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

PAIN ASSESSMENT AND MANAGEMENT PRACTICES AMONG NURSES WORKING IN PEDIATRIC DEPARTMENT IN PUBLIC HOSPITALS, ADDIS ABABA, ETHIOPIA

BY: SAMIYA TIGABU

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY, IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF A MASTER OF SCIENCE DEGREE IN PEDIATRICS AND CHILD HEALTH NURSING

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ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY, DEPARTMENT OF NURSING, PEDIATRIC NURSING POSTGRADUATE PROGRAM

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APPROVAL SHEET

ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY, DEPARTMENT OF NURSING, PEDIATRIC NURSING POSTGRADUATE PROGRAM

I, the undersigned MSc student, declare that I have submitted my original work on "Pain Assessment and Management Practices among Nurses Working in Pediatric Departments in Public Hospitals, Addis Ababa, Ethiopia" prepared by Samiya Tigabu satisfies the university's regulations and adheres to the accepted standards of originality and quality required for the Degree of Master of Sciences in Pediatric nursing.

Submitted by:

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This thesis by Samiya Tigabu_is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of masters of Science in Pediatric Nursing.

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STATEMENT OF DECLARATION

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ABBREVIATIONS AND ACRONYMS

APPT	Adolescent Pediatric Pain Tool
FLACC	Face, Legs, Activity, Cry, and Consolability
FMOH	Federal Ministry of Health
HCPs	Healthcare Professionals
IASP	International Association for the Study of Pain
LMICs	Low- and Middle-Income Countries
NRS	Numerical Rating Scale
PA	Pain Assessment
PM	Pain Management
PPAT	Pediatric Pain Assessment Tool
PPQ	Pediatric Pain Questionnaire
QoL	Quality of Life
SIGs	Special Interest Groups

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ABSTRACT

Background: Pain is a primary motivator for patients to seek medical attention, and it is the most frequent symptom seen in children at hospitals. Evaluating pain is crucial and serves as the primary focus in patient care for pain management.

Objective: To assess pain assessment and management practices among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia.

Methods: A cross-sectional study was conducted at St. Paul Hospital Millennium Medical College and Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia, from March to April 2024. It included all staff nurses in pediatric units during this period. Data were collected using a semi-structured questionnaire and analyzed with SPSS version 26. Descriptive statistics summarized patient characteristics, while logistic regression explored associations between variables, with significance set at $p < 0.05$.

Result: The study's major findings reveal that while a significant majority of nurses (89.7%) reported they assess pain. Also the overall pain management practice was 73.53% good among nurses working in the pediatric department of public hospitals in Addis Ababa, Ethiopia Participants workload was a significant factor, with a high workload associated with an AOR of 0.034 (95% CI: 0.003-0.343, p=.004), suggesting a strong negative impact on pain assessment practices. The lack of availability of pain assessment tools had a non-significant AOR of 0.82 (95% CI: 0.19-4.94, p=.074). However, the lack of education on assessment tools showed a significant effect with an AOR of 0.321 (95% CI: 0.129-0.795, p=.014), and the lack of familiarity with assessment tools also significantly affected pain assessment practices, with an AOR of 0.342 (95% CI: 0.120-0.977, p=.045).

Conclusion: The study's findings underscore the challenges in pain assessment and management, citing high nursing workload, lack of education on assessment tools, and "Emergency" care as key factors influencing practices. Clear communication within units is crucial, as it impacts pain management outcomes. Recommendations include targeted training, workload management, improved tool accessibility, enhanced communication, continuous education, interdisciplinary collaboration, and regular monitoring for better pain management practices.

Keywords: Pain assessment, pain management, pediatric pain, Tikur Anbessa Specialized Hospital, St. Paul Hospital MMC

CHAPTER ONE

1. INTRODUCTION

1.1. Background

According to the International Association for the Study of Pain (IASP), pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage [1]. Among patients with injuries, particularly young children under three years old, severe pain are prevalent, often resulting from accidents involving hot liquids. Children's natural curiosity and exploration of their surroundings expose them to various hazardous substances and situations [2].

Pain is a primary motivator for patients to seek medical attention, and it is the most frequent symptom seen in children at hospitals [3]. Because pain is complex, evaluations should consider various aspects such as its severity, location, duration, and characteristics, as well as its impact on daily activities and any factors that could affect how the child perceives and copes with pain [4].

Pain is a subjective experience, making it difficult for those who are not feeling it to fully understand. This poses a complex challenge for both patients and medical professionals [5]. However, healthcare providers use observations and measurements to assess and understand the pain experienced by individuals. Evaluating pain is crucial and serves as the primary focus in patient care for pain management [6].

In pediatric pain management, healthcare providers utilize various tools and scales to evaluate and quantify children's pain. These instruments are specifically designed to address the unique challenges associated with assessing pain in pediatric patients, considering factors such as their age, developmental stage, and ability to communicate clearly [7]. Commonly used tools in pediatric pain assessment include the Pediatric Pain Assessment Tool (PPAT), Adolescent Pediatric Pain Tool (APPT), Pediatric Pain Questionnaire (PPQ), Face, Legs, Activity, Cry, and

Controllability (FLACC) Scale, Wong-Bakerer FACES Pain Rating Scale, and Numerical Rating Scale (NRS). Healthcare professionals rely on these standardized methods to assess and measure pain in pediatric patients effectively [7].

Nurses play a crucial role in evaluating and managing pain in children in hospitals. They have the most interaction with the child and their family, making them well-positioned to assess pain effectively. The main goal of pain assessment is to understand the patient's pain experience, which is essential for providing proper pain management. Regular pain reassessment is necessary to gauge the effectiveness of interventions, and nurses must conduct and document these assessments to ensure effective pain control [8]. Consistent use of a standardized format for pain assessment is key, with reassessment after each intervention to determine its impact and potential need for adjustments. Continuous monitoring of pain during procedures is also important, involving observation of the child's behavior and comfort levels along with the use of appropriate pain assessment tools. Various instruments and scales are utilized in pediatric pain management to evaluate and measure children's pain levels [7].

In hospitals, there are established clinical protocols and practices for evaluating and addressing pain in pediatric patients. Given the subjective nature of pain, it is crucial to have standardized guidelines for its management. Pain control is a critical component of caring for pediatric patients, as it significantly impacts their well-being and satisfaction with healthcare [9]. Nurses play a vital role within the healthcare team by conducting initial assessments, monitoring pain levels, and implementing appropriate interventions to manage patients' pain effectively [4].

Pain and suffering are closely linked in children [3]. Therefore, prioritizing the assessment and management of pain is essential [10]. Consequently, this study aims to evaluate the practices of nurses in assessing and managing pain in pediatric patients in SPHMMC and TASH Hospital in Addis Ababa, Ethiopia.

1.2. Statement of the Problem

Severe pain resulting from accidents are prevalent among patients with injuries, particularly young children under three years old [4]. Pain may interfere with pediatric patients' sleep patterns, and negatively affect their recovery. Untreated pain can exacerbate worry, fear, and tension in addition to producing discomfort. Children who experience short-term acute discomfort typically resulting from an injury or illness [7]. On the other hand, long-term chronic discomfort can permanently affect a child's physical and emotional well-being and can have psychological aftereffects that persist in emotional discomfort and hinder functioning long after the physical wounds have healed [11].

Enhancing pain management is crucial for raising pediatric patients' quality of life. The associated pain, which is probably the hardest type of acute pain to treat, is one of the components of managing pediatric pain. However, because patients usually come from a very diverse community and often present with major comorbidities, relatively few human clinical investigations have been published. Additionally, there was little pain treatment available to children [12]. Furthermore, there are few clinical trials available to assess the effectiveness of analgesics in pediatric patients, and the biology of pediatric pain is poorly understood [13].

Insufficiently treated pain may result in noncompliance with treatment and consequently prolonged healing periods. It is acknowledged that children with pain often have not had their suffering adequately tracked or reported. Effective pain assessment and management abilities are essential for handling children with pain, given the detrimental physiological and psychosocial effects that accompany pain [14].

The difficulty children have in expressing their pain and the difficulties HCPs may have in accurately reading and assessing this information are key contributors to inadequate pain treatment. Children who have s also have varying degrees of pain so appropriate attention should be given by nurses during pain assessment and management which should be individual-based [3]. Nurses' pain assessment practice was found to be low [15]. Therefore, it's critical to look after the assessment (the pediatric pain assessment tool utilized) and management practice (both pharmacological and non-pharmacological) done by nurses for pediatric patients to analyze the pain and to determine its severity and the efficacy of its therapy.

Limited access to specialized training is common in LMICs like Ethiopia. Nurses in some regions may have limited access to specialized training in pediatric burn pain assessment and management, which can impact their ability to effectively assess and manage pain in pediatric burn patients. In many African countries, healthcare facilities may have limited resources and infrastructure to support comprehensive pediatric burn pain assessment and management practices. This can include a lack of access to pain management medications, equipment, and specialized burn care units [7].

