)* | 2.642(1.443,4.838)** |
| Practice category | Poor practice | 104 (75.4%) | 53(35.1%) | 1 | 1 |
| | Good practice | 34(24.6%) | 98(64.9%) | 5.656(3.391,9.433)* | 2.694(1.448,5.012)** |

*p < 0.25, CI- 95 %( Confidence Interval), COD- crude odds ratio, AOD-adjusted odds ratio

** Remained statistically significant (p< 0.05) in adjusted odds ratio

## 5.4. Attitude of Nurses towards pain management

To assess nurses' attitude towards pain assessment and management, participants were asked about their views concerning pain management in children. Out of 289 respondents, almost half of the participants 155(53.6%) stated that children felt as much pain as adults and 85(29.4%) thought that children did not experience pain equal to that experienced by adults. But only 117(40.5%) respondents believed that the infants and children have the right to be appropriately assessed and managed for their pain and 157(54.3%) respondents were not awarded that failure to assess and manage children's pain affects the body and mind in the long term.

More than one third of the participants 103(35.6%) emphasized on the importance of the role they have in assessing and measuring pain in children and only 92(31.8%) respondents highlighted the significance of assessment tools for effective pain measurement and adoption of appropriate pain relief methods which facilitate the process of pain alleviation in children.

Statistical analysis revealed that the overall mean score was 41.66 out of 57 for nurses' attitude ranging from 19 to 57,(SD= 6.961) and median was 41.00. Out of 289 participants, 135(46.7%) respondents showed favorable attitude while 154(53.3%) participants had unfavorable attitude towards pain management for hospitalized children ;( figure-5)

**N=289**

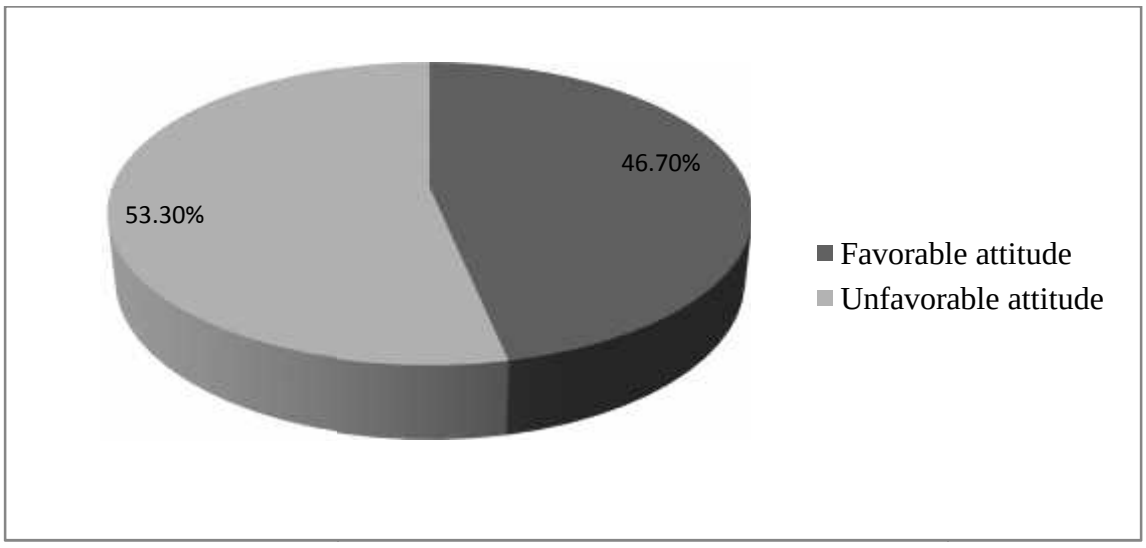


**Figure-5 Total distribution of respondents' attitude towards pain management among nurses in public referral hospitals, Amhara region, Ethiopia, 2018**

**Table-6 Participants' responses to items on the nurses' attitudes study regarding pain management for hospitalized children in Amhara region,2018 (N= 289), (mean=41.66) out of 57 score**

| S. no | Item | Agree n (%) | Not sure n (%) | Disagree n (%) |
|---|---|---|---|---|
| 1 | Infants and children experience pain equal to that experienced by adults | 155(53.0%) | 46(17.0%) 85(29.4%) | |
| 2 | Parents should be present during painful procedures | 147(50.0%) | 33(11.4%) | 109(37.7%) |
| 3 | Pain management and pain relief are of priority in children treatment | 139(48.1%) | 38(13.1%) | **112(**38.8%) |
| 4 | Children have the right to appropriate assessment and management of their pain | 117(40.5%) | 33(11.4%) | 139(48.1%) |
| 5 | The most accurate judge of the intensity of the children's pain is her/his primary nurse | 120(41.5%) | 34(11.8%) | 135(46.7%) |
| 6 | To better assess child pain, the nurse can discuss with her/his parents | 103(35.6%) | 54(18.7%) | 132(45.7%) |
| 7 | Assessment and control of child pain lead to improved his/her parents satisfaction | 59(20.4%) | 75(26.0%) | 155(53.6%) |
| 8 | Failure to assess and manage the child's pain affects his body and mind in the long term | 51(17.6%) | 81(28.0%) | 157(54.3%) |
| 9 | The nurse's physical and mental fatigue can affect children pain relief | 44(15.2%) | 89(30.8%) | 156(54.0%) |
| 10 | Like other vital signs, pain score should be documented | 55(19.0%) | 63(21.8%) | 171(59.2%) |
| 11 | To ensure patient's comfort and pain relief is one of the most important tasks of nurses | 53(18.3%) | 60(20.8%) | 176(60.9%) |
| 12 | Communicating with and educating child's parents play an effective role in relieving pain | 43(14.9%) | 62(21.5%) | 184(63.7%) |
| 13 | Available tools for measurement of pain are the best for determining pain severity in children | 67(23.2%) | 58(20.1%) | 164(56.7%) |
| 14 | When the necessary procedures have been done for the patient, the persistence of pain does not cause problems | 92(31.8%) | 83(28.7%) | 114(39.4%) |
| 15 | Using pain assessment tools for determining child's pain lead to an appropriate method of pain relief | 92(31.8%) | 60(20.8%) | 137(47.4%) |
| 16 | Measurement and control of child's pain can affect the healing process and reduces the hospital stay | 95(32.9%) | 60(20.8%) | 134(46.4%) |
| 17 | Evaluation and measurement of child's pain should be considered as one of the vital signs when examining the child | 76(26.3%) | 82(28.4%) | 131(45.3%) |
| 18 | Comparable stimuli in different people produce the same intensity of pain | 93(32.2%) | 73(25.3%) | 123(42.6%) |
| 19 | Measurement and control of pain in child leads to improved quality of child's life | 56(19.4%) | 32(11.1%) | 201(69.6%) |

## 5.5. Factors related to attitude of nurses for pain management

Logistic Regression was used to determine the set of predictor variables which predicted nurses' attitude towards pain management for hospitalized children. Variables that entered in to bivariate logistic regression and that showed significant association (p<=0.25) were; level of knowledge, qualification, gender, nursing work over load, lack of familiarity with analgesics, lack of training on pain management, lack of availability of pain assessment tool, no designated area for charting pain, read guidelines for managing children's pain, having specific protocol about pain management, common pain management guidelines improves quality of care, being a child has an impact on management of pain and practice towards pain management.

Those variables that have association with the outcome variables in bivariate logistic regression analysis were entered in to multiple logistic regression models. After controlling for the effects of potentially confounding variables using multiple logistic regressions, finally knowledge towards pain management, qualification, common pain management guidelines improves quality of care, practice on child's pain management and lack of availability of pain assessment tool remained significant in the multivariate analysis (p<=0.05).

The presence of multi co-linearity effect of knowledge and practice of nurses towards pain relief in children on nurses' attitude was checked through variance inflation factor and tolerance test. The variance inflation factor (vif) and tolerance test of co-linearity statics between knowledge and practice on nurses' attitude towards pain management in children was (1.195) and (0.837) respectively which is less than five (< 5). This result showed that there was no multi co-linearity effect between knowledge and practice on attitude of nurses towards pain management in children.

