EVALUATION OF PERIOPERATIVE PAIN MANAGEMENT PRACTICES AND ASSOCIATED FACTORS AMONG HEALTH CARE PROVIDERS AT MNAZI MMOJA HOSPITAL IN ZANZIBAR, TANZANIA.

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By

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A Dissertation Submitted in Partial Fulfillment of the Requirement for the Degree of Medicine (Anesthesiology) at

Muhimbili University of Health and Allied Sciences

October 2024

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for examination by Muhimbili University of Health and Allied Sciences a dissertation entitled **"EVALUATION OF PERIOPERATIVE PAIN MANAGEMENT PRACTICE AND ASSOCIATED FACTORS AMONG HEALTH CARE PROVIDERS AT MNAZI MMOJA HOSPITAL IN ZANZIBAR-TANZANIA"** in (partial) fulfilment of the requirement for the degree of Master of Medicine (Anaesthesiology) of the Muhimbili University of Health and Allied Sciences.

_____

Dr. Respicious Boniface

(Supervisor)

Date: _____

_____

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(Co-supervisor)

Date: _____

DECLARATION AND COPYRIGHT

I, Dr Sumayya Shaban Mussa hereby declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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DEDICATION

This dissertation is dedicated to my parents, Shaban Mussa and Jamila Mmanga, whose unwavering love, support, and encouragement have been constant pillars throughout my medical journey. I also dedicate this work to my sisters, Shadya, Salama, and Rumaisah, as well as to my cherished friends and mentors, whose invaluable contributions have greatly enriched my study period.

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LIST OF ABBREVIATIONS

KASRP	:	Knowledge and Attitudes Survey Regarding Pain
MMED	:	Masters of Medicine
MMH	:	Mnazi Mmoja Hospital
NRS	:	Numeric Rating Scale
POP	:	Perioperative pain management
SPSS	:	Statistical Package for the Social Sciences
VAS	:	Visual Analog Scale

DEFINITION OF KEY TERMS

Pain according to the *International Association for the Study of Pain* (IASP) defined as "An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage" (1)

Perioperative period "Is a term used to describe the three distinct phases of any surgical procedure, which includes the preoperative phase, the intraoperative phase, and the postoperative phase" (2) .

Perioperative pain management refers to "actions before, during, and after a surgical procedure that are intended to reduce or eliminate postoperative pain before the patient is discharged after the procedure" (3)

ABSTRACT

Background: Optimum pain control in the perioperative period is crucial to ensure pain free state for patients undergoing surgical procedures where poorly controlled postoperative pain can lead to extended hospital stays or even life-threatening complications, including death.Healthcare providers play a crucial role in ensuring optimal pain control, so as to improve patient outcome in the perioperative period. However, multiple evidence globally have shown that the level of pain management practice among health professionals remains suboptimal across various settings (1)(2)(3).Various factor influence their level of practice so as to ensure effective pain control i.e. knowledge level, attitude, familiarity with pain assessment tools, availability of guidelines, and participation in training. It is imperative to address these factors to guarantee a pain-free state for patients undergoing surgical procedures

Objective: To evaluate perioperative pain management practices and associated factors among health care providers at Mnazi Mmoja Hospital-Zanzibar

Methodology: An analytical cross-sectional hospital-based research study was conducted at MMH-Zanzibar. The participants were healthcare providers working in the surgical units of MMH. The participants were selected through a consecutive sampling method. Data collection was done using a structured questionnaire that was adapted from previous studies .Data analysis was carried out using SPSS version 23. Statistical significance was determined by Pearson chi square test and logistic regression was used for associations between the dependent and independent variable. P values <0.05 and a 95% confidence interval were considered to be statistically significant. Ethical approval from Muhimbili University IRB, Zanzibar health research institute (ZAHRI) and the Research and publication department of MMH was requested.