Nurse staffing shortages in healthcare facilities can impact the quality of care provided to pediatric burn patients, including pain assessment and management practices. Nurses may be overburdened with responsibilities, leading to challenges in providing individualized care for each patient. In some settings, there may be a lack of standardized protocols for pediatric burn pain assessment and management, leading to variations in practice and potentially suboptimal outcomes for patients [9]. All these do have a negative effect on the pediatric burn patients on their survival and healing process [3].

Despite the growing recognition of the importance of effective pain assessment and management in pediatric patients worldwide, there is a noticeable gap in the literature specifically regarding the practices among nurses working in pediatric departments in Ethiopia. While studies from other regions provide valuable insights into best practices and challenges, the unique context of Ethiopia, including cultural, resource-related, and educational factors, remains largely unexplored. Understanding how Ethiopian nurses perceive and manage pediatric pain, the barriers they face, and the strategies they employ could significantly contribute to improving pediatric pain management practices in the country. Therefore, there is a critical need for empirical research focusing on this specific demographic to fill this gap and guide the development of targeted interventions to enhance the quality of pediatric pain care in Ethiopian healthcare settings.

1.3. Significance of the Study

Pain has detrimental physiological and psychological effects, underscoring the importance of effective pain control for optimal outcomes. Regular and precise pain assessment is critical for successful pain management. Given nurses' close relationships with children and their families, they play a significant role in evaluating and addressing pediatric patients' pain [16]. However, several limitations that nurses may face in pediatric burn pain assessment and management practice, both globally and in African countries, still exist. Therefore, this study aims to assess the pain assessment and management practices of nurses toward pediatric patients at St. Paul Hospital Millennium Medical College and Tikur Anbessa Specialized Hospital using a cross-sectional study design.

The findings of this study will serve as preliminary data for the academic community, providing a foundation for further in-depth research on the identified research gap. Future researchers and students focusing on similar issues can utilize this data as a primary resource. Additionally, the results will raise awareness among healthcare policymakers and the Federal Ministry of Health (FMOH) regarding the challenges associated with assessing pain in children with injuries and current pain management practices. This knowledge can then be used to develop more effective methods for pain assessment and management.

This study also helps hospitals and healthcare providers by identifying areas where their existing procedures are lacking, enabling them to take more calculated steps to remedy these problems. Ultimately, these discoveries contribute to achieving better treatment results in the community. By developing a deeper understanding of the variables causing pediatric patients to receive insufficient pain evaluation and management, we can endeavor to improve care for these populations.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

The literature review section of the study encompassed various key topics related to pain assessment and management in pediatric patients. These topics included an overview of pain assessment and management practices, the different pain assessment tools available, pain assessment scores, and grades used in clinical settings, as well as factors associated with the level of pain management practice. These factors included socio-demographic characteristics, clinical considerations, and other relevant aspects influencing the level of pain management practices in healthcare settings.

2.2. Overview of Pain Assessment (PA) and Pain Management (PM)

Pain is an unpleasant sensory and emotional experien*ce* in which two different people experience it very differently [1]. PA is a critical component of providing optimal care for children, as it allows healthcare professionals (HCPs) to identify and address pain promptly, leading to improved outcomes and quality of life (QoL) [17]. One of the key reasons for the importance of early PA is the potential impact of untreated or under-treated pain on a child's overall well-being. By assessing pain early, HCPs can intervene promptly to alleviate pain and prevent these negative consequences [18].

An observational multidimensional assessment of a patient's pain experience is called a PA [19]. PA is a broader concept and involves clinical judgment based on observation of the nature, significance and context of the child's pain experience. Most of the pain quantifying tools focuses on measuring pain intensity. However, a thorough pain assessment provides information critical for evaluating the pain experience [20]. PA had a positive effect on the length of ventilator use and length of stay in the ICU, improved pain perception, decreased pain intensity and frequency, analgesic use, and mortality, and result in fewer complications [21].

PA is essential for effective PM. Not assessing appropriately children for pain leads to underestimation and under treatment [22]. Standardized reliable assessment scores stratified by

age are available but they are not sufficient if used alone. The child's QoL in terms of sleep, social relations and school activities should be tested as well in order to assure a holistic PM [23].

PM is one of the most important aspects of care. PM is a very important aspect of nursing care and according to the International Association for the Study of Pain (IASP) and Special Interest Group (SIGs) on Pain in Childhood, pain relief is a human right [1]. The role of a nurse in PM encompasses the entire nursing process. The nurse assesses for the presence of pain, plans pharmacological and non-pharmacological pain management strategies with the medical team, implements the plan, and evaluates the effectiveness of the interventions [24].

2.3. Pain Assessment Tools (PATs)

Pain measurement generally describes the quantification of pain intensity. The emphasis is on the quantity, extent, or degree of pain. The PATs and scales provide HCPs with standardized methods to evaluate and quantify pain in pediatric patients [25]. It helps in determining appropriate PM strategies and monitoring the effectiveness of interventions. It is important to select the most appropriate tool based on the child's age, developmental stage, and ability to communicate electively. In addition, HCPs should consider cultural and contextual factors that may influence the child's pain experience and expression [7]. Some of the tools that are available for pediatric PA are presented below.

2.3.1. Adolescent pediatric pain tool (APPT)

The APPT is a multidimensional pain assessment tool specifically designed for adolescents. It assesses pain intensity, location, quality, and impact on daily activities [26].

2.3.2. Pediatric pain assessment tool (PPAT)

The PPAT is a self-report pain tool that assesses pain intensity, location, and quality in children. It is suitable for children aged from 4 to 12 years [20].

2.3.3. Pediatric Pain Questionnaire (PPQ)

The PPQ is a self-report pain tool that assesses pain intensity, location, quality, and impact on daily activities in children aged from 8 to 18 years [20].

2.3.4. Face, Legs, Activity, Cry, and Consolability (FLACC) scale

The FLACC scale is an observational pain assessment tool that evaluates pain based on facial expressions, leg movements, activity level, cry, and consolability. It is commonly used for nonverbal or preverbal children [18].

2.3.5. Wong–Baker FACES pain rating scale

The Wong–Baker FACES scale is a visual analog scale that uses a series of faces to represent different levels of pain intensity. It is a widely used tool for assessing pain in children, including those with limited language skills [27].

2.3.6. Numerical Rating Scale (NRS)

The NRS is a self-reported pain scale that asks children to rate their pain intensity on a numerical scale, typically ranging from 0 to 10 [20].

2.4. Pain Assessment practice (PAP)

Pain assessment practice in pediatric patients varies across different studies. In the United States, nurses caring for pediatric burn patients typically follow evidence-based guidelines and use standardized pain assessment tools to evaluate and manage pain. They may use tools such as the FLACC (Face, Legs, Activity, Cry, Consolability) scale or the Wong-Baker Faces Pain Rating Scale to assess pain levels in pediatric patients. Nurses in the U.S. are also trained to consider age-appropriate communication techniques and non-pharmacological interventions to help manage pain in pediatric burn patients [18].

Research revealed that in Russia, nurses caring for pediatric burn patients may also use subjective reports from the child and their parents, as well as their own clinical judgment, to assess pain levels. Due to potential limitations in access to standardized pain assessment tools, Russian nurses may rely more on observational cues and verbal communication to assess pain in pediatric patients. Cultural factors may also influence how pain is perceived and expressed in pediatric patients in Russia, which could impact how nurses assess and manage pain in this population. One study conducted in Porto Alegre, Brazil emphasized the importance of nurses'

pain assessment with family participation and the need for process improvements in the training and sensitization of professionals [28]. A study conducted in Warsaw, Poland found that pain assessment in injured children was infrequent, with only 1% of injured children having their pain intensity rated [29].

However, according to a study, there may be variations in pain assessment practices among nurses in South Africa due to factors such as resource availability, cultural diversity, and healthcare system challenges. Nurses in South Africa may need to adapt their pain assessment practices based on the specific needs and preferences of pediatric burn patients and their families [20].

A study conducted in Uganda found that the majority of nurses exhibited inadequate pain assessment practices. The most commonly performed pain assessment practices among the nurses included documenting assessment findings, discussing pain assessment and management during nurse-to-nurse reports, and assessing the need for analgesics before wound care. However, several barriers to effective pain assessment were identified, such as high workload, lack of education and familiarity with assessment tools, and inadequate documentation and communication of pain assessment priorities. The only reported facilitator for pain assessment was physician-prescribed analgesia. Additionally, the study revealed that pain assessment practices were significantly influenced by perceived workload and the priority given to pain assessment [30].

Pain Management Practice (PMP)

Effective pain management in pediatric patients is crucial for improving patient outcomes and reducing potential morbidities. Pain relief should be initiated from the initial contact with healthcare workers and should target both background and procedural pain. A multimodal approach combining pharmaceutical and non-pharmaceutical techniques [31]. Opioid medications are commonly used for pain management [32]. It is important to consider psychosocial factors that contribute to the pain experience and associated symptoms, such as anxiety and sleep disturbance [33]. A holistic approach, involving multidisciplinary care teams and the incorporation of mental health professionals and pain management specialists, is necessary for optimizing pain management [34].