Logistic Regression revealed that nurses with higher level of knowledge in children's pain relief were nearly 3 times [AOR=2.877; 95% CI: (1.550, 5.337) more likely have favorable attitude towards pain management than those have inadequate knowledge in children's pain relief. Additionally, nurses who had degree and above qualification were 2.7 times [AOR=2.728; 95% CI: (1.340, 5.554) more likely have favorable attitude to pain relief in

children compared to diploma nurses. Similarly nurses who had good practice towards pain management were 2.4 times [AOR= 2.442; 95% CI :( 1.282, 4.654)] more likely have favorable attitude on pain management for hospitalized children than those who had poor practice of child pain relief.

In addition to these, those nurses who had no pain assessment tool in their institution were 56.7% less likely have favorable attitude towards pain relief in children than those have pain assessment tool[AOR= 0.433; 95% CI: (0.209- 0.900)]. Lastly, those participants who agreed having common pain management guidelines improve quality of care were 2.3 times [AOR=2.307; 95% CI: (1.111-4.792)] more likely have favorable attitude towards pain management for hospitalized children compared to others (table 7).

**Table-7 Socio-Demographic and Other Determinant Variables on attitude of nurses towards pain management for hospitalized children in public referral hospitals, Amhara region, 2018 (n=289)**

| Variables | | Attitude category | | | |
|---|---|---|---|---|---|
| | | unfavorable | favorable | Logistic regression (95%) | |
| | | Freq (%) | Freq (%) | COR(p<025) | AOR(95% CI) |
| gender of respondent | female | 91 (59.1%) | 61 (45.2%) | 1 | 1 |
| | male | 63 (40.9%) | 74 (54.8%) | 1.752(1.098,2.795)* | 1.549(.869,2.762) |
| qualification of respondent | diploma | 19 (12.3%) | 45 (33.3%) | 1 | 1 |
| | degree & above | 135 (87.7%) | 90 (66.7%) | 3.553(1.952,6.466)* | 2.728(1.340,5.554)** |
| have specific protocols about pain management in your institution | no | 110 (71.4%) | 69 (51.1%) | 1 | 1 |
| | yes | 44 (28.6%) | 66 (48.9%) | 2.391(1.471,3.887)* | 1.671(0.861,3.245) |
| Have you read any Guidelines for managing children's pain | no | 112 (72.7%) | 77 (57.0%) | 1 | 1 |
| | yes | 42 (27.3%) | 58 (43.0%) | 2.009(1.228,3.285) | 1.188(0.608,3.321) |
| Nursing workload | no | 51 (33.1%) | 23 (17.0%) | 1 | 1 |
| | yes | 103 (66.9%) | 112 (83.0%) | 0.415(0.237,0.726)* | 0.794(0.370,1.706) |
| Lack of availability of pain assessment tools | no | 42 (27.3%) | 22 (16.3%) | 1 | 1 |
| | yes | 112 (72.7%) | 113 (83.7%) | 0.519(0.291, 0.926)* | 0.433(0.209,0.900)** |
| Lack of training | no | 78 (50.6%) | 39 (28.9%) | 1 | 1 |
| | yes | 76 (49.4%) | 96 (71.1%) | 0.396(0.243, 0.645)* | 1.123(0.555,2.271) |
| Lack of familiarity with analgesics | no | 96 (62.3%) | 56 (41.5%) | 1 | 1 |
| | yes | 58 (37.7%) | 79 (58.5%) | 0.428(0.267,0.687)* | 0.773(0.416, 1.438) |
| No designated area for charting pain | no | 83 (53.9%) | 55 (40.7%) | 1 | 1 |
| | yes | 71 (46.1%) | 80 (59.3%) | 0.588(0.369,0.938)* | 0.839(0.457, 1.539) |
| Do you think having common pain management guide lines improves quality of care | no | 79 (51.3%) | 31 (23.0%) | 1 | 1 |
| | yes | 75 (48.7%) | 104 (77.0%) | 3.534(2.121,5.888)* | 2.220(1.195,4.123)** |
| Do you think being a child has an impact on the management of pain | no | 92 (59.7%) | 50 (37.0%) | 1 | 1 |
| | yes | 62 (40.3%) | 85 (63.0%) | 0.396(0.246,0.638)* | 0.659(0.369, .1.175) |
| Practice level | poor | 110 (71.4%) | 47 (34.8%) | 1 | 1 |
| | good | 44 (28.6%) | 88 (65.2%) | 4.681(2.846,7.699)* | 2.442(1.282,4.654)** |
| Knowledge level | Inadequate | 103 (66.9%) | 35 (25.9%) | 1 | 1 |
| | adequate | 51(33.1%) | 100 (74.1%) | 5.770(3.463,9.616)* | 2.877(1.550,5.337)** |

*p<= 0.25, CI- 95 %( Confidence Interval), COD- crude odds ratio, AOD-adjusted odds ratio

** Remained statistically significant (p<=0.05) in adjusted odds ratio

## 5.6. Practice related to pain management

Of the 289 respondents, 212(73.4%) reported that they assess pain for children who are able to communicate while 77(26.6%) do not and 115(54.2%) uses pain assessment tools while 97(45.8%) do not use. Findings from an open-ended question revealed that mostly used methods of pain assessed among participants who did not use tools are patient's verbal report or complaints 69(71.1%), facial expression like tearing 19(19.4%), and others(touching to elicit tenderness, by asking the patient about pain, looking the general appearance of the patient, and voice of the mother) 9(9.5%). Among those who reported to use a tool , 53 participants (46.1%) use assessment tools sometimes (25-50%) and only 6(5.2%) respondents use the tool routinely (>75%) (Figure-6). Less than half of the participants 115(39.8%) use self-reported pain scale VAS (visual analog scale) while 174(60.2%) do not use VAS; whereas 110(38.1%) use behavioral pain scale FLACC (Face, Leg, Activity, Cry and Consol ability) and 61.9% don't use this tool.

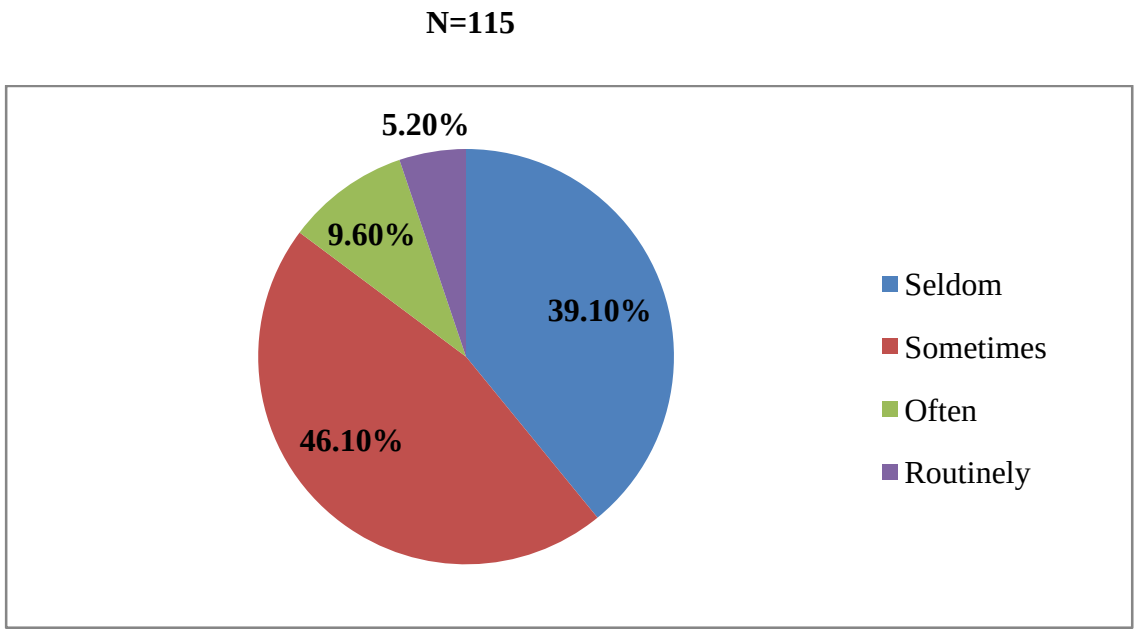


**Figure-6 Percentage distribution of participants for frequent uses of tools during pain assessment**

Findings in table 8 below show that majority of the participants who assessed for pain did not assess for the need of analgesics before the following procedures are performed; repositioning 211(73%), endo-tracheal suctioning 171(59.2%), Pre-operatively 203(70.2%), Spontaneous breathing (weaning) trial 200(69.2%) and more than a quarter 86(26.3%) did not assess for the need for analgesics before wound care.