Results: Among the 114 health care providers who were included in the study, 98 (86.0%) exhibited poor perioperative pain management practices. An overwhelming majority of healthcare providers (93.0%) were not using the validated pain assessment tools in the assessment of pain. Knowledge (AOR (95% CI) = 32.795 (6.496-165.574)), Attitude (AOR (95% CI) = 5.014 (1.125-22.358)) and familiarity with pain assessment (AOR (95% CI)

=5.264(1.101-25.168)).were significantly associated with good levels of perioperative pain management practices.

Conclusion and recommendation: The study revealed a poor overall level of perioperative pain management practices among healthcare providers in the study area, with only 14% exhibiting good practices. Notably, knowledge, attitude, and familiarity with pain assessment tools emerged as significant factors associated with good practice levels.

Based on these findings, it is imperative to enhance the level of practice among healthcare providers. This can be achieved by empowering their knowledge through on-site or off-site training and continuous medical education (CME) focused on the assessment and management of perioperative pain. Additionally, ensuring the availability of pain assessment tools and guidelines in healthcare facilities is crucial to support effective pain management practices. By implementing these recommendations, healthcare providers can improve the quality of perioperative pain management, ultimately enhancing patient outcomes.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

The *International Association for the Study of Pain* (IASP) defines pain as "An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage"(1). Pain is a self-limited experience influenced by biological, psychological, and social factors.

The mechanism of pain follow three main events; transduction, transmission and modulation in the presence of a noxious stimulus. Transduction occurs following a noxious stimulus. The stimulus is transformed to a chemical signal which is then converted to an electrical signal at the synaptic cleft and travels along the neuronal pathway where transmission process takes place with the release of neurotransmitters in the post synaptic cleft. Modulation of nociceptive pathways occur at all levels (primary afferent neuron, dorsal horn and higher brain) by up and down regulation (4).

A multimodal balanced analgesic approach is ideal for treating pain in order to improve analgesia by combining analgesics with additive or synergistic effects (5). Data support that a pain free state can be obtained with multimodal analgesia using different analgesia modalities, minimize opioids consumption while also providing effective pain control (10,11, 12). Effective pain control is crucial in facilitating early patient recovery which will improve early patient discharge from health care centers, and their return to their daily activities prior to surgery (5).In fact, new guidelines for perioperative pain treatment mandate the use of multimodal analgesia in all postoperative patients (6).The growing use of multimodal analgesic approaches and standardized pain evaluation and treatment protocols are hopeful indicators that advancements in pain management will probably continue in the upcoming years (5).

Following surgery the overall reported incidence of pain experienced by patients is of 29.7% for moderate to severe pain and 10.9% for severe pain. In developed countries, 86% of patients felt pain following surgery with 75% describing moderate-to-severe pain right after surgery (7).

With a high prevalence and severity of pain reported in the immediate aftermath of surgery, Tanzania's perioperative pain management is seen to be insufficient. Mwashambwa and colleagues' found that pain was present at 100% ,83.9% and 36% in the first 12, 24 and 48 hours postoperatively among cases, with 95.6% of those cases reporting moderate to severe pain in the first 24 hours (8). Another study by Masagati and colleagues found that 85.5% of patients experienced mild to severe postoperative pain within the first 24 hours and 77.4% by 48 hours (9), A similar study by Ndebea et al at evealed a prevalence 73%, and 58% at 24 and 48 hours (10), posing a challenge in pain management. Comparable studies done in Muhimbili National Hospital reported that 32% of patients presented with severe pain at the first twenty-four hours, rising to 41.5% by the end of 72 hours (11).

Inadequate knowledge, lack of in-service training, lack of pain assessment tools, inability to assess pain and negative attitude toward pain are some factors that lead to ineffective pain management (7).Poor pain management in the immediate postoperative period is associated with a number of undesirable outcomes such as impaired immunological functions, postoperative nausea and vomiting, increased cardiac and pulmonary stress, delayed wound healing, and an extended hospital stay. Additionally, it is a powerful predictor of unfavorable long-term outcomes, including increased psychological stress, a delayed return to ambulation and function, a higher readmission rate, and an overall rise in healthcare costs (6,7, 12 ,15,16).