Research in Warsaw, Poland revealed that non-pharmacological techniques like cooling and immobilization were not widely employed for pain relief [35]. Similarly, a study in Riyadh, Saudi Arabia highlighted that many children were not being managed using recommended age-appropriate strategies. Meanwhile, findings from South Africa showed that only a small percentage of patients, 7.6% with moderate-to-severe pain and 2.8% of all trauma cases, received any form of analgesic medication. Notably, there was no significant association found between the administration of analgesia and age group (≤ 14 versus > 14 years; p = 0.151) or gender (p = 0.054). Patients were more likely to receive analgesia if they had a pain score recorded (p< 0.001), were managed by advanced life support practitioners (p< 0.001) or had severe pain (p = 0.001)) [36]. A study showed that In Canada, nurses caring for pediatric burn patients are typically well-trained in pain management practices and follow evidence-based guidelines to assess and manage pain effectively. Nurses in Canada may use standardized pain assessment tools such as the FLACC scale, Wong-Baker Faces Pain Rating Scale, or the Numeric Rating Scale to evaluate pain levels in pediatric burn patients [24].

2.5. Pain Management Practice and Pain Assessment Practice Associated Factors

2.5.1. Socio-demographic factors

In a study conducted in Saudi Arabia, the significance of regular pain assessment and documentation for patients who are unable to self-report was examined. The study also looked at the differences in perception between nurses of varying ages. The results showed a significant difference between groups based on age, with older nurses considering frequent pain assessment and documentation for non-self-reporting patients to be less important compared to younger nurses. The statistical analysis revealed a significant difference with a t-value of 1.95 and a p-value of less than 0.01 [37].

When developing evidence-based guidelines for pediatric pain assessment and management, it is crucial to consider the barriers that have been identified in several studies. Li et al. outlined key obstacles, including misconceptions about pediatric pain, insufficient professional knowledge and confidence in pain assessment and relief interventions, and knowledge gaps between pediatricians and nurses. These barriers underscore the importance of implementing multidisciplinary education and training programs to address the unique challenges of managing

pain in pediatric patients. To optimize pain management in children, evidence-based guidelines should not only acknowledge these barriers but also offer practical recommendations for overcoming them. By addressing misconceptions, enhancing professional knowledge and confidence, and bridging knowledge gaps between healthcare providers, these guidelines can help ensure that children receive the best possible care for their pain needs [38].

In a study conducted in Italy to investigate the management of pain by Italian nurses in daily practice across different regions, age differences were found to be non-significant among the Northwest, Northeast, Central Italy, and South Italy ($p = 0.41$). However, the study revealed a significant variation in the approach towards pediatric pain management among these regions. Additionally, a notable gender difference was observed in the study sample, with 503 out of 665 participants being female (72.3%) ($p = 0.004$) [39].

In a study conducted in Iran, a total of 321 nurses employed at a large general teaching hospital were included in the research. The nurses were recruited using the census method. The main objective of the study was to explore the perspectives of nurses regarding the obstacles and enablers of pain management in hospitalized patients. The findings of the study indicated that nurses who had attended in-service courses on pain management had lower practice barriers in terms of assessing and managing pediatric pain. Specifically, the mean score for attendance of in-service courses on pain management was 3.39 ± 0.63. Therefore, the study suggested that participation in in-service courses related to pain management could potentially reduce barriers to effectively assessing and managing pediatric pain among nurses working in hospital settings [40].

In a study on pediatric nurses, it was found that around half of the participants (40.2%) were between the ages of 20 and 29. A large percentage (51%) of these nurses were married and the majority (80.4%) held bachelor's degrees. Interestingly, the study revealed that 56.9% of nurses who had not received education on pain exhibited practice barriers and lacked adequate knowledge about pain assessment. Furthermore, the study did not find any statistically significant association between age group or gender when it came to pain evaluation in the context of a South African setting [2].

2.5.2. Healthcare provider factors

One of the barriers that can impede nurses in effectively conducting pain assessments for pediatric patients is a lack of training and education. Nurses who have not undergone specific training in pediatric pain assessment and management may feel unprepared to adequately assess and manage pain in pediatric patients [41].

In Saudi nurses, those with less than five years of experience placed a higher value on conducting frequent pain assessments and documenting them compared to nurses with more than five years of experience. However, the ICU experience did not impact other methods of pain assessment [37].

In a study involving Jordanian nurses, significant associations were found between the use of pain assessment tools and various factors. Specifically, the type of hospital, academic qualification, years of experience as a critical care nurse, and hospital affiliation were linked to an increased utilization of self-report pain assessment tools for verbal patients. Moreover, the type of hospital and hospital affiliation were associated with an increased uptake of observational pain assessment tools for nonverbal patients. Interestingly, the study revealed that the majority of nurses utilizing pain assessment tools were employed in private hospitals. Additionally, it was noted that recently graduated nurses exhibited greater proficiency in pain assessment methods compared to senior nurses working in public hospitals [42].

On the other hand, a study conducted in Poland revealed that nurses employed in 11 hospitals, despite having received a university education, lacked well-established knowledge on incorporating scientific research into their daily nursing practice. A notable barrier identified was the deficiency in technical skills required to critically analyze scientific articles, as well as the substantial language barrier. Despite these challenges and the incomplete knowledge of the topic, nurses expressed a positive attitude toward EBP) [43].

In a study conducted in Saudi Arabia, it was found that nurses' pain education and experience had the greatest impact on their knowledge of pain relief management, as supported by the research findings. Within the first five years of obtaining their initial nursing licensure or while working under the guidance of a nurse supervisor, over half (50.6%) of the nurses surveyed had

not received any pain-related education concerning pain management. The questionnaires revealed that the level of experience of these nurses played a crucial role in influencing their proficiency in pain assessment and management. Additionally, the study highlighted that the number of years a nurse had been practicing and their level of education significantly influenced their responses regarding the typical duration of analgesia lasting 1–2 months [16].

A study conducted in Mekelle, northern Ethiopia, revealed interesting findings. Out of the 251 participants, it was observed that a majority, specifically 58.6% of the nurses, displayed adequate knowledge and demonstrated good practice. A total of 140 participants, accounting for 55.8%, exhibited good practice in the management of children's pain. This study underscores the positive outcomes stemming from the nurses' knowledge and practice levels in the context of pediatric pain management in this region of Ethiopia [38].

2.5.3. Organizational factors

Managing pain in patients with injuries is crucial yet frequently challenging, as the severity of pain can be affected by various factors.

Time Constraints: In demanding clinical environments, nurses often face time constraints that may hinder their ability to perform thorough pain assessments, particularly when tending to multiple patients concurrently [44].

Limited Access to Resources: In numerous healthcare facilities across African countries, access to essential resources crucial for pain management may be limited. This includes availability of pain assessment tools, adequate supply of analgesic medications, and access to non-pharmacological pain management interventions. The scarcity of these resources poses a challenge for nurses in effectively assessing and managing pain in pediatric patients [45].

Healthcare Infrastructure Challenges: In African countries, healthcare infrastructure challenges are a prominent factor affecting pediatric pain assessment. Within certain regions of Africa, healthcare facilities grapple with issues like overcrowding and understaffing, which directly influence the ability of nurses to perform comprehensive pain assessments for pediatric patients [46].

Lack of Standardized Protocols: The absence of standardized protocols in healthcare settings impacts nursing assessment and management practices regarding pediatric pain. Nurses encounter difficulties in evaluating pain in pediatric patients because of the lack of standardized and validated pain assessment tools tailored for this population. In certain healthcare facilities, there is a deficiency in established protocols for assessing and managing pediatric pain, resulting in inconsistencies in practice among nurses [42,47].

In Poland, system-related barriers to effective pain management encompass a lack of clearly defined standards and protocols for pain management. Furthermore, there is restricted access to pain specialists and a limited availability of analgesic medications in the healthcare system. These barriers pose challenges for healthcare providers in delivering optimal pain relief to patients [43].

In a study conducted in Italy, the availability of effective pain treatment within healthcare settings was identified as a significant barrier [48].

In a review conducted in Australia, several factors were identified as contributing to the problem of unrelieved pain in healthcare settings. These factors included heavy workloads, high patient-provider ratios, tight work schedules, and the absence of standard pain protocols. These challenges hinder effective pain management practices [49].

Conversely, facilitators for the successful management of pain were also noted. These included parental participation in care, fostering trusting and respectful relationships between nurses and children, and maintaining adequate nurse-patient ratios. On the institutional level, the availability of analgesics, the presence of standardized tools for pain assessment, and the implementation of standardized protocols were highlighted as critical clinical factors influencing the practices related to acute pain assessment and management [50].

A study conducted in California underscored the importance of appropriate sedation and analgesia in managing severe pain in pediatric patients. Following standard guidelines is crucial in addressing pain effectively. Challenges arise in the use of sedation and analgesia for pediatric patients, especially in cases of injuries that can affect the metabolic clearance of these

medications. This necessitates careful evaluation of drug dosages and potential interactions between medications [51].

Moreover, the rapid development of tolerance to commonly used sedatives adds another layer of complexity to pain management in pediatric patients. Addressing these challenges requires a thoughtful and individualized approach to sedation and analgesia to ensure optimal pain relief and patient safety [52].