**Table-8 Distribution of participants who assessed for pain by their assessment practices**

| Variable | Frequency (n=289) | Percent (%) |
|---|---|---|
| **Assess the need for analgesia before; Patient repositioning** | | |
| Yes | 78 | 23.0 |
| No | 211 | 73.0 |
| **Endo-tracheal suctioning** | | |
| Yes | 118 | 40.8 |
| No | 171 | 59.2 |
| **Pre-operatively** | | |
| Yes | 86 | 29.8 |
| No | 203 | 70.2 |
| **Spontaneous breathing (weaning) trial** | | |
| Yes | 89 | 30.8 |
| No | 200 | 69.2 |
| **Wound care** | | |
| Yes | 203 | 73.7 |
| No | 86 | 26.3 |

As shown in figure 7 below, majority 190(65.7%) of the participants use non-pharmacological intervention for children's pain management. Among those who use non-pharmacological intervention, majority use hot/cold compress 162(85.3%) compared to the other managements.

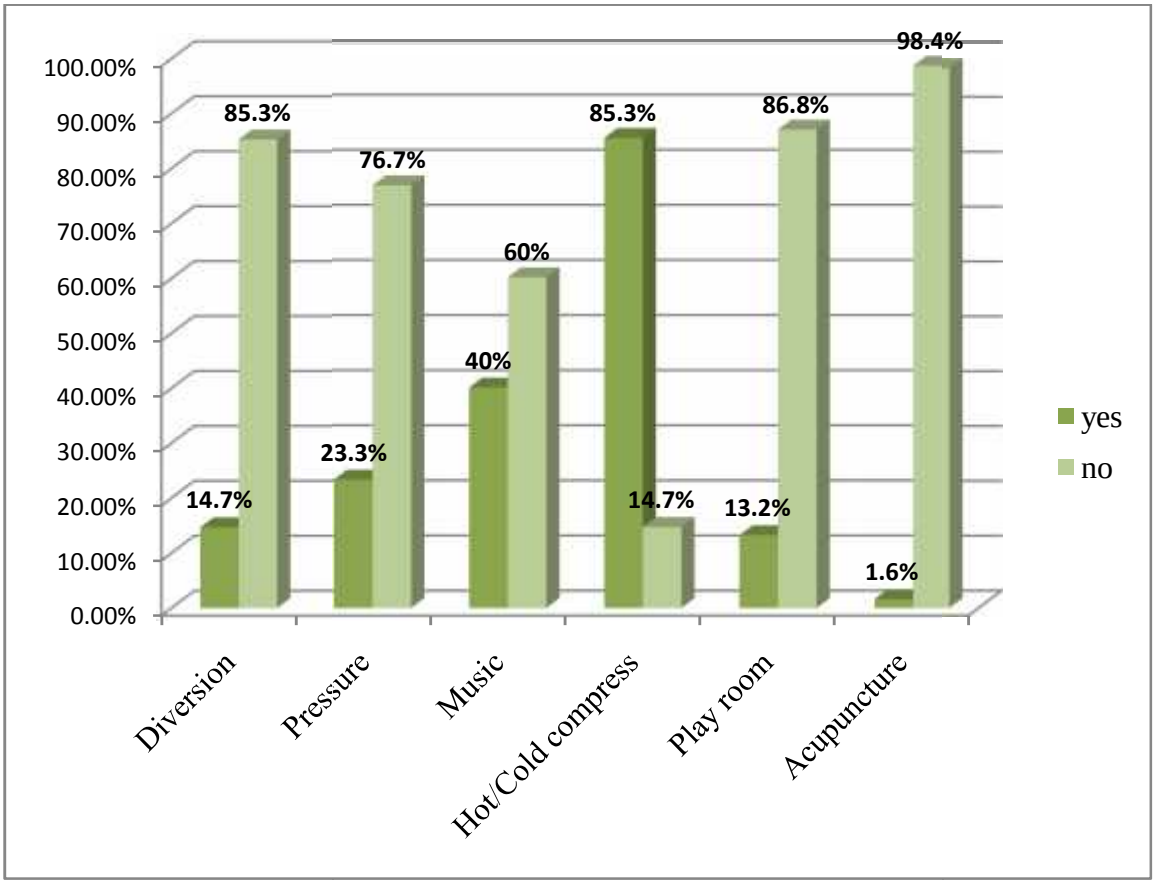


**Figure-7 Percentage distribution of respondents for non pharmacological pain management**

The findings of this study also show that majority 187(64.7%) of the participants reported that pain assessment findings are not discussed during nurse – to – nurse reports. Almost a half of the participants 148(51.3%) and 147(50.9%) reported that they do not agree with children's statements about their pain and do not document the findings after pain assessment and management for patient able to communicate respectively.

Over all determination of practice of nurses; out of a total of 289 respondents; 157(54.3%) had poor practice and 132(45.7%) had good practice with a mean score of 5.42 out of 10 (SD=1.985) and the median was 5.00 (figure-7).

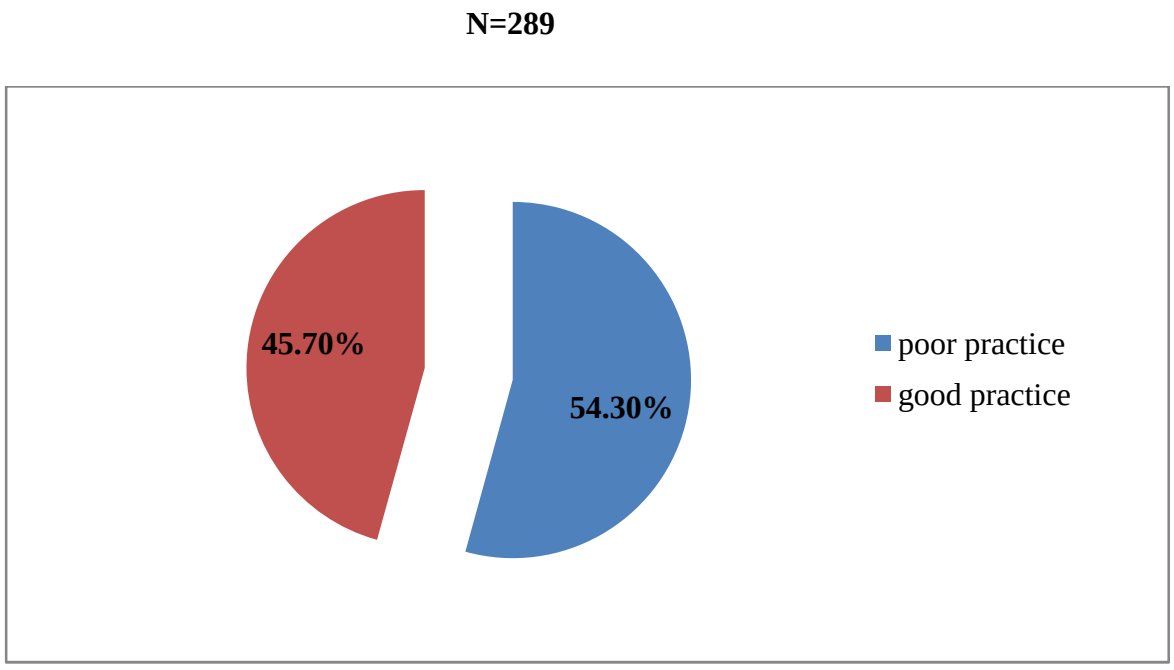


**Figure-8 Total distribution of respondents' according to Practice of pain management among nurses in public referral hospitals, Amhara region, Ethiopia, 2018**