The practice of healthcare professionals has been focused on improving patient safety and reducing adverse events in the immediate postoperative period .Given that early recovery following surgery requires effective pain management, pain should be counted among these unfavorable outcomes (13).Thus assessment of current practices of healthcare provider regarding perioperative pain management is critical in the improvement of patient outcome in the perioperative period. However, no study has been conducted in Tanzania regarding healthcare provider's perioperative pain management practices and associated factors. The goal of this study was to fill this gap.

1.2 Problem Statement

The importance of effective perioperative pain management cannot be overstated, as it significantly impacts patient care and service quality during the perioperative period. Untreated pain in this phase can lead to various complications, imposing burdens on patients, their families, healthcare facilities, and the country as a whole.

Healthcare providers play a crucial role in ensuring optimal perioperative pain management (8). They are expected to possess comprehensive knowledge of pain pathophysiology, as well as the skills for pain recognition, assessment, and treatment. However, multiple studies have identified several barriers to adequate pain management practices among healthcare providers, including insufficient knowledge, lack of formal training in pain management, absence of standardized pain assessment tools, negative attitudes toward pain, and the absence of established treatment guidelines (14,18,19,20).

Despite the recognized importance of effective perioperative pain management, there is a notable scarcity of data on this topic among healthcare providers in Zanzibar, Tanzania. Therefore, this study sought to fill this gap by examining perioperative pain management practices and identifying associated factors among healthcare providers at Mnazi Mmoja Hospital in Zanzibar. By shedding light on the current state of perioperative pain management in this context, the study aimed to provide valuable insights for the development of targeted interventions to improve pain management practices and ultimately enhance patient care outcomes.

1.3 Rationale

The rationale for this study was grounded in the critical role of healthcare providers' practices in ensuring adequate pain management, particularly in the perioperative period. Given the significant impact of healthcare providers' practices on patient outcomes, there is a pressing need to investigate the current state of perioperative pain management practices and identify associated factors among healthcare providers at Mnazi Mmoja Hospital.

By examining the current practices and factors influencing perioperative pain management, this study aimed to address existing gaps and raise awareness about the importance of effective pain management. The findings would contribute to the enhancement of perioperative pain management protocols in alignment with accepted standards of care, ultimately improving patient outcomes.

Furthermore, the research outcomes would inform the development of evidence-based interventions tailored to address the identified gaps in perioperative pain management. This, in turn, would lead to the implementation of more effective strategies for pain management, thereby enhancing the overall quality of patient care.

Additionally, this study serve as a valuable baseline for future research endeavors in the field of perioperative pain management. By establishing a foundation of empirical data, subsequent studies can build upon this knowledge to further advance understanding and practices in this area.

Moreover, the completion of this study was not only academically significant but also a requirement for the partial fulfillment of the MMED program in Anaesthesiology, highlighting its relevance and importance within the academic and professional context

1.4 Research Question

1.4.1 Broad Research Objective

What are the perioperative pain management practices and associated factors among healthcare providers at Mnazi Mmoja Hospital -Zanzibar?

1.4.2 Specific research Objectives

1. What is the level of perioperative pain management practices among healthcare providers working at Mnazi Mmoja Hospital in Zanzibar?
2. What are factors associated with perioperative pain management practices among healthcare providers working at Mnazi Mmoja Hospital in Zanzibar?

1.5 Study Objectives

1.5.1 Broad Objective

To evaluate perioperative pain management practices and associated factors among healthcare providers at Mnazi Mmoja Hospital-Zanzibar.

1.5.2 Specific Objectives

1. To evaluate level of perioperative pain management practices among healthcare providers working at Mnazi Mmoja Hospital in Zanzibar from August to November 2023.
2. To determine factors associated with perioperative pain management practices among healthcare providers working at Mnazi Mmoja Hospital in Zanzibar from August to November 2023.