A study conducted in Ethiopia revealed that the majority of patients experienced severe pain, and there was a lack of proper pain management. As a result, the study recommended that healthcare providers should adhere to pain assessment and management protocols outlined in the WHO pain ladder. Additionally, it suggested that hospital administrations should allocate adequate resources for pain management [53].

2.6. Conceptual Framework

Several factors influence the pain assessment and management practices of nurses when dealing with pediatric patients. These factors include socio-demographic aspects such as the age and sex of the child, as well as the knowledge of the healthcare providers. Additionally, organizational and healthcare factors are also referenced as influential in this regard **[37,38,41,45,47]**.

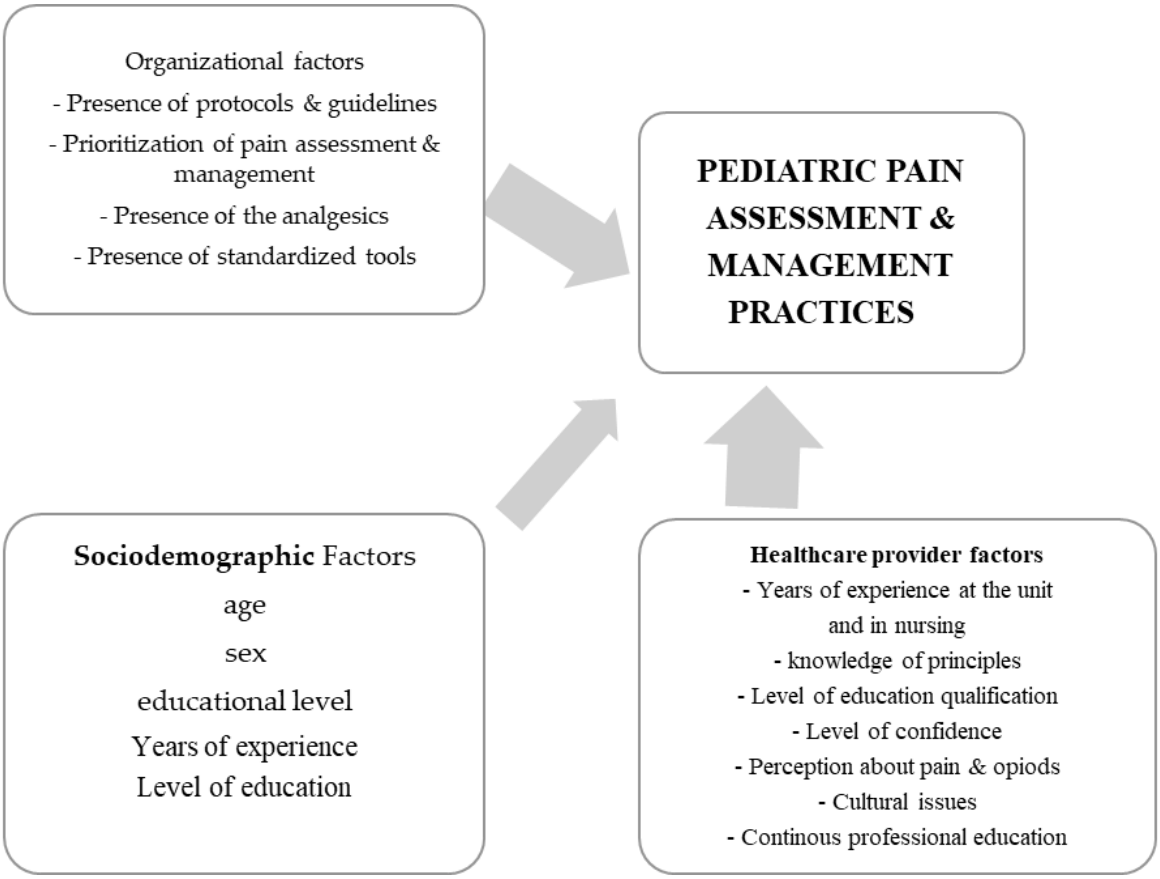

Figure 1: Conceptual Framework of the Study Pain assessment and management practices among nurses towards pain in pediatric patients (developed from

CHAPTER THREE

3. OBJECTIVE OF THE STUDY

3.1. General Objective

☑ The general objective of the study was to assess pain assessment and management practices among nurses towards pain in pediatric patients in public Hospitals center, Addis Ababa, Ethiopia.

3.2. Specific objectives were:

☑ To determine pain assessment practice among nurses in pediatric patients at selected Public Hospitals in Addis Ababa, Ethiopia.

☑ To determine pain management practice among nurses in pediatric patients at selected Public Hospitals in Addis Ababa, Ethiopia.

☑ To identify factors associated with pain assessment and management practice among nurses in pediatric patients at selected Public Hospitals in Addis Ababa, Ethiopia.

CHAPTER FOUR

4 METHODS

4.1 Study Setting

The current study was conducted in two public hospitals located in Addis Ababa, Ethiopia. These are St. Paul's Hospital Millennium Medical College (SPHMMC), and Tikur Anbessa Specialized Hospital (TASH). These hospitals were selected by simple random method from those six federal hospitals. In addition to this in which patients with different economic status, educational background and so on can came by referral to these hospitals for cardiac follow-up.

SPHMMC is one of the largest tertiary referral government hospitals with 400 beds. The hospital provides diagnostic and therapeutic services for more than 400,000 patients per year (OPD; 366265, Emergency; 36187, Inpatients; 18814 and Cardiac Clinic 31897)[54].

TASH is the largest tertiary care referral and teaching hospital in Ethiopia, with 700 beds. Various healthcare workers (HCWs), including general practitioners and specialists, nurses, medical laboratory technologists, and pharmacists, are part of the TASH working force serving the community wholesomely. The hospital has 3021 active staff. TASH annually serves around 589,020 patients. From these, 41,220 patients receive emergency services, around 525,888 patients attend OPD, 21, 912 inpatients and 8067 of them are cardiac patients (as an inpatient) with a total of 36,754 cardiac out-patients [55].

4.2 Study Design and Period

A quantitative, institution-based cross-sectional study design was conducted from March to April 2024.

4.3 Population

4.3.1 Source population

All nurses working in these two selected hospitals were the source population for this study.

4.3.2 Study population

Nurses working in pediatric units of the selected hospitals who were available during the data collection period were conveniently included since there is small source population.

4.4 Eligibility Criteria

4.4.1 Inclusion criteria

All nurses working in the randomly selected pediatric units of the two hospitals who are willing to participate in this study and are available during the data collection period were included as study participants.

4.4.2 Exclusion criteria

Those nurses who are still working in these two selected hospitals but are out of pediatric department, who are not willing to participate in this study and those who are in annual and sick leave during data collection period was excluded from the study.

4.5 Study Variables

4.5.1 Dependent variables

- ☑ Pain assessment practice and
- ☑ Pain management practice

4.5.2 Independent variables

- ❖ **Socio-demographic Factors**
  - ☑ Educational level
  - ☑ Years of experience at the unit and in nursing
  - ☑ Level of education qualification
  - ☑ Continuous professional education
  - ☑ Age of the nurse
  - ☑ Sex of the nurse

4.6 Operational definition

Good pain assessment practice: Nurses who scored greater than or equals to the mean of the overall pain assessment practice [56].

Poor pain assessment practice: Nurses who scored lee than the mean of the overall pain assessment practice [56].

Good Pain management practice: Nurses who scored greater than or equals to the mean of the overall management practice [56].

Poor Pain management practice: Nurses who scored lee than the mean of the overall pain management practice [56].

4.7 Sample Size Determination and Sampling Method

The sample size for the study was determined by using the single population proportion formula and convenience sampling method was used to select the study participants since the there is only a limited period to collect the data. Level of nurses' practice on pain assessment and management at Asella hospital, Asella town, Arsi zone, Eastern Ethiopia, 2015 was 47%, by taking this the sample size is calculated to be 149 [57].

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

$$n = \frac{(1.96)^2\ (0.47)(1-0.47)}{(0.05)^2} = \frac{0.957}{0.0025} \quad = 382.8 \sim 383$$

Where: n is the desired sample size

Z is the Z-score corresponding to the desired level of confidence (1.96 for a 95% confidence level)

P is the estimated proportion of the population with the characteristic of interest (e.g., the estimated prevalence of pediatric burn injuries) p=0.15

q is 1 - p (the estimated proportion of the population without the characteristic of interest?)

E is the desired margin of error (usually expressed as a proportion or percentage)

By adding a 5% non-response rate the final sample size was 402.

Since the sample was greater than the total number of nurses working in pediatric department of these selected hospitals we used a correction formula

$$F=\frac{1}{1+(\frac{n}{N})}$$

$$=\frac{1}{1+(\frac{402}{242})}$$

=0.37

n=149

4.8 Sampling Techniques

The sample of 149 was allocated proportionally to the two selected hospitals, which were chosen from among the federal hospitals. The total number of pediatric nurses working in the selected hospitals is estimated to be 242, and the proportional allocation of the sample to each hospital was calculated based on the total number of nurses working in the pediatric departments. A simple random sampling technique was used to select the study participants.