**Table-9 Ten Questions with total score ranged from( 0-10) to evaluate the level of practice on pain management among Nurses in public referral hospitals, Amhara region, 2018 (n = 289).**

| S. no | Questions | Responses | Frequency (n=289) | Percentage (%) |
|---|---|---|---|---|
| **1** | assess pain for children able to communicate | Yes<br>No | 212<br>77 | 73.4<br>26.6 |
| **2** | use of VAS) for assessment of pain | Yes<br>No | 115<br>174 | 39.8<br>60.2 |
| **3** | Use of behavioral pain scale (FLACC) for assessment | Yes<br>No | 110<br>179 | 38.1<br>61.9 |
| **4** | Administer additional pain medication to relieve pain as needed/p.r.n | Yes<br>No | 165<br>124 | 57.1<br>42.9 |
| **5** | Re-assess children's pain after giving pain medication for its effectiveness | Yes<br>No | 181<br>109 | 62.6<br>37.4 |
| **6** | Report for seniors if skin rash, headache, vomiting and increased heart rate after administering opoid analgesics | Yes<br>No | 210<br>79 | 72.7<br>27.3 |
| **7** | Document findings after pain assessment and management for children | Yes<br>No | 142<br>147 | 49.1<br>50.9 |
| **8** | Discuss pain scores and managements during nurse to nurse report | Yes<br>No | 102<br>187 | 35.3<br>64.7 |
| **9** | Agree with children's statement about their pain | Yes<br>No | 141<br>148 | 48.7<br>51.3 |
| **10** | use of non-pharmacological interventions for children's pain | Yes<br>No | 140<br>149 | 48.4<br>51.6 |

## 5.7. Associated factors related to pain management practices

Logistic Regression was used to determine the set of predictor variables which predicted practice of pain management for hospitalized children. Variables that entered in to bivariate logistic regression and that showed significant association (p<=0.25) were; gender, nursing work over load, lack of familiarity with analgesics, lack of training on pain management, poor documentation of pain assessment and management, read guidelines for managing children's pain, having specific protocol about pain management, common pain management guidelines improves quality of care, being a child has an impact on management of pain, nurses' attitude and knowledge towards pain management.

Those variables that have association with the outcome variables in bivariate logistic regression analysis were entered in to multiple logistic regression models. After controlling for the effects of potentially confounding variables using multiple logistic regressions, finally knowledge towards pain management, attitude on child's pain management, lack of training, nursing work load and having specific protocol about pain management remained significant in the multivariate analysis (p<=0.05).

Variance inflation factor (vif) and tolerance test were applied to check the presence of multi co-linearity effect between knowledge and attitude of nurses towards pain relief in children on nurses' pain management practice. The result of variance inflation factor (vif = 1.201) and tolerance test (0.833), of co-linearity statics between knowledge and attitude on nurses' practice showed that there was no multi co-linearity effect between knowledge and attitude on practice of nurses towards pain management in children.

Those respondents who had adequate knowledge were able to practice pain management for hospitalized children by 2.7 times [AOR= 2.709; 95% CI :( 1.474, 4.980)] more likely able to practice pain management than those who had inadequate knowledge towards pain management. Similarly nurses who had favorable attitude towards pain management were 2.3 times [AOR= 2.262; 95% CI :( 1.236, 4.143)] more likely able to practice pain management for hospitalized children than those had unfavorable attitude.

In addition to these, those nurses who had work over load were 61.2% less likely to practice pain management than those have no work over load [AOR=0.388; 95% CI: (0.187, 0.802)]. And those participants who have specific protocols about pain management in their institution were 2.1 times [AOR=2.121; 95% CI: (1.077, 4.175)] more likely able to practice pain management compared to those have no protocols in their institution.

Finally, those respondents who referred lack of training is as risk factor for pain management were 74.8% less likely to practice pain management for hospitalized children than those have training on pain management,[AOR=0.252; 95% CI: (0.128, 0.494)].

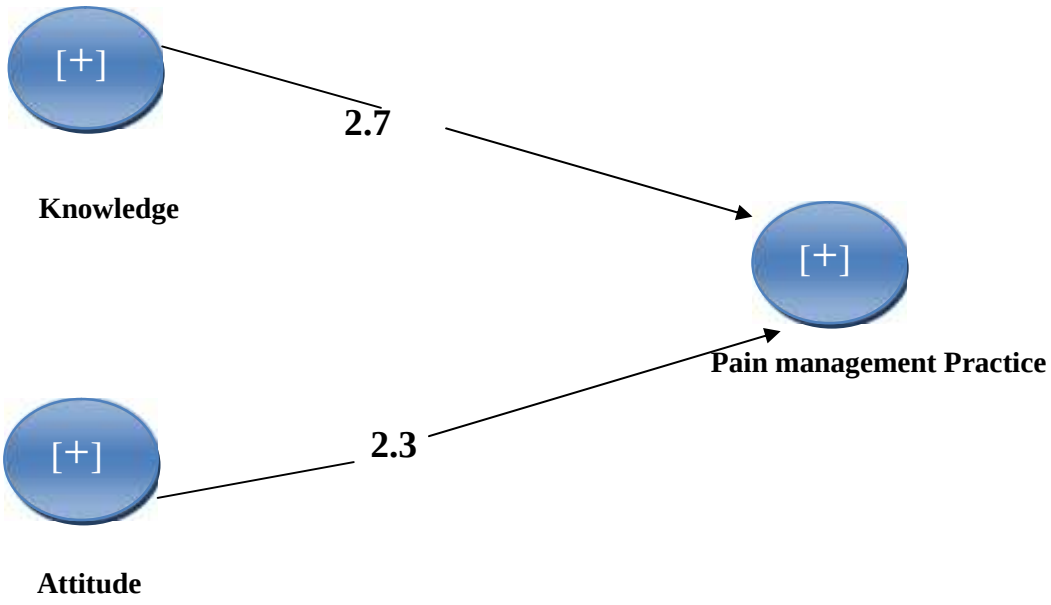

**Table-10 Socio-Demographic and Other Determinant Variables on practice of nurses for pain management for hospitalized children in public referral hospitals, Amhara region, 2018 (N=289)**

| Variables | | Practice level | | | |
|---|---|---|---|---|---|
| | | poor | good | Logistic regression (95% CI) | |
| | | Freq (%) | Freq (%) | COR (p < 0.25) | AOR (p < 0.05) |
| Sex | female | 91(58.0%) | 61 (46.2%) | 1 | 1 |
| | male | 66 (42.0%) | 71 (53.8%) | 1.605(1.007,2.558)* | 1.526(0.847,2.749) |
| Have specific protocols about pain management in your institution | no | 112 (71.3%) | 55(41.6%) | 1 | 1 |
| | yes | 45(28.7%) | 77(58.4%) | 3.484(1.485,3.925)* | 2.121(1.077,4.175)** |
| Have you read any Guidelines for managing children's pain | no | 117(74.5%) | 60(45.5%) | 1 | 1 |
| | yes | 40(25.5%) | 72(54.5%) | 3.593(1.485,4.004)* | 1.292(0.655,2.548) |
| Nursing workload | no | 57(36.3%) | 115(87.1%) | 1 | 1 |
| | yes | 100(63.7%) | 17(12.9%) | 0.259(0.142,0.475)* | 0.388(0.187,0.802)** |
| Lack of training | no | 67(42.7%) | 105(79.5%) | 1 | 1 |
| | yes | 90(57.3%) | 27(20.5%) | 0.191(0.113,0.325)* | 0.252(0.128,0.494)** |
| Lack of familiarity with analgesics | no | 62(39.5%) | 75(56.8%) | 1 | 1 |
| | yes | 95(60.5%) | 57(43.2%) | 0.496(0.310,0.794)* | 0.634(0.335,1.202) |
| Poor documentation of pain assessment and management | no | 69(43.9%) | 76(57.6%) | 1 | 1 |
| | yes | 88(56.1%) | 56(42.4%) | 0.578(0.362,0.922) * | 1.097(0.598,2.014) |
| Do you think having common pain management guide lines improves quality of care | no | 81(51.6%) | 34(25.8%) | 1 | 1 |
| | yes | 76(48.4%) | 98(74.2%) | 2.704(1.640,4.460)* | 1.103(0.587,2.072) |
| Do you think being a child has an impact on the management of pain | no | 66(42.0%) | 81(61.4%) | 1 | 1 |
| | yes | 91(58.0%) | 51(38.6%) | 0.457(0.285,0.732)* | 0.803(0.447,1.444) |
| Attitude category | unfavorable | 110(70.1%) | 44(33.3%) | 1 | 1 |
| | favorable | 47(29.9%) | 88(66.7%) | 4.681(2.846,7.699)* | 2.262(1.236,4.143)** |
| Knowledge category | inadequate | 104(66.2%) | 34(25.8%) | 1 | 1 |
| | adequate | 53(33.8%) | 98(74.2%) | 5.656(3.391,9.433)* | 2.709(1.474,4.980)** |

*p <= 0.25, CI- 95 %( Confidence Interval), COD- crude odds ratio, AOD-adjusted odds ratio

** Remained statistically significant (p < 0.05) in adjusted odds ratio

# CHAPTER 6: DISCUSION

Little is known about the burden of unrecognized and undertreated pain to children. Primarily assessing the knowledge and practice of nurses towards pain management will precisely help to identify the result and continue to deal with accordingly. Therefore, this study was aiming at describing the knowledge, attitudes, practices and factors related to pain management for hospitalized children among nurses working at public referral hospitals in Amhara regional state.