1.6 Conceptual Framework

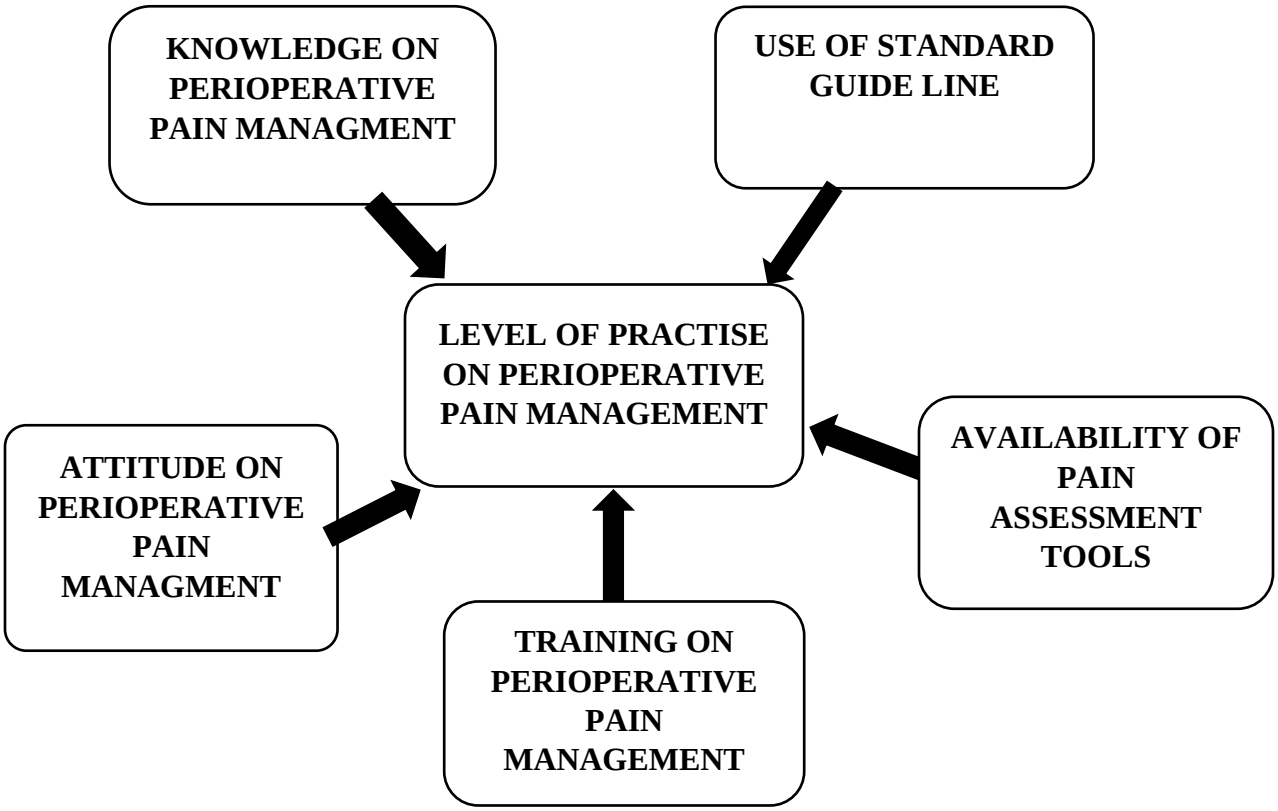


Figure 1: **Conceptual framework**

NARRATION OF CONCEPTUAL FRAMEWORK

This study aimed to evaluate the level of practices of perioperative pain management and its associated factors among healthcare providers working in a surgical unit. The researcher has created the conceptual framework above to describe the relationship of outcome of interest (level of practice on perioperative pain management) and the factors that could determine or affect the level of practice (associated factors). Arrows show the direction relationship of the study variables. (Figure 1).

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Level of practice on perioperative pain management

In a study conducted in Vietnam by Phuong Hoang Vu and colleagues at the Hanoi Medical University Hospital among 90 nurses on postoperative pain management practices, it was found that respondents pain management practices were based on their own judgment. Only one third used a pain assessment tool leading to suboptimal pain control in patient which led to poor practice (17). Khalid using the Knowledge and Attitudes Survey Regarding Pain (KASRP) in Saudi Arabia to examine the level of knowledge and practice among healthcare providers included 105 healthcare professionals from various hospitals, including nurses and doctors. The results showed that there was a low level of practice among the providers in managing patient pain, which led to inadequate pain control (15).