The proportional value will be calculated with the formula:

$$= \frac{\text{Total sample}}{\text{Total population}} \times \text{total population of specific area}$$

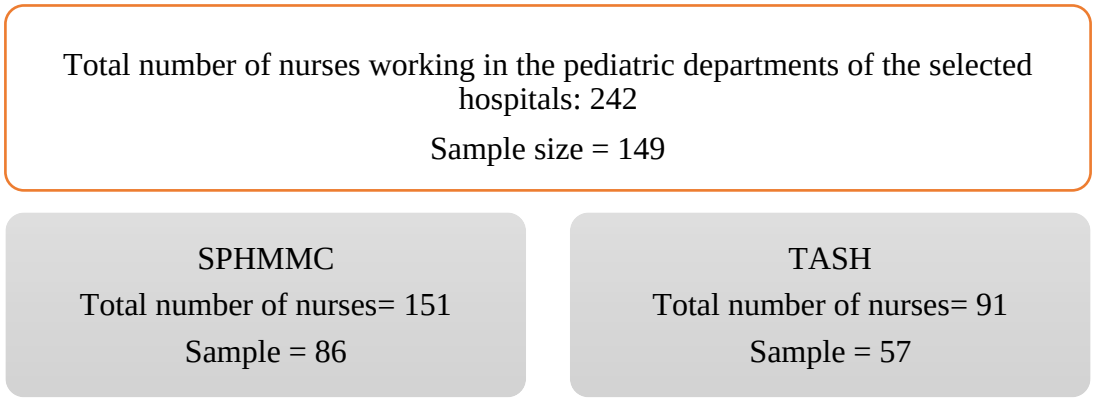

Figure 2: Proportional presentation of sample pain assessment and management practices among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia

- **Organizational factors**
  - ☑ Presence of protocols & guidelines
  - ☑ Prioritization of pain assessment & management
  - ☑ Presence of the analgesics
  - ☑ Presence of standardized tools
- **Healthcare provider factors**
  - ☑ Years of experience at the unit and in nursing
  - ☑ knowledge of principles
  - ☑ Level of education qualification
  - ☑ Perception about pain & opioids
  - ☑ Continues professional education

4.9 Data collection tools and procedures

The data collection tool was semi-constructed questionnaire from previously literatures with some modifications to contextualize for the study purpose [24]. The questionnaire has three sections. Section I lists the socio-demographic questions for nurses. Section II covers nurses' assessment and management practices, and the final section lists barriers that affect nurses' assessment and management practices. The principal investigator (PI) arranged and led the data collection (DC) procedure, which included a face-to-face interview and observation of the nurses' actual practice. Before beginning the data collection process, the study objectives and all participant rights were clearly communicated to the participants. Data was extracted using primary sources. The data collected from participants was kept confidential within the DC team, and the interpretation of the data will consider personal identifiers. Two trained data collectors (nurses) and one data collector supervisor was hired to assist with data gathering. Before the start of data collection, data collectors will receive two days of training to improve their comprehension of the data collection tools. Furthermore, their roles in research settings were defined.

4.10 Data quality control measures

Prior to data collection, the lead investigator determined and selected an appropriate study design based on literature reviews of similar studies conducted in Ethiopia, study participants, and tool organization. Nurses oversee data collection. The data collectors and supervisor were trained for one day. At Alert Hospital, 5% of the samples were subjected to a pretest. Finally, the data was double-checked for correctness before being entered into the SPSS software for analysis. Every data collection day, the data will be examined for completeness, and any incomplete data was replaced.

4.11 Statistical Analysis

The data was exported to SPSS version 26.0 for cleaning and analysis. Both inferential and descriptive statistics were computed. In a descriptive statistical analysis, the data are summarized as percentages, frequencies, means, and standard deviations. Frequency tables are used to display the results. When the P-value is smaller than 0.25, the independent variable is screened using bivariate logistic regression before being further investigated using multivariate logistic regression. Independent variables that are considered to have an impact on the outcome variable are those with a P-value of less than 0.05.

4.12 Ethical Considerations

Ethical clearance was obtained from the Ethical Review Board of the School of Nursing, College of Health Sciences (CHS), and Addis Ababa University (AAU). The Dean's Office of the School of Nursing then wrote a letter requesting permission to conduct the study at TASH and SPHMMC. Confidentiality was protected by utilizing anonymized codes and assigning code numbers to study participants. Participation in the study was completely voluntary.

4.13 Dissemination of Results

The study's findings will be shared with AAU's School of Nursing, and both hospitals receive a copy of the final thesis report. The PI share the research findings to the hospital community with their approval. It published in a reputable scientific journal to disseminate the information on a larger scale.

CHAPTER FIVE

5 RESULT

5.1. Socio-demographic characteristics

The overall pain assessment practice was 121 (88.97%) good among nurses working in the pediatric department of public hospitals in Addis Ababa, Ethiopia. Additionally, the overall pain management practice was 100 (73.53%) good among these nurses.

The table provides an overview of the demographic and professional characteristics of healthcare professionals involved in pediatric pain assessment and management. Females slightly predominate (55.1%), and most professionals are aged 25 to 34 (88.2%), indicating a young workforce. A significant portion (86.8%) has 2 to 10 years of nursing experience, with 41.9% having less than 2 years in pediatric pain care, highlighting training needs. Most hold a B.Sc. in Nursing (77.9%), and a notable minority have an M.Sc. (16.9%), reflecting high academic attainment. The majority are employed full-time (97.8%) and work rotating shifts (94.9%), indicating the demanding nature of their roles. Primary specialties include combined ICU (29.4%), emergency (32.4%), medical (22.8%), and surgical (15.4%) (Table 1).

Table 1: Demographic and professional characteristics of among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia

Variables	**Category**	**F (n)=136**	**%**
Gender	Female	75	55.1
	Male	61	44.9
Age	18 - 24 Years Old	8	5.9
	25 - 29 Years Old	75	55.1
	30 - 34 Years Old	45	33.1
	35 - 39 Years Old	6	4.4
	40 - 45 Years Old	2	1.5
	>46 Years Old	0	0
Years of experience as a nurse	< 2 Years	12	8.8
	2-5 Years	64	47.1
	5-10 Years	54	39.7
	>10 Years	6	4.4
Years of experience as a nurse caring for pediatric pain patients	< 2 Years	57	41.9
	2-5 Years	54	39.7
	5-10 Years	24	17.6
	>10 Years	1	.7
Qualifications	B.Sc. in Nursing	106	77.9
	Diploma	5	3.7
	M.Sc.	23	16.9
	Others	2	1.5
Employment status	Full-time	133	97.8
	Part-time	3	2.2
Usual Shift Rotation	Days ONLY	6	4.4
	Evenings ONLY	1	.7
	Rotating Shifts	129	94.9
Professionals' most experienced primary specialty	Combined ICU	40	29.4
	Emergency	44	32.4
	Medical	31	22.8
	Surgical	21	15.4

5.2. Pain assessment and management practices

The table highlights key findings in pain assessment and management practices among healthcare professionals. A substantial majority (89.7%) conduct pain assessments for communicative patients. Among these, 55.9% use pain assessment tools, though the frequency of use varies, with 44.1% not specifying usage frequency. Common tools include the Faces Pain Scale, FLACC, and Numerical Rating Scale. Additionally, 89.7% document pain assessment outcomes for communicative patients, albeit with varying frequencies. Frequently performed procedures include patient repositioning (64.0%), endotracheal suctioning (70.6%), and wound care (87.5%). Discussions on pain scores and management occur during nurse-to-nurse reports (74.3%) and unit rounds (80.9%). However, concerns remain about professionals' perceived competency in pain assessment effectiveness (27.2% disagreed) and alignment with patients' pain statements (34.6% disagreed) (Table 2).

Table 2: Pain assessment and management practices among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia

Variables	Category	n=136	%
Do you assess for pain if the patient can communicate pain	Yes	122	89.7
	No	14	10.3
If yes, do you use a pain assessment tool	Yes	76	55.9
	NA	60	44.1
If yes, how frequently do you use a pain assessment tool for patients	Seldom (1-25%)	6	4.4
	Sometimes (26-50%)	30	22.1
	Often (51-75%)	18	13.2
	Routinely (>75%)	22	16.2
	NA	60	44.1
Please, name the tool(s) you use_	Behavioral Pain Scale	2	1.5
	Critical-Care Pain Observation Tool	1	.7
	Faces Pain Scale	13	9.6
	FLACC	10	7.4
	Numerical Rating Scale	13	9.6
	PQRST	1	.7
	Verbal Rating Scale	4	2.9
	Visual Analog Scale	7	5.1
	Wong-Baker FACES Pain Rating Scale	1	.7
	Non-specified	25	18.4
	NA	59	43.4
Do you document the findings after pain assessment for patients able to communicate	Yes	122	89.7
	No	14	10.3
If yes, how frequently do you assess and document pain for a patient ABLE to report pain	Whenever necessary (PRN only)	47	34.6
	One hour to 4 hourlies	39	28.7
	Once every shift	7	5.1
	Less than hourly	3	2.2
	More than 4 hourlies to 8 hourlies	20	14.7
	Others	6	4.4
	NA	14	10.3
Patient repositioning	Yes	87	64.0
	No	49	36.0
Endotracheal suctioning	Yes	96	70.6
	No	40	29.4
Wound care	Yes	119	87.5
	No	17	12.5
Drain removal	Yes	104	76.5
	No	32	23.5
Invasive line placement	Yes	84	61.8
	No	52	38.2
Spontaneous breathing (weaning) trial	Yes	76	55.9
	No	60	44.1
Are pain scores and management discussed during a nurse-to-nurse report	Yes	101	74.3
	No	35	25.7
Are pain scores and management discussed during unit rounds	Yes	110	80.9
	No	26	19.1
Do you feel competent in effectively assessing patients for pain	Yes	99	72.8
	No	37	27.2
Do you always agree with patients' statements about their pain	Yes	89	65.4
	No	47	34.6