## 6.1. Demographic characteristics

A total of 289 nurses were included, with the youngest age group 20-30 years 161(55.7%) that constitute the largest group with mean age of 32 years. Majority of the nurses had less than two years of unit experience for hospitalized children 147(81.7%) and 225(77.9%) had attained degree level of education in nursing. Less years of experience could be; most of them are young nurses and are recruited right after graduation coupled with a practice of rotating policies from one unit to another within the hospital. Majority 130(45.0%) had experience of 2-5 years in nursing.

## 6.2. Knowledge Related to Pain management

Knowledge and associated factors of Nurses on pain management for hospitalized children has to be also interpreted in to the current context and situations at hand. The overall score of knowledge of nurses working in Amhara region public referral hospitals was (52.20%) which is inadequate that the gaps need considerations. The result is relatively consistent with study done in Kenyan nurses having (47.2%) good knowledge about pain relief in children [21]. In the contrary, nurses participated in this study showed lower level of knowledge regarding pain assessment and management in children compared to studies done at Gardner-Webb University, South Carolina (70.25%) [33] and Bangladesh nurses (66.79%) [34]. A cross-sectional surveys conducted in western Ethiopia and Mekelle city public hospital nurses, Ethiopia also showed that nurses have adequate knowledge (49.8%) and (58.6%) about pain management for hospitalized children respectively [24, 55] which is relatively consistent with results observed in this study. The higher score in South Carolinian and Bangladesh nurses about pain relief in children might be related with a continuous professional training about current pain management principles and

pain assessment and management contents may include in their nursing curriculum. This implies that training programs concerning knowledge of pain and pain management in children enhance the knowledge of nursing personnel.

Majority (76.5%) of participants knew that frequently assessing and documenting pain is important and (54.3%) responded that nurses provide the most accurate rating than other health care providers. This may reflect that nurses are reasonably knowledgeable about pain assessment and management principles and they may believe longer time with patients may make them to preferably understand the situation and conditions of their patient.

Most of the participants knew that it is important to manage pain among; post operative patient (91.0%), trauma patient (83.0%), and Burn patient (69.9%) which is relatively congruent with study done in Uganda, Mulago hospitals [29]. These results are reasonable to the fact that these patients need special care for their high pain intensity and most of the time better treatments are given in ICU's jointly with pain management treatments. But more than half (76.5%) and (61.2%) of participant did not know that managing pain for patient receiving sedatives and patient with Glasgow Coma Scale < 8 respectively is important; this might be due to nurses' misperception on unconsciousness believing that unconscious children don't feel pain since the patient don't communicate besides being a child.

Due to the fact that the Pathophysiology of pain is complex and wide array, its management requires multimodal approach; pharmacotherapy (NSAIDs, adjuvant analgesics, Opioid) and Non pharmacologic ones [6]. Considerable numbers of respondents were correct regarding the role of non-pharmacologic and pharmacologic therapies. More than half (55.7%) of respondents were correct in narcotics administration on a regular schedules for continues pain over p.r.n. which is not surprising since nurses are expected to know this and always apply in their practice.

Regarding to the non-pharmacological managements, majority (78.9%) of the respondents knew distraction of pain by music and relaxation is appropriate in managing children's pain. In a contrary a study in Hong Kong, assessing knowledge and attitudes regarding pain Management of medical nursing staff; results showed that nurses have inadequate knowledge about both pharmacological and non-pharmacological interventions for pain [32]. This study

therefore shows a bubbling knowledge on non- pharmacological managements but still the gap has to be noticeable since there are more non-pharmacological method to be used for children's in pain.

Overstated fear towards Opioid related side effects and addiction, which is proven to be nonexistent to significant level in several studies [33], was revealed among the participants of this study also. The misconception of nurses for increasing analgesics of narcotics is sign of addiction were reported to be (49.1%) and (47.4%) reported narcotics in pediatric patients brings respiratory depression were also some of the questions that should be given due attention to the nurses in order to minimize misconceptions and myths on narcotic analgesics.

A study done in Uganda 2012 show that more than half of the nurses (68%) knew to use patients" verbal report as a method for pain assessment which is slightly lower result in this study (46.0%) knew that patients can judge its pain intensity by themselves [29].

The observed high score on pharmacologic pain management shouldn't be taken as a sign of good know-how rather as a gleaming light that paves the way in how to manage pain using medicines in order to meet the standard care which is (85%) and above. Likewise there exist numerous factors to interfere with the knowledge of nurses for managing pain as mentioned in the above results which had significant association in spite of adequate knowledge (52.2%) compared to the knowledge of Jordan nurses (24%) [30].

In this study educational status of respondents have positive association with pain management in which master nurses have higher knowledge (p=0.014) than those diploma nurses. This finding is contrary with the study done in Nepal that level of knowledge of pediatric pain management did not show significant relationship based on education status [52]. With regarding to this finding, there are conflicting results reported in different studies. A study done in Turkey reported that there is a significant difference between nurses' educational levels and their level of knowledge towards pain management [28] which is consistent with the result of this study. This significant difference in this study might be due to pediatric pain assessment and management principles were not included in their curriculum during educational studies and there is little formal teaching on pediatric pain management at the postgraduate level; it is probable that would

be seeking alternative sources of information. This implies that pain management education is vital for improving nurses' knowledge and practices on pain assessment and management in children.

There was also a statistically significant difference between nurses' knowledge scores and the unit they currently worked (p=0.033). Knowledge scores were higher in nurses working at intensive care unit compared to nurses working at other units. This may indicate that nurses in intensive care units have better communication related to pain and require more knowledge as they are always dealing with critically ill patients that suffering from continuous pain. The same finding was observed in a study done in Turkey [28]; however, a study done in mekelle city hospitals, Ethiopia findings didn't show significant associations between nurses' knowledge regarding pain management in children and units they currently worked. The difference might be related to informal way learning and gained knowledge during round time since referral hospitals are also an educational center. Therefore, bedside discussion is another way of acquiring knowledge and a possible source of information for nurses about pain and pain management in children.

Nurses who had no training on pain management were 52.9% less likely know about pain management for hospitalized children than those had training. This implies that lack training strongly affects their abilities to assess and manage pain properly (p=0.031). Another studies also reported that lack of formal training is a key factor that can lead to inadequate knowledge in which ultimately hinders optimal pain assessment and management [30]. Therefore, continuous professional training and improved working environment towards standard practice are key to pick up adequate knowledge and good performance. This study also shows that there is a significant relation between nurses' attitude and level of knowledge towards pain management. Those respondents who had favorable attitude towards pain relief in children were 2.6 times more likely knowledgeable on pain management for hospitalized children than others (p=0.002); and nurses who had more clinical performance had better knowledge about pain management in children (p=0.002) which is the same result with a study done in Rwanda reported that knowledge is not only acquired by means of formal education but also through daily practice as a way of learning and acquiring knowledge [27].

In a contrary, a study in Bangladesh nurses' knowledge and attitudes, and pain management practice of post-operative children results showed that there is no significant relationship between nurses' knowledge and attitude and their pain management practice [34]. The discrepancy between Bangladesh nurses and nurses participated in this study might be related to sample size and way of assessment method in addition to socio demographic factors.