Twelve registered nurses from Ghana's largest referral hospital participated in a study on the assessment and management of postoperative pain. The results showed that the facilities did not have the standard operating pain assessment tool, which prevented the nurses from using it in their routine pain assessment practices. Wherein the first 24 hours following surgery saw exclusively the usage of pharmaceutical pain management techniques. The study found that health professionals' expertise of pain management was not applied in their regular practice (16). A study on postoperative pain management practice and related factors in the South Wollo Zone of Ethiopia, which included 386 participants, revealed that 57.5% of the health providers had good pain management practice, which was an essential component in the provision of high-quality pain management (18). Negash's evaluation of health professionals' knowledge, attitudes, and practices related to postoperative pain treatment at referral hospitals in Ethiopia indicated that 75.42% of the participants had inadequate pain management practices, which led to poor pain control (19). Poor paediatric pain management practices were reported by 94 residents of two responder groups in a comparable study conducted at Tikur Anbessa Specialized Hospital, which had impact in children’s life (20).

In a study conducted in Rwanda in two facilities, Kigali University Teaching Hospital and Rwanda Military Hospital, 131 participants reported insufficient levels of practice among nurses, with only 20% reporting high levels of practice. The finding indicates low levels of postoperative pain management, necessitating in-service training to improve practice levels (21).A study done in Kenya by Kituyi assessing clinicians' knowledge and practices on assessment and measurement of pain involving 38 doctors, 28 clinical officers and 170 nurses; showed that 88% of clinicians are able to assess and manage postoperative pain. The study also showed that 57% of the total participants lacked knowledge on tools used in assessment and measurement of pain in their practice making pain control inadequate (22).

However in Tanzanian hospitals as per current literature search through different search engines and researcher's knowledge, there is no published study highlighting the level of practice among healthcare providers on perioperative pain management and the associated factors.

2.2 Factors associated with the level of practice on perioperative pain management

2.2.1 Knowledge on perioperative pain

A study from the Queen Elizabeth hospital in Malaysia recruited a total of 278 doctors, data was collected using a modified version of KASRP questionnaire. One hundred and sixteen respondents (41.7%) scored less than 60% on the knowledge of pain with the highest score from the Department of Anaesthesia (80.2%). The survey as a whole revealed lack of knowledge pertaining to pain management and the author recommended improvement for better pain care (23). In a study among healthcare providers in Saudi Arabia by Khalid (15) among nurses and doctors revealed a total of 73 participants received scores of 44% or lower (69.5%), while 32 received scores of 45% or higher (30.5%). Only six (5.7%) of the participants achieved a score above 60%, which is a sign of the study group's limited knowledge on pain management and a hindrance to the effective management of patients' pain. Another KASRP study by Yildirim (24) examined Turkish oncology nurses' knowledge and attitudes of pain management where 68 nurses from two university hospitals made up the sample. The average percentage of right responses was 35.4 percent, reflecting poor knowledge in pain management, which led to poor pain control and little pain relief.

A study conducted in Jordan by Nuseir evaluating the knowledge and current practice of health care providers toward pain management, revealed a significant knowledge difference in percentage of correct answer scores among health care providers with an overall poor level of knowledge resulting in inadequate pain control among patients reflecting poor pain management practice (14) .Inadequate levels of knowledge among respondents were found in another study on pain management carried out by AL-Khatib among 137 healthcare professionals at Jordanian Royal Medical Services, which showed a discrepancy between knowledge and practice (25).

Another study conducted in Ethiopia by Negash among healthcare providers found that 58.4% of the participants had good knowledge of postoperative pain management. However, the respondents did not use standard guidelines to treat post-operative pain which led to generally poor pain management in patients (19). A study conducted in Ghana by Menlah analyzing nurses' postoperative pain treatment knowledge, attitudes, and practices in four district hospitals, found knowledge gaps among the district hospitals' nurses with 48% of nurses having limited knowledge in pain management. The majority of nurses (97.6%) employed routine basic skills in pain treatment, which limited the breadth of nursing practices and led to subpar pain management for patients (26).