5.3. Factors influencing pain assessment and management

The table highlights significant barriers faced by healthcare professionals in pain assessment and management. Major challenges include nursing workload (91.2%), patient instability (80.1%), and patient inability to communicate (80.9%). Additionally, the lack of availability and familiarity with pain assessment tools (both 75.0%), insufficient education on their use (69.9%), and inadequate pain assessment protocols (63.2%) pose significant obstacles. Low priority given to pain management by the unit team (55.9%) and poor documentation practices (52.9%) further hinder effective pain management. Sedation interfering with pain assessment (59.6%) and insufficient analgesia dosage (37.5%) also contribute to these challenges (Table 3).

Table 3: Factors influencing pain assessment and management among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia

Variables	Category	F (n)	%
Nursing workload	Yes	124	91.2
Lack of availability of pain assessment tools	Yes	102	75.0
Lack of education on assessment tools	Yes	95	69.9
Lack of familiarity with assessment tools	Yes	102	75.0
Patient instability e.g. unstable hemodynamics	Yes	109	80.1
Patient's inability to communicate	Yes	110	80.9
Lack of protocols for pain assessment	Yes	86	63.2
Low priority of pain management by the unit team	Yes	76	55.9
No designated area for charting pain	Yes	57	41.9
Poor documentation of pain assessment and management	Yes	72	52.9
Sedation interfering with pain assessment	Yes	81	59.6
Insufficient analgesia dosage prescribed	Yes	51	37.5
Poor communication of pain assessment priorities at the unit	Yes	77	56.6
Other	Yes	41	30.1

5.4. Enabling factors for effective Pain Assessment and Management Practices in the Healthcare Unit

The table highlights factors related to pain assessment and management in a healthcare unit. Key findings include that 74.3% of respondents consider pain assessment and management a unit priority, though only 46.3% use standardized assessment tools. While 48.5% follow protocols and guidelines, suggesting some standardization, there is room for improvement. Notably, 79.4% report that physicians prescribe adequate analgesia doses, indicating a proactive approach. However, only 44.9% provide ongoing pain education, revealing a training gap. The employment of advanced practice nurses (49.3%) and pain service consults (36.0%) shows efforts to enhance pain management expertise (Table 4).

Table 4: Enabling factors for effective pain assessment and management practices among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia

Variables	Category	F(n)	%
Pain assessment and management is a unit priority	Yes	101	74.3
Interested and motivated staff	Yes	89	65.4
Standardized assessment tools are in use	Yes	63	46.3
Protocols and guidelines are in use	Yes	66	48.5
Physicians prescribe adequate doses of analgesia	Yes	108	79.4
Ongoing education on pain is provided	Yes	61	44.9
Advanced practice nurse(s) are employed by the unit	Yes	67	49.3
Hospital pain service consults in the unit	Yes	49	36.0
Others	Yes	36	26.5

5.5. Factors associated with pain assessment practice of the study participants

Logistic regression including bivariate and multivariate analysis were used to identify factors associated with pain assessment. All variables with less or equal to 0.25 in the bivariate analysis were included into the multivariate regression model and variables with p-value < 0.05 were considered significant. Accordingly, six variables (usual shift rotation, primary specialty of the

critically ill patient care in which you are most experienced, nursing workload, lack of availability of pain assessment tools, lack of education on assessment tools, lack of familiarity with assessment tools) showed a significant association with the pain assessment practice in the bivariate analysis.

Among the six variables (usual shift rotation, primary specialty of the critically ill patient care in which you are most experienced, nursing workload, lack of availability of pain assessment tools, lack of education on assessment tools, lack of familiarity with assessment tools) analyzed using multivariate binary logistic regression, and four variables (working area of specialty, work load, lack of guideline, and lack of training were significantly associated with nurse's pain assessment practice.

In terms of primary specialty, other specialties are around 79.7% greater than "Emergency" care professionals with (95% CI: 0.045-1.009, p=.049), indicating a potential influence on pain assessment practices compared to those in "Combined ICU," while "Surgical" and "Medical" specialties showed no significance p-values of 0.215 and 0.055, respectively.

A high nursing workload is significantly associated with pain assessment practices. The Adjusted Odds Ratio (AOR) of 0.034 suggests that as the nursing workload increases, the likelihood of conducting effective pain assessments decreases significantly. The 95% confidence interval (CI) indicates that this finding is robust, with a range from 0.003 to 0.343, and the p-value of 0.004 confirms the statistical significance of this association. The lack of availability of pain assessment tools shows a non-significant association with pain assessment practices. The AOR of 0.82 suggests a trend towards decreased effectiveness in pain assessment when tools are not readily available, but this finding does not reach statistical significance (p = 0.074). The wide confidence interval (0.19-4.94) indicates uncertainty around the estimate. The lack of education on assessment tools significantly affects pain assessment practices. An AOR of 0.321 indicates that nurses who have not received sufficient education on pain assessment tools are about 32.1% less likely to conduct effective pain assessments compared to those who have been adequately educated. The narrow confidence interval (0.129-0.795) suggests a precise estimate, and the low p-value (0.014) confirms the statistical significance of this association. The lack of familiarity with assessment tools also significantly affects pain assessment practices. An AOR of 0.342 indicates that nurses who are not familiar with pain assessment tools are about 34.2% less likely

to conduct effective pain assessments compared to those who are familiar. The confidence interval (0.120-0.977) suggests a moderate degree of uncertainty, and the p-value (0.045) indicates that this finding is statistically significant.

In summary, these results highlight that while nursing workload, lack of education, and lack of familiarity with pain assessment tools all play roles in pain assessment practices among nurses in pediatric departments, the strongest negative impact appears to be associated with high nursing workload. Addressing workload management and improving education and familiarity with pain assessment tools are crucial steps to enhance pain assessment practices in clinical settings.

Table 5: Factors affecting pain assessment practice among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia

Variables	**Categories**	**Pain Assessment Practice**		**COR of 95% CI**	**AOR of 95% CI**	**p-value**
		Good	**Poor**			
Usual Shift Rotation	Days only	6	0	0.099 (.805-5.473)	1.180 (.36-3.88)	0.851
	Evenings only	1	0	0.180 (.36-3.88)	1.14 (0.29-4.51)	0.221
	Rotating shifts	114	15	1	1	
working area of specialty	Surgical	17	4	.83 (0.28-2.45)	.210 (0.043, 1.034)	0.215
	Medical	17	14	.145 (1.18-17.2)	.214 (0.046, 0.991)	0.055
	Emergency	22	22	0.21 (0.82-12.63)	.213 (0.045, 1.009)	**0.049***
	Combined ICU	17	23	1	1	
Nursing workload	Yes	52	72	1.708 (.337-8.657)	.034 (0.003-0.343)	**0.004***
	No	11	1	1	1	
Lack of guidelines	Yes	88	33	0.34 (0.11-1.04)	0.82 (0.19-4.94)	0.074
	No	14	1	1	1	
Lack of training on assessment tools	Yes	62	33	1.181(0.377-3.699)	.321 (0.129-0.795)	**0.014***
	No	11	30	1	1	
Lack of familiarity with assessment tools	Yes	38	64	1.103 (.327-3.723)	.342 (0.120-0.977)	**0.045***
	No	25	9	1	1	

5.6. Factors affecting nurses pain management practice

Socio-demographic, factors and enablers variables were entered into the univariate binary logistic regression analysis. Among these, twelve variables (Lack of availability of pain assessment tools, lack of training on assessment tools, lack of familiarity with assessment tools, poor communication of pain assessment priorities at the unit, pain assessment and management is a unit priority, staff interested and motivation standardized assessment tools are in use, protocols and guidelines are in use, ongoing education on pain is provided, advanced practice nurse(s) are employed by on the unit, and pain assessment practice) showed significant association with the pain assessment practice in the bivariate analysis, and four variables (worling area of specialty, lack of familiarity with assessment tools, Poor communication of pain assessment priorities, and overall pain assessment practice) were significantly associated with pain management practice in the multivariate model.

Among the primary specialties of critically ill patient care, the "Emergency" category had a significant impact on pain management practices, with an AOR of 0.29 (95% CI: 0.08-0.97, p=0.04), indicating lower odds of good pain management practice compared to "Combined ICU". Another significant factor was the lack of familiarity with assessment tools, showing an AOR of 0.29 (95% CI: 0.07-1.18, p=0.03), which also indicates lower odds of good pain management practice.