## 6.3. Nurses' attitude Related to Pain management

Regarding to the nurses' attitude towards child pain management, the finding of this study show that more than half of nurses working in Amhara region public referral hospitals have unfavorable attitude (x=46.7%). This result is comparatively lower compared to the results observed in Iran, Bandar Abase educational hospital (90.3%) and Indian nurses (90.0%) [46,41]. A similar study in Turkey showed that only (38.2 %) nurses have positive attitude to children pain management which is relatively lower than findings observed in this study [44]. The higher score in Indian nurses and Iran nurses might be related with an ongoing clinical training related to pain assessment and management to staff nurses and presence of common guideline and assessment tool in their institution result in enhance their knowledge and create a favorable attitude on pain assessment and management for children. This study implies that absence of common guideline related to pain assessment and management, educational content about pain assessment and management not included in their curriculum and lack of training result in knowledge deficiencies that leads to false perception and bad attitude towards child pain management.

More than half (53.6%) of respondents believed that infants and children experience pain equal with adults. This is relative congruent with study done in India (50%) [42], but significantly lower than observed in Iran (95%) [46]. In a contrary, studies done in university hospitals of Wales, Cardiff showed that nurses believed that infants and children feel more pain and display more distress than adults [43]. On the same way only one hundred seventeen nurses (40.5%) believed that children have the right to appropriate assessment and management of their pain which have a positive effect on their healing process which is insignificant compared to study done in Iran (90%) [42]. Nurses participated in this study believed that assessing and managing pain is not counted as fifth vital sign in which the gap

has to be noticeable. We also observed from this study that almost half (54.3%) of respondents agreed that failure to assess and manage children's pain did not affect his body and mind in the long term which is relatively higher than results observed in Indian nurses (34%) and Iran nurses (10.0%) (42).This difference might be related with misconception about infant and child pain resulted from lack of training and educational preparation about pain assessment and management in children. Therefore, continuous education and ongoing training about pain assessment and management in children knowledge towards pain management, qualification, common pain management guidelines improves quality of care, practice on child's pain management and lack of availability of pain assessment tool remained significant in multivariate analysis for attitude of nurses to pain assessment and management ($p<0.05$).

Regarding association of attitudes of nurses with different demographic factors, there was a positive relationship between nurses' attitude and educational rank. Nurses with higher degree (master nurses) have significantly better attitude to pain management in children than diploma nurses ($p=0.006$). This is consistent with the studies done in Turkey [51]. However, the findings are not supported by study done in Nepal, there was no significance relationship between educational level and nurses' knowledge and attitude in pain management [52].Positive relationship was observed that nurses with higher level of knowledge towards pain relief in children showed favorable attitude than others ($p=0.001$). This finding is similarly observed in a study done Iran and a comparative study between UK, South Africa and Sweden [42, 47]. In contrary, a study done in University of South Florida, USA showed as there is no significant relation between nurses' level of knowledge and their attitudes towards pain management [45]. The results from this study could be interpreted that a way to achieve more positive attitudes is to increase the knowledge level among nurses.

Additionally, regardless of deficiencies in pain education, unavailability of pain assessment tools in the hospital was discovered as a significant factor in this study. Literature regarding pain assessment tool is however uncertain. And those of nurses who believe common guideline improves quality of care made them more positive thinker than others. This implies that having common guideline related to pain management principles will surely strengthen their positive attitudes and beliefs towards pain assessment and management though they face other interfering

factors (p=0.012). Finally, nurses who had good practice towards pain management scored better attitude to pain relief in children than those who had poor practice (P=0.007). This shows that exposure to certain procedures change nurses' perception about that procedure. However, finding was not observed in other studies; the result may be related with work areas. In addition, more detailed studies are needed to clarify the matter.

## 6.4. Practice Related to Pain management

Nurses have a crucial role in the assessment, management, and alleviation of patients' pain. In fact, they are the main observers of patients' pain and suffering, acting as liaisons between nurses and patients. The nurses participated in this study showed low level of practices (45.7%) regarding the pain relief in children. The result is relatively lower than the result scored in Bangladesh nurses having (78.1%) good practice on pain management in children [36]. But somewhat higher than scored in Iran, Bandar Abbas educational hospital (37.5%) [46].This study is also relatively lower than the result observed in Mekelle city public hospitals, Ethiopia (56%) [55]. A relatively lower result observed in this study compared to Bangladesh nurses and nurses working in Mekelle city hospitals might be related to lack of nurses' commitment to apply their theoretical knowledge into actual practice and lack of training on current principles of pain management as well as patient over load might be a possible reason. This study interprets that providing clinical training on pain management to staff nurses and encouraging informal education i.e. round discussion is the best way to achieve the optimal pain management practice for children in Amhara region.

Majority 212(73.4%) of nurses reported as they assess pain among patients able to report pain, but surprisingly higher findings (90%) and (100 %) have been reported from Ugandan nurses and Nigerian nurses assess pain for patient able to self – report pain respectively [29, 35]. However, a relatively congruent result was observed in Mekelle city public hospitals, Ethiopia (76.9%) [55]. Thus change in percentage might be related with sense of commitment that the nurses should assess pain in the first place and technological advancement in the developed countries. In this study out of 115 respondents who use assessment tools, the frequency in using those assessment tools significantly comprises only (5.2%) to use VAS routinely. Whereas a study done in Nigeria (2018) showed slightly higher (9 %) rate of use of VAS routinely. The reason might be attributed

to differences in an ongoing professional education received, staffing, and presence of guidelines. Nurses in this study115 (60.2%) uses self-reported pain scale VAS (visual analog scale), but (46.1%) uses these tools sometimes (25-50%). In the contrary, a study done in Uganda shows more than three quarters of nurses could not assess pain using the provided Visual Analogue Scale [29]. Therefore, the result lead to poor patients' pain management outcomes for not using standardized assessment tools. Whereas result obtained from this study is better despite frequent use of tools, which supports importance of provision of quality of care and assess pain using tools that are avail.

Nurses' knowledge and attitude on child's pain management, lack of training, nursing work load and having specific protocol about pain management are factors that remained significant in multivariate analysis for practice of nurses for pain management ( $p< 0.05$).

Those respondents who had adequate knowledge were 2.7 times more likely to practice proper pain management for hospitalized children than those who had inadequate knowledge ($p=0.001$); this result implies that nurse's knowledge can affect his or her ability to adequately provide children's pain management and also nurses who had adequate knowledge assertively practice pain management protocols. On the contrary, study done in London, Twycross found that there was no positive relationship between individual nurses' level of knowledge and how well they actually managed pain [40]. A similar study done in Mekelle city public hospitals, a positive relationship was observed between nurses' knowledge and their skills on pain relief in children which is also observed in this study [55].

Another factor that affects pain management practice observed in this study was nurses' attitude towards pain management; those nurses who have favorable attitude were more likely able to practice than who have unfavorable attitude ($p=0.008$) which is supported by KAP model assumption. This finding was also observed in different studies that nurses' negative attitude and misconception about pain in children were reported as the main barriers for pain assessment and management [40, 46, and 47]. Similarly, study done in Rwanda showed that knowledge deficiency and attitudinal beliefs regarding pain management had impact to effective and optimal care for the patients who have pain [27] that supports the finding of this study..

In this study lack of training was also one factor which is negatively associated with pain management practice (p=0.000). It is obvious that lack of training related to pain assessment tools, principles and ways of pain assessment and management compromises the optimal care to a child in pain. This is also supported by study done in Nigeria & Uganda [30, 35]. This finding implies that training should be provided in order to improve nurses' knowledge and attitudes that might be put into effect in nurses' pain management practice.

In addition to these, those nurses who had work over load were 59.2% less likely to practice pain management than those have no work over load (p=0.011). This finding is congruent with the study done in Nigeria enumerated that nursing workload as the most important barrier to effective pain assessment and management [35]. In addition, those participants who had specific protocols about pain management in their institution made them able to practice pain management than others (p=0.03). This implies that availability of standard protocols and guidelines on children's pain management will surely strengthen their capacity to manage pain though they face other interfering factors [29, 35]. Suggestions for improvement of pain assessment and management include, in-service training on pain assessment and management, continuous education, provision of guidelines and protocols on pain assessment, and introduction of pain assessment tools [27].

# CHAPTER 7: STRENGTH AND LIMITATION OF THE STUDY

## 7.1. Strength of the study

The study tries to dig out information about knowledge, attitude, practice and some of the associated factors regarding pain management of nurses; this in return can offer clues and may forward important message for further researchers.