A study conducted in Rwanda's Kigali University Teaching Hospital and Rwanda Military Hospital revealed low levels of knowledge among nurses, with only 37% having high levels. The low levels of knowledge have a 14.4% impact on nurses' levels of practice, highlighting the need for in-service training to improve pain management practice (21).In a study conducted in Kenya, Kituyi found that only 54% of doctors had enough knowledge compared to other groups of healthcare professionals. This poor level of expertise led to providers lacking confidence when dealing with patients with pain in their daily practice (22).

2.2.2 Training of perioperative pain management

In Malaysia, a study conducted in Queen Elizabeth hospital showed that healthcare providers who had training on pain management had good level of knowledge with a mean score of 65.40 compared to those who didn’t attend any form of training. This report shows training as a useful tool toward improvement of pain management practice among healthcare providers (23). A

study done in Iran assessing effects of training among surgical nurses on postoperative pain showed an improvement in the level of knowledge from 13.61 ± 3.76 to 19.35 ± 2.16 and change in attitude from 80.58 ± 7.09 to 86.91 ± 5.49 among participant after training which explain importance of training toward improvement of care (27).

A study conducted in Ethiopia on postoperative pain management practice and related factors among medical professionals in the South Wollo Zone revealed that participants who had pain management training had good practices, improving their skills, clinical judgment, and communication ability (18). A study by Tadesse and colleagues among 245 nurses in Addis Ababa, Ethiopia assessing knowledge, practice, and associated factors toward postoperative pediatric pain treatment in selected public hospitals found that the pain management practices of trained nurses increased eight times compared those of untrained nurses (28). Another study conducted in Tikur Anbessa Specialized Hospital found that residents' lack of in-service training had an effect on their level of pain management practices, which had a detrimental effect on the care of children (20). Another study by Negussie among nurses in Jimma hospital on post-operative pain assessments observed lack of training leds to low level of practice (29).
In a study conducted in Kenya, Kituyi found that 21% of the participants never had training in pain management, and 96% of them indicated a need for such training to increase their proficiency in the assessment and management of pain in their practice (22).

2.2.3 Attitude toward perioperative pain management

A study carried out in Saudi Arabia by Khalid found that poor attitude among healthcare professionals led to inadequate patient care in their pain management practice (15).In Jordan Al Khatib and colleagues investigated pain management among medical staff at Jordanian Royal Medical Services and reported poor attitude among respondents which impacted patient outcome (25).Another study done by Negash in Ethiopia showed that 55.1% of the participants had poor attitude in postoperative pain management, which led to inadequate pain management among patients, with 80% of them reporting moderate to severe pain (19). Poor attitudes about paediatric patient pain treatment practices were identified in a study conducted at Tikur Anbessa

Specialized Hospital, which called for reform to improve practice and improvement in quality of life (20).A study done in Ghana evaluating knowledge, attitude, and practices of 168 nurses reported good altitude among participant in managing pain postoperative which has a beneficial impact in good practice (26).

2.2.4 Familiarity with Pain assessment tool during perioperative period

Pain assessment is a mandatory component toward effective pain management and contribute towards effective pain management. Pain should be assessed using an assessment tool which identifies the quantity and/or quality of pain a patient is experiencing and assessment and reassessment is required to achieve pain relief. Validated instruments such as the Numeric Rating Scale (NRS), Visual Analog Scale, Verbal Descriptor Scale, and Wong-Baker Faces Scale are used to assess patient pain experiences (15), with VAS and NRS being superior to Verbal descriptor scale (30).This increases comfort, minimize pain experience, improved physiological, psychological and physical function and increased satisfaction with pain management. Assessment of pain enables the healthcare worker to assess the amount of pain the patient is experiencing, hence knowledge on assessment and management of pain is crucial for healthcare providers (19, 27, 29). Khalid et al found lack of pain assessment tools led to lack of specificity underestimating results of ineffective pain management among patients (15).In a similar study, Ninnoni and colleagues assessed the management of post-surgical pain by 12 registered nurses in Ghana's largest hospitals. The authors found that some participants had never used assessment tools to evaluate patients' pain and only a small percentage reported using the Numerical Rating Scale to rate pain severity, Majority of nurses depended on the patients' facial expression and self-report as indicators of pain which resulted in sub optimal pain control (16).