Poor communication of pain assessment priorities at the unit significantly influenced pain management practices, with an AOR of 0.34 (95% CI: 0.12-0.93, p=0.04), suggesting that poor communication reduces the likelihood of good pain management practice. Additionally, the overall pain assessment practice itself was a significant predictor, with an AOR of 1.84 (95% CI: 0.50-6.80, p=0.02), indicating that good pain assessment practice is associated with better pain management practices.

Table 6: Factors affecting pain management practice among nurses working in pediatric department in public hospitals, Addis Ababa, Ethiopia

Variables	Categories	Pain Management Practice		COR of 95% CI	AOR of 95% CI	p-value
		Good	Poor			
Primary specialty of the critically ill patient care in which you are most experienced	Surgical	17	4	2.02 (.38-10.70)	4.17 (.65-26.68)	0.13
	Medical	17	14	.52 (.17-1.60)	.64 (.17-2.43)	0.51
	Emergency	22	22	.31 (.11-.84)	.29 (.08-.97)	**0.04***
	Combined ICU	17	23	1	1	
Lack of availability of pain assessment tools	Yes	88	33	.51 (.19-1.37)	1.40 (.42-4.66)	0.58
	No	14	1	1		
Lack of education on assessment tools	Yes	62	33	.47 (.19-1.18)	.96 (.30-3.06)	0.95
	No	11	30	1	1	
Lack of familiarity with assessment tools	Yes	38	64	3.43 (1.11-10.55)	.29 (.07-1.18)	**0.03***
	No	25	9	1	1	
Poor communication of pain assessment priorities at the unit	Yes	52	48	.48 (.21-1.07)	.34 (.12-.93)	**0.04***
	No	25	11	1	1	
Pain assessment and management is a unit priority	Yes	79	21	2.39 (1.05-5.46)	1.11 (.37-3.31)	0.85
	No	22	14	1	1	
Interested and motivated staff	Yes	71	29	2.45 (1.12-5.36)	1.44 (.45-4.62)	0.54
	No	18	18	1	1	
Standardized assessment tools are in use	Yes	53	47	2.93 (1.28-6.71)	3.13 (.74-13.27)	0.12
	No	10	26	1	1	
Protocols and guidelines are in use	Yes	53	47	2.0 (.91-4.38)	1.12 (.34-3.68)	0.86
	No	13	23	1	1	
Ongoing education on pain is provided	Yes	49	51	1.92 (.87-4.26)	1.05 (.32-3.38)	0.94
	No	12	24	1	1	
Advanced practice nurse(s) are employed by on the unit	Yes	53	47	1.77 (.82-3.85)	.91 (.29-2.88)	0.87
	No	14	22	1	1	
Pain Assessment Practice	Good	9	91	2.02 (.67-6.15)	1.84 (.50-6.80)	**0.02***
	Poor	6	30	1	1	

CHAPTER SIX

6. DISCUSSION

The overall pain assessment practice among nurses working in the pediatric department of public hospitals in Addis Ababa, Ethiopia, was found to be 88.97% good. This percentage is higher than the 73.8% reported in a study focusing on pain assessment practices in pediatric units, indicating better adherence to pain assessment protocols than in Southern Ethiopia [15]. Moreover, the overall pain management practice was 73.53% good among nurses working in the pediatric department of public hospitals in Addis Ababa, Ethiopia. This percentage is higher than the 53.6% reported in a study focusing on pain management practices in pediatric units in Bahir Dar, Ethiopia.

The study's major findings reveal that while a significant majority of nurses (89.7%) reported they assess pain in communicative patients. Among those assessing pain, 55.9% use pain assessment tools, while 44.1% of the participants reported they do not. This finding was higher in contrast to previous global and continental studies showing higher routine tool usage rates (30% to 40%) [15,37]. In Sub-Saharan Africa, including Ethiopia, literature has highlighted challenges in tool standardization and lower routine usage rates. A notable difference in this study is the relatively lower routine tool usage rate (16.2%), suggesting a need for interventions to promote standardized tool usage among Ethiopian nurses. The implications of these results underscore the importance of enhancing pain assessment practices, promoting routine tool usage, improving documentation, addressing competency gaps, and promoting agreement with patients' pain statements for better patient-centered care and pain management outcomes.

Nursing workload emerged as a crucial factor in the current study, with higher workloads significantly associated with poor pain assessment practices (AOR 0.034, 95% CI 0.003-0.343, p=0.004). This result mirrors the findings of Zuazua et al. (2020), who also reported a negative impact of high nursing workloads on pain assessment practices among pediatric nurses in hospital settings [58].

Regarding the primary specialty of nurses in critically ill patient care, our study observed no significant difference in pain assessment practice among nurses with different specialties

(surgical, medical, emergency, combined ICU). This finding aligns with the research conducted by Saleh et al. (2023), where they found no significant variation in pain assessment practices based on nurses' primary specialty areas in critical care settings [37].

In terms of the availability of pain assessment tools, the study found no significant association with pain assessment practice (AOR 0.82, 95% CI 0.19-4.94, p=0.074). This differ with the findings of Georgiou et al. (2015), who found a significant negative impact of inadequate availability of pain assessment tools on pain assessment practices among nurses in pediatric wards [59].

Moreover, the current study highlighted the importance of education and familiarity with assessment tools in improving pain assessment practices among nurses. Lack of education on assessment tools (AOR 0.321, 95% CI 0.129-0.795, p=0.014) and lack of familiarity with these tools (AOR 0.342, 95% CI 0.120-0.977, p=0.045) were significantly associated with poor pain assessment practices. These findings corroborates with the research by Melile et al. (2022), emphasizing the crucial role of education and training in enhancing pain assessment practices among healthcare professionals [15].

In this study, several factors were assessed for their association with pain management practices among nurses. Notably, the primary specialty of nurses in critically ill patient care showed varying associations. Nurses with experience in surgical care exhibited higher odds of poor pain management practices compared to those in combined ICU care (AOR 4.17, 95% CI 0.65-26.68, p=0.13). This finding aligns with the study by Wondimagegn et al. (2020), which similarly noted challenges in pain management practices among surgical nursing specialties [60]. However, the difference was not statistically significant, possibly due to sample size limitations.

Concerning the availability of pain assessment tools, our study did not find a significant association with pain management practices (AOR 1.40, 95% CI 0.42-4.66, p=0.58). This contrasts with the findings of Milile et al. (2022), which reported a significant impact of tool availability on pain management practices among nurses in a similar setting. The discrepancy could be attributed to variations in tool accessibility across different healthcare institutions[15].

Additionally, lack of familiarity with assessment tools was significantly associated with poor pain management practices (AOR 0.29, 95% CI 0.07-1.18, p=0.03*). This result corroborates with the research by Wondimagegn et al. (2021), emphasizing the importance of nurses' familiarity with assessment tools in effective pain management [60].

Moreover, poor communication of pain assessment priorities at the unit was significantly associated with poorer pain management practices (AOR 0.34, 95% CI 0.12-0.93, p=0.04*). This finding echoes the findings of Liyew et al. (2020), highlighting the critical role of clear communication and prioritization of pain assessment in enhancing overall pain management practices among nursing units [61].

Limitations of the Study

The study has some limitations worth noting. Firstly, its sample size may hinder the generalizability of findings to all nurses in pediatric departments across public hospitals in Addis Ababa, potentially lacking representation of diverse experiences and practices within various hospital settings. Secondly, the cross-sectional design offers a snapshot of pain assessment and management practices at a specific moment, making it challenging to capture changes or trends over time and precluding the establishment of causal relationships. Additionally, reliance on self-reported data from nurses introduces potential biases like social desirability bias or recall bias, impacting the accuracy and reliability of responses concerning pain assessment and management practices.

CHAPTER SEVEN

7. CONCLUSION

The study identified key factors influencing pain assessment and management practices among healthcare professionals. These factors included high nursing workload, lack of education and familiarity with assessment tools, and primary specialty in "Emergency" care, all of which were associated with poorer pain assessment practices. In critically ill care, "Emergency" specialties showed lower odds for good pain management. Additionally, poor communication of pain assessment priorities at the unit negatively impacted pain management practices, while good pain assessment practices were linked with better overall pain management.

Recommendations

Based on the findings of the study, several recommendations can be made to improve pain assessment and management practices among healthcare professionals:

1. Training and Education: Provide comprehensive training and educational programs for healthcare professionals, focusing on pain assessment techniques, familiarity with assessment tools, and the importance of clear communication in pain management.

2. Workload Management: Implement strategies to manage nursing workloads effectively, such as adequate staffing levels and workload distribution, to ensure that healthcare providers can dedicate sufficient time and attention to pain assessment and management.

3. Specialty-Based Training: Tailor training programs to address the specific challenges and requirements of different specialties, especially those identified as having lower odds for good pain assessment and management practices, such as "Emergency" care.

4. Tool Accessibility: Ensure the availability and accessibility of pain assessment tools and resources across healthcare units to support healthcare professionals in conducting thorough and accurate pain assessments.

5. Communication Improvement: Enhance communication within healthcare units regarding pain assessment priorities, protocols, and guidelines to promote consistency and effectiveness in pain management practices.