## 7.2. Limitation of the study

The study did not observe the actual practices of health care professionals' assessment and management of pain in children but relied on the self- report by the respondents.

The other limitation was that this study was limited to hospitals in Amhara regional state only. It would have been possible to assess differences between regional and federal nurses' experiences as well as among different regional state nurses.

Finally the study was cross-sectional study and can only reflect experience of nurses at the time of assessment only, and therefore, a causal relationship cannot be established between KAP and its predictors.

# CHAPTER 8: CONCLUSION AND RECOMMENDATION

## 8.1. Conclusion

The study determined the knowledge, attitude, practice and factors associated with pain management. Participants of this study were nurses who were working in government referral hospitals of Amhara regional state.

Based on the findings the study the following was concluded:

The overall results of this study show that nurses had inadequate knowledge, unfavorable attitude and poor practice on pain management for hospitalized children as far as the items related to pharmacology; clinical assessment and understanding of the importance of barriers to pain management are concerned.

There is discrepancy in the assessment, and documentation of pain. And also, assessment tools were not routinely and consistently used. The reason behind may be the issue of continues supervision, lack of contents about pain assessment and management in their basic nursing education and lack of trainings on pain managements of children.

The findings of this study also suggest that the participants need in-depth education regarding pharmacologic and non-pharmacologic strategies for pain alleviation in children.

Statistically significant associations were identified between pain management and its associate factors: like educational level, work load, lack of training, knowledge and attitude of the nurses, common guideline and specific protocol had statistical significant association with nurses' pain management in children.

## 8.2. Recommendation

Based on the findings of this study, the following are recommended;

Lack of specific protocols about pain assessment and management and no pain training course offered to nurses may contribute to the very low level of knowledge, attitudes of nurses and pain management practice. Therefore, the hospital's administrative bodies would better to provide convenient professional education, training program regarding pain and its management to staff nurses.

The hospital's quality care teams with the medical director are better to monitor and evaluate practicability of pain management practice, offering motivational education on use of assessment tools and prepare documenting charts for pain scores.

It would be much better if the Matrons, head nurses, staff nurses and academic nursing staffs in conjunction with regional health bureau work together in major factors and execute means to alleviate those major constraints that were found significant in these study.

It has been demonstrated that education is a central aspect to strengthening knowledge and attitudes in pain management. The findings from the study help inform specific areas that need educational intervention but a more in- depth review of nursing and medical school curriculums is recommended, to fully understand what deficiencies exist in our educational programs regarding pain management in children.

For researchers Employing mixed methods of studies involving more than three hospitals is recommended to gain more information on the knowledge, attitude and practices of nurses related to pain management. This will help to elaborate findings including gaps between the scores and the current situations at hand. Methods of data collection like observation have to be used; that in return help appreciating the actual practices.

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# ANNEXES

## Annex 1: information sheet

Dear respondent**,**

My Name is Esmelealem Mihretu, currently I am a graduate student at Department of Nursing and midwifery, Collage of Health Sciences Addis Ababa University. I am conducting a study to assess the knowledge, attitude, practices and factors associated with pain management among nurses for hospitalized children in Amhara regional state public referral hospitals. The ultimate purpose of this study is to collect information necessary for developing protocol guidelines for all nurses to manage pain for children of different age. To attain this purpose your honest and genuine participation is very important and highly appreciable. I, therefore, kindly request you to answer for all possible questions during the data collection as accurately and carefully as much as possible.

Please be assured that all the information gathered will be kept strictly confidential and you do not need to write your name or any special identification that might disclose who you are, on any of the questionnaire page. Only the researcher has the access of the information and used it for the study purpose only. You have a full right not to participate in this study.

Data Collector,

Are you Volunteer to participate?

1. If yes continue

2. If no stop

Name _____ Signature _____ Date _____

Supervisor, Name_____Signature_____Date_____

## Annex II. Consent form

In signing this document, I am giving my consent to participate in the study entitled Assessment of Knowledge, Attitude, Practice and factors associated with pain management among nurses for hospitalized children at Amhara regional public referral hospitals, Ethiopia. I have been informed that the purpose of this research project and I understand that I am selected to participate in this study randomly. 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, have understood the purpose of the study & fully agree to participate in the study

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

Thank you has a nice day!

Name of investigator: Esmelealem Mihretu

Address of investigator: phone no- +251918158771

Email: esmelalem.mihiretu21@gmail.com

## Annex III. Questionnaire

Pain management for hospitalized children

Date_____ unit code _____

**Instructions**: Read each question carefully and tick (√) against the option that best suits your response.

**Part I: Socio demographic data**

Q101. Gender: 1. Male ☐ 2. Female ☐

Q102.Age in complete years_____

Q103. Position: 1. Registered/Staff ☐ 2. Department Head ☐

Q104.How many years of experience do you have as a nurse on current unit or caring for hospitalizes children?

1. < 2yrs ☐ 3. 5-10yrs ☐
2. 2-5 yrs ☐ 4. >10yrs ☐

Q105.Which ward are you currently giving service?

1. Emergency department ☐ 3. Medical ward ☐
2. PICU/AICU ☐ 4. Surgical ward ☐
5. Other, specify_____

Q106.Qualifications (tick that you apply)

1. Diploma ☐
2. Degree in bachelor science ☐
3. Master of science in bachelor degree ☐

Q107. Employment status: 1. Full time ☐ 2. Part time ☐

Q108.Have you ever worked in pediatrics and child health wards?

1. Yes ☐ 2. No ☐

Q109. If your answer for Q109 is yes for how many months /years_____

**PARET II: Questions related to what the provider knows about pain management**

Q201. In your opinion, who provides the most accurate rating of pain intensity and manage pain? (Please select only one response)

1. Physician ☐ 2. Nurse ☐ 3. Health officer ☐

Q202. Is it important to frequently assess and document pain in patients able to communicate? 1. Yes ☐ 2. No ☐

Q203. Thick (√) for medications you know below that are mostly available in your institution for pain relief measures.

1. Paracitamol ☐
2. Diclofenac ☐
3. Morphine ☐
4. Ibuprofen ☐
5. Codeine ☐
6. Panadol ☐

Q204. Is it important to manage pain for the following classifications of patient?

a. Post-operative patient 1. Yes ☐ 2. No ☐
b. Medical (nonsurgical) patients 1. Yes ☐ 2. No ☐
c. Patients with a Glasgow Coma Scale < 8 1. Yes ☐ 2. No ☐
d. Trauma patients 1. Yes ☐ 2. No ☐
e. Burn patients 1. Yes ☐ 2. No ☐
f. End-of-life patients 1. Yes ☐ 2. No ☐
g. Patients receiving sedatives 1. Yes ☐ 2. No ☐

Q205. Do you think it is important to manage pain and need for analgesia before, during, and after the following procedures?

a. Patient repositioning 1. Yes ☐ 2. No ☐
b. Endotracheal suctioning 1. Yes ☐ 2. No ☐
c. Wound care 1. Yes ☐ 2. No ☐
d. Drain removal 1. Yes ☐ 2. No ☐
e. Post operatively 1. Yes ☐ 2. No ☐
f. Spontaneous breathing (weaning) trial 1. Yes ☐ 2. No ☐
g. Securing IV lines 1. Yes ☐ 2. No ☐

Q206. What type of pain management measures do you know for child in severe pain; specify_____

Q207.The recommended route of administration of opoid analgesics to children with brief, severe pain of sudden onset (e.g. trauma or postoperative) pain is:

a. Intravenous ☐ c. Intra muscular ☐

b. Oral ☐ d. Intra dermal ☐

208. Giving narcotics on a regular schedule is preferred over PRN schedule for continuous pain.

1. Yes ☐ 2. No ☐

Q209. The most accurate judge of the intensity of the patient's pain is the Patient.