In a study done in Ethiopia on postoperative pain management practice and related factors in South Wollo Zone among health professionals discovered that those who employed pain assessment tools had better practice than those who did not. Those who used the tools were able to individualize pain management in accordance with patient needs, leading to an improvement in patient quality of care (18). On the other hand, another study conducted in Ethiopia at the Jimma University Medical Center indicated that respondents were unfamiliar with pain

assessment tools, which led to patients receiving subpar pain management with general poor practice (29).In a cross-sectional, retrospective study carried out in the Western Cape Province of South Africa in a tertiary government hospital, it was discovered that there was a problem with pain assessment and management in the two wards, with no documentation of pain assessment observed in half of the patient files and verbal rating scales being the most common tool in assessment (31).

2.2.5 Availability of standard guideline

In the study carried out in Saudi Arabia, Khalid found that the lack of a pain management protocol in the hospital impeded effective pain management in patients (15). Kituyi also reported that there are no guidelines for pain management at also reported that there are no guideline for pain management at Moi Teaching and Referral Hospital's working stations, making it difficult to provide adequate pain control in patients(22). In Tanzania, Standard treatment guideline is used during perioperative period to guide pain management following the WHO analgesia ladder where both opioid and non-opioid analgesia are prescribed together with other multimodal techniques (32).

In order to achieve good perioperative pain management, there must be skilled healthcare providers who can demonstrate adequate knowledge, positive attitude, familiarity with pain assessment tools, availability of standard guidelines and the need of ongoing serial training in pain management to reduce postoperative pain and improve patient outcome. Since no data is available in Tanzania on the level of practice and associated factor this study aimed to identify the factors associated with level of practice among healthcare provide so as to improve patient outcome and quality of surgical healthcare services.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

This was a hospital-based analytical cross-sectional study that was aimed at evaluating perioperative pain management practices and associated factors among healthcare providers in a surgical department.

3.2 Study duration

This study was conducted over three months from August to November 2023

3.3 Study area

This study was conducted at Mnazi Mmoja Hospital, A tertiary hospital in Zanzibar. The hospital primarily serves the island of Unguja while offering specialty care in Zanzibar. It covers nearly 1.9 million people. The main campus of MMH is in Stone Town with a bed capacity of 630 and features 12 operating rooms. It serves a total of 74,975 outpatient, 27,185 inpatients and 7,812 operations being carried out per year.

3.4 Study population

All healthcare providers (specialists, registrars and nurses) providing surgical services at MMH.

3.5 Inclusion and exclusion criteria

3.5.1Inclusion criteria

- All healthcare providers who provide surgical services for more than six months at MMH and available during the study period.
- Those who gave their permission to take part in the study.

3.5.2 Exclusion criteria

- Healthcare providers who were not available during study period either on sick leave or annual leave

3.6 Sample size estimation

The sample size was determined using Kish Leslie formula (1965)

$$\text{Sample size number (N)} = Z^2 \frac{P(1-P)}{D\ 2}$$

Where;

Z= Percentage of the normal distribution corresponding to the level of significance. If the significance is taken to be 95% then Z = 1.96

P= 57.5% estimated proportion of health care provider how had good practice in recognize and managing post-operative pain (20)

D= Marginal error of 5%.

Then,

$$N = \frac{(1.96)^2 * 0.575(1-0.575)}{(0.05)^2}$$

N= 376

But in this case the study population that is healthcare provider is finite, a finite population correction factor was used;

Total population: 139

From 139 healthcare provider 20% are specialist, 26% registrar and 55% nurses.