6. Continuous Education and Feedback: Provide ongoing education, training, and feedback mechanisms to healthcare professionals to keep them updated on best practices in pain assessment and management and to address any identified gaps or challenges.

7. Interdisciplinary Collaboration: Foster interdisciplinary collaboration between healthcare professionals, including nurses, physicians, and other allied healthcare providers, to ensure a holistic and coordinated approach to pain assessment and management.

8. Monitoring and Evaluation: Implement regular monitoring and evaluation processes to assess the effectiveness of pain assessment and management practices, identify areas for improvement, and track progress over time.

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ANNEXES

APPENDIX-A:

APPENDIX I: Informed consent

Title: Pain Assessment and Management Practices among Nurses Towards Pain in Pediatric Patients in TASH and SPHMMC, Addis Ababa, Ethiopia: A Cross-sectional Study

Introduction

SamiyaTigabu is a student of Master of Pediatric nursing at Addis Ababa University, College of Health Sciences in Addis Ababa, Ethiopia. She is conducting a study on Pain Assessment and Management Practices among Nurses Towards Pain in Pediatric Patients in Yekatit 12 Hospital.

This form is meant to explain to you the important details of the study before you decide whether to participate in it. You must understand its purpose, how it may help you, any risks associated with participation, and what is expected of you once you decide to participate in the study.

Purpose of the Study

The purpose of the study is to obtain information that will be used to gain insight into current pain assessment practices and to determine the direction of future interventions at Yekatit 12 Hospital. There is also hope that the information will be used by the Ethiopian Nurses and Midwives Association and the Ministry of Health to design appropriate strategies that enable nurses caring for pediatric pain patients to ensure optimal comfort for their patients for better patient outcomes in Ethiopia.

Your Rights as a Research Volunteer

This consent form gives you information about the study, which will also be discussed with you. Once you understand the study and agree to participate, you are asked to sign the form. You will be given a copy of the signed form to keep. Your participation in this research is entirely voluntary. You may decide to withdraw from the research at any time. If you decide to withdraw from the research, that decision will not affect you in any way.

Study Procedure

The study will take about one month but you will be required to participate only once. The study will involve filling out a questionnaire. If you decide to participate in the study, you will be given a questionnaire with questions about pain assessment and management for pediatric pain patients. Filling out the questionnaire will about 15 minutes.

Potential Risks

There are no risks associated with your participation.

Potential Benefits

There are no immediate benefits from the study. However, the results of the study will be used to design strategies to improve the services delivered to critically ill patients who may be of benefit to you, your patients, and the nursing profession.

Compensation

There are no costs or payments to you for participating in the study.

Confidentiality

A study number, which will be only known to the authorized study personnel and yourself, will be used instead of your name. Personal and any other information about you will not be released to anyone other than the following without permission, authorized study personnel. You will not be personally identified in any publication or presentation about the study.

Questions

If you have any questions about the research, please contact Sr. SamiyaTigabu at the Department of Nursing, Addis Ababa University, College of Health Sciences on telephone number +251940660101. If you have any questions about your rights as a research volunteer.

Participant's consent

_____has explained to me what is going to be done; the risks and benefits involved and will be available for questions at the Department of Nursing, Addis Ababa University College of Health Sciences, on telephone number 251940660101. I understand that my decision to participate or not to participate in this study will not alter my usual work. In the use of information generated from this study such as presentations and publications, my identity will remain anonymous.

The records of the study must be available to only authorized study personnel, Addis Ababa University, Ministry of Health, and my identity may be known to them. I am aware that I may withdraw from the study at any time.

I understand that by signing this consent form, I do not waive any of my legal rights but merely indicate that I have been informed about the study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.

_____ _____

Volunteer's Signature Date

APPENDIX II: Questionnaire

Pain Assessment and Management Practices among Nurses Towards Pain in Pediatric Patients in TASH and SPHMMC, Addis Ababa, Ethiopia: A Cross-sectional Study

Date_____ unit code _____

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

Section I (Questions related to demographic data on nurses)

1. Gender
   A. Male
   B. Female
2. Age; _____years
3. How many years of experience do you have as a nurse registered?
   A. < 2 Years
   B. 2-5 Years
   C. >5-10 Years
   D. >10 Years
4. How many years of experience do you have as a nurse on this unit or caring for pediatric pain patients?
   A. < 2 Years
   B. 2-5 Years
   C. >5-10 Years
   D. >10 Years
5. Qualifications (tick all that apply)
   A. Diploma
   B. B.Sc. in Nursing
   C. M.Sc.
   D. Others (Please specify; _____)
6. Employment status
   A. Full-time
   B. Part-time
7. Usual Shift Rotation
   A. Days ONLY
   B. Evenings ONLY
   C. Nights ONLY
   D. Rotating Shifts
8. Please identify the primary specialty of the critically ill patient care in which you are most experienced:

A. Surgical

B. Medical
C. Trauma
D. Combined ICU (Medical/surgical/trauma)

Section II (Questions related to what a nurse does for pain assessment)

The following questions relate to patients able to communicate verbally or by other means.

1. Do you assess for pain if the patient can communicate pain?
    C. YES
    D. NO
2. If yes, do you use a pain assessment tool?(If no, please go to question 4)
    A. YES
    B. NO
3. If yes, how frequently do you use a pain assessment tool for patients?
    A. Seldom (1-25%)
    B. Sometimes (26-50%)
    C. Often (51-75%)
    D. Routinely (>75%)
4. Please, name the tool(s) you use;
    _____
5. If you do not use a pain assessment tool, please describe your method of assessing pain for patients able to report pain:
    _____
    _____
    _____
    _____

6. Do you document the findings after pain assessment for patients able to communicate?
    A. YES
    B. NO
7. If yes, how frequently do you assess and document pain for a patient ABLE to report pain?
    A. Whenever necessary (PRN only)
    B. One hourly to 4 hourlies
    C. Once every shift
    D. Less than hourly
    E. More than 4 hourlies to 8 hourlies
    F. Other (Please specify; _____

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

	Procedure	Yes	No
A.	Patient repositioning		
B.	Endotracheal suctioning		
C.	Wound care		
D.	Drain removal		
E.	Invasive line placement		
F.	Spontaneous breathing (weaning) trial		

9. Are pain scores and management discussed during a nurse-to-nurse report?
    A. YES
    B. NO
10. Are pain scores and management discussed during unit rounds?
    A. YES
    B. NO
11. Do you feel competent in effectively assessing patients for having pain?
    A. YES
    B. NO
12. Do you always agree with patients' statements about their pain?
    A. YES
    B. NO

Section III (Question about barriers and enablers to pain assessment and management)

Please indicate whether or not an item affects your ability to assess patients for pain by ticking (√) yes or no.

	Factors	Yes	No
A.	Nursing workload		
B.	Lack of availability of pain assessment tools		
C.	Lack of education on assessment tools		
D.	Lack of familiarity with assessment tools		
E.	Patient instability e.g. unstable hemodynamics		
F.	Patient's inability to communicate		
G.	Lack of protocols for pain assessment		
H.	Low priority of pain management by the unit team		
I.	No designated area for charting pain		
J.	Sedation interfering with pain assessment		
K.	Poor documentation of pain assessment and management		
L.	Poor communication of pain assessment priorities at the unit		
M.	Insufficient analgesia dosage prescribed		
N.	Other (Please identify		

Please indicate whether each of the following enables your delivery of effective pain practices by ticking (√) yes or no.

Factors		**Yes**	**No**
A.	Pain assessment and management is a unit priority		
B.	Interested and motivated staff		
C.	Standardized assessment tools are in use		
D.	Protocols and guidelines are in use		
E.	Physicians prescribe adequate doses of analgesia		
F.	Ongoing education on pain is provided		
G.	Advanced practice nurse(s) are employed by on the unit		
H.	Hospital pain service consults in the unit		
I.	Other (Please identify		

St. Paul's Hospital Millennium
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Research Directorate

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Ref. No. PM23/1191
Date: ሚ 09 /2024

Institutional Review Board (IRB) of St. Paul's Hospital Millennium Medical College (SPHMMC)

Ethical Clearance

Research Title : Pain assessment and management practices among nurses working in pediatric department in public Hospitals, Addis Ababa, Ethiopia

Principal Investigator: Samiya Tigabu

The IRB of SPHMMC has reviewed the above mentioned research proposal and made the following decision:

- Approved:- _____x_____
- Approved with recommendation:- _____
- Approved on condition :-_____
- Disapproved:-_____

The decision is valid for 12 months and the research should be conducted in compliance with the protocol/proposal approved by the IRB of SPHMMC. Any subsequent revision/amendment of the protocol/proposal needs approval before conduct of the research. The researcher should also submit written summaries of the research status to the IRB every 03 months. Upon the conclusion of the study, manuscripts and thesis work to the final/completed research project needs to be submitted to the IRB.

IRB Chair:
Signature:
Date: Apirl.16, 2024

Gadissa Bedada (PHD)
Research Directorate
Director

Federal Minister of Health
St. Paul's Hospital Millennium Medical College

Cc:

- Vice Provost for Academic and Research
- IRB
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