1. Yes ☐ 2. No ☐

Q210. Lack of pain expression does not mean lack of pain

1. Yes ☐ 2. No ☐

Q211. Distraction, for example, by the use of music or relaxation, can decrease the feeling of pain 1. Yes ☐ 2. No ☐

Q212. Increasing analgesic requirements are signs that the patient is becoming addicted to the narcotic. 1. Yes ☐ 2. No ☐

Q213. Patients having severe chronic pain often need higher dosages of pain Medications than patients with acute pain. 1. Yes ☐ 2. No ☐

Q214. If a patient (and/or family member) reports that a narcotic is causing Euphoria, she should be given a lower dose of the analgesic 1. Yes ☐ 2. No ☐

Q215. Because narcotics can cause respiratory depression, they should not be used in pediatric patients. 1. Yes ☐ 2. No ☐

Q216. To your knowledge, what are the consequences of unrelieved pain?

_____

Q217. Is it important giving analgesics for the following acute or chronic cases?

a. Severe headache 1. Yes ☐ 2. No ☐

b. Sudden abdominal crump 1. Yes ☐ 2. No ☐

c. Chronic joint pain 1. Yes ☐ 2. No ☐

d. Appendicitis 1. Yes ☐ 2. No ☐

e. Cancer pain 1. Yes ☐ 2. No ☐

f. Infection 1. Yes ☐ 2. No ☐

If your answer is no please specify your reason;

_____

Q218. Do you know children need better attention for managing their pain?

1. Yes ☐ 2. No ☐

**Part III: Questions related to Practice of the provider for pain management**

Q301.Do you assess pain for children able to communicate?

1. Yes ☐ 2. No ☐

Q302. If yes, do you use a pain assessment tool?

1. Yes ☐ 2. No ☐

(If no, please go to question 4)

Q303. If yes, how frequently do you use a pain assessment tool for patients?

1. Seldom (1-25%) ☐ 3. Often (51-75%) ☐
2. Sometimes (26-50%) ☐ 4. Routinely (>75%) ☐

Q304. If you do not use a pain assessment tool, please describe your method of assessing pain for patients able to report pain_____

Q305. Do you administer pain medication to children by your own adjustment?

1. Yes ☐ 2. No ☐

Q306. Do you use self-reported pain scale (VAS) for assessment of children's pain in your practice? 1. Yes ☐ 2. No ☐

Q307. Do you use self-reported pain scale (FACE scale) for assessment of children's pain in your practice? 1. Yes ☐ 2. No ☐

Q308. Do you use behavioral pain scale (FLACC) for assessment of children's pain in your practice? 1. Yes ☐ 2. No ☐

Q309. Do you administer additional pain medication to relieve pain when needed or (PRN?)

1. Yes ☐ 2. No ☐

Q310.Do you reassess children's pain after giving pain medication in order to evaluate the effectiveness of the pain medication? 1. Yes ☐ 2. No ☐

Q311. Do you give post-operative analgesics around the clock on a fixed schedule?

1. Yes ☐ 2. No ☐

Q312.Do you advise a child to use non-drug techniques alone rather than concurrently with pain medications? 1. Yes ☐ 2. No ☐

Q313. Do you give children sterile water by injection (placebo) to determine if the pain is real?

1. Yes ☐ 2. No ☐

Q314. Do you allow parents to present during painful procedures?

1. Yes ☐ 2. No ☐

Q315. After the initial recommended dose of Opioid analgesic, do you adjust subsequent doses in accordance with the individual /patient's response?

1. Yes ☐ 2. No ☐

Q316. Do you check and report for seniors if you find skin rash, headache, vomiting, and increased heart rate after administering opoid analgesics

1. Yes ☐ 2. No ☐

Q317. Do you document the findings after pain assessment and management for patients able to communicate? 1. Yes ☐ 2. No ☐

Q318. Do you assess the need for administration of analgesia before the following procedures are done?

a. Patient repositioning 1. Yes ☐ 2. No ☐
b. End tracheal suctioning 1. Yes ☐ 2. No ☐
c. Wound care 1. Yes ☐ 2. No ☐
d. Pre-operatively 1. Yes ☐ 2. No ☐
e. Spontaneous breathing (weaning) trial 1. Yes ☐ 2. No ☐

Q319. Do you discuss pain scores and managements‟ during nurse-to-nurse report?

1. Yes ☐ 2. No ☐

Q320. Are pain scores and management discussed during unit rounds?

1. Yes ☐ 2. No ☐

Q321. Do you always agree with children's statements about their pain?

1. Yes ☐ 2. No ☐

Q322. Do you use non-pharmacological intervention for children's pain managements (If your answer is no go to the next section).

1. Yes ☐ 2. No ☐

Q323. If yes Thick (√) the methods you use for children's pain

| | | | |
|---|---|---|---|
| 1. Diversion | ☐ | 4. Music | ☐ |
| 2. Hot/Cold compress | ☐ | 5. Play room | ☐ |
| 3. Pressure | ☐ | 6. Acupuncture | ☐ |

**Part III: Questions related to Nurses' attitude of the provider for pain management**

| S. no | Item | Agree | Not sure | Disagree |
|---|---|---|---|---|
| Q401 | Infants and children experience pain equal to that experienced by adults | | | |
| Q402 | Parents should be present during painful procedures | | | |
| Q403 | Pain management and pain relief are of priority in children treatment | | | |
| Q404 | Children have the right to appropriate assessment and management of their pain | | | |
| Q405 | The most accurate judge of the intensity of the children's pain is the her/his primary nurse | | | |
| Q406 | To better assess child pain, the nurse can discuss with her/his parents | | | |
| Q407 | Assessment and control of child pain lead to improved his/her parents satisfaction | | | |
| Q408 | Failure to assess and manage the child's pain affects his body and mind in the long term | | | |
| Q409 | The nurse's physical and mental fatigue can affect children pain relief | | | |
| Q410 | Like other vital signs, pain score should be documented | | | |
| Q411 | To ensure patient's comfort and pain relief is one of the most important tasks of nurses | | | |
| Q412 | Communicating with and educating child's | | | |

| | | | | |
|---|---|---|---|---|
| | parents play an effective role in relieving pain | | | |
| Q413 | Available tools for measurement of pain are the best for determining pain severity in children | | | |
| Q414 | When the necessary procedures have been done for the patient, the persistence of pain does not cause problems | | | |
| Q415 | Using pain assessment tools for determining child's pain lead to an appropriate method of pain relief | | | |
| Q416 | Measurement and control of child's pain can affect the healing process and reduces the hospital stay | | | |
| Q417 | Evaluation and measurement of child's pain should be considered as one of the vital signs when examining the child | | | |
| Q418 | Comparable stimuli in different people produce the same intensity of pain | | | |
| Q419 | Measurement and control of pain in child leads to improved quality of child's life | | | |

**Part IV: Questions organized to associated factors for proper pain management**

Q501.Do you have specific protocols about pain management in your institution?

1. Yes ☐ 2. No ☐

Q502. Have you read any Guidelines for managing children's pain?

1. Yes ☐ 2. No ☐

If yes, please specify _____

Q503. Please indicate whether or not an item affects your ability to manage pain of children properly by ticking (√) on yes or no.

a. Nursing workload 1. Yes ☐ 2. No ☐

b. Lack of availability of pain assessment tools 1. Yes ☐ 2. No ☐

c. Lack of training 1. Yes ☐ 2. No ☐

d. Lack of familiarity with analgesics 1. Yes ☐ 2. No ☐

e. Patient instability e.g. unstable hemodynamic 1. Yes ☐ 2. No ☐

f. Patient inability to communicate 1. Yes ☐ 2. No ☐

g. Lack of protocols for pain management 1. Yes ☐ 2. No ☐

h. Low priority of pain management by unit team 1. Yes ☐ 2. No ☐

i. No designated area for charting pain 1. Yes ☐ 2. No ☐

j. Sedation interfering with pain assessment 1. Yes ☐ 2. No ☐

k. Poor documentation of pain assessment and management 1.Yes ☐ 2. No ☐

l. Poor communication of pain assessment priorities at the unit 1.Yes ☐ . No ☐

m. Insufficient analgesia dosage prescribes 1. Yes ☐ 2. No ☐

n. Others (please identify)

_____

Q504. Do you think having common pain management guide lines improves quality of care?

1. Yes ☐ 2. No ☐

Q505. Do you think being a child has an impact on the management of pain?

1. Yes ☐ 2. No ☐

Q506. Do you face problems during pain management for the child due to cultural belief?

1. Yes ☐ 2. No ☐

Q507. Do children cooperate in managing pain that have past history of pain management before? 1. Yes ☐ 2. No ☐

**Thank you for your participations!!!**