$N_c = n \times fp / n + fn$

$= 376 \times 139 / 376 + 139 = 101$

Adjusting for nonresponse assuming 10%, then minimum sample size will be 111

As a result, this study required a minimum of 111 health care providers of which 22 are specialists, 29 registrars and 61 nurses.

3.7 Sampling technique

Consecutive sampling method was used to recruit participants in the study. In this technique all surgical healthcare providers at MMH who were willing were included in the study.

3.8 Data collection methods, tool and procedure

The questionnaire utilized in the study was adapted from a previous study (36,37,38) and the Knowledge and Attitudes Survey Regarding Pain questionnaire, which demonstrated high reliability (alpha r > 0.70). It comprised three sections: demographic characteristics, current reported practices, and associated factors related to perioperative pain management.

First part of the questionnaire captured demographic information which included age, sex, marital status, department, professional role, educational level, and experience.

The second and third parts of the questionnaire focused on practice and associated factors. The practice section contained 10 questions, each worth one point, resulting in a score ranging from 0 to 10. A score of 7 or higher (70% or above) indicated a good level of practice, corresponding with the standard university scoring system where 70% is considered an excellent pass mark. The knowledge section comprised 14 questions, each worth one point, with a total score ranging from 0 to 14. A score of greater than 9 out of 14 (71% or above) indicated adequate knowledge. The attitude section utilized a 5-point Likert Scale with 14 questions assessing respondents' opinions on attitudinal statements. A score exceeding 49 points on the Likert scale (>70%) indicated a good attitude towards perioperative pain management.

This standardized scoring system allowed for the assessment of healthcare providers' practice, knowledge, and attitude levels regarding perioperative pain management, facilitating a comprehensive understanding of the subject matter.

3.9 Study variables

3.9.1 Dependent variables

- Level of perioperative pain management practices

3.9.2 In-dependent variables

- Level of knowledge and attitude, use of standard treatment guidelines, pain assessment tools and pain management training.

3.10 Validity and Reliability

The questionnaire underwent a rigorous validity process, with a senior Anaesthesiologist reviewing it to ensure adequate content. Necessary amendments were made prior to the commencement of the study.

A pilot study involving 10 healthcare providers meeting the inclusion criteria was conducted before the main study. Participants from the pilot study were included in the final sample. The Cronbach's alpha coefficient for practice, knowledge, and attitude was calculated to be 0.7, indicating acceptable internal validity. This suggests that the questionnaire reliably measures the intended constructs.

3.10 Data processing and analysis

Daily checks were conducted on the questionnaires to ensure accuracy, consistency, and comprehensiveness of information. Data were then entered into the Statistical Package for the Social Sciences (SPSS) version 23 for analysis. Descriptive analysis was employed to analyze demographic data, summarized using frequency distributions. The chi-square test was utilized to determine the association between perioperative pain management practices and associated factors. Subsequently, logistic regression was performed, with bivariate analysis identifying independent variables with a p-value <0.25 as candidates for multivariate analysis to adjust for potential confounders. Variables with a p-value <0.05 were deemed statistically significant.

3.11 Ethical issues

Ethical approval was sought and obtained from multiple reputable institutions, including MUHAS Institutional review board, Zanzibar Health Research Institute, office of the chief government statistician-Zanzibar, and director of MMH .The purpose and the importance of the study were explained to the study participant's prior involvement and written informed consent was provided by each participant. In order to uphold the principle of anonymity and maintain the confidentiality of the data, the participant's name did not appear on the questionnaire. The participation into the study was completely voluntary and any participant was allowed to withdraw his/her participation at any point of the study

3.12 Dissemination of results

Finding from this study, would be promptly communicated to both (MUHAS and MMH with the aim of serving as a foundational framework for enhancing the quality of perioperative pain management practices. Additionally, the study findings would be disseminated to the MUHAS library and the Ministry of Health in Zanzibar to serve as valuable reference material and to facilitate further research endeavors in this critical area of healthcare. Furthermore, concerted efforts would be undertaken to publish the research in a peer-reviewed publication, and an abstract presentation would be done at numerous local and international scientific conferences. This comprehensive dissemination strategy ensures that the insights gleaned from this study have a wide-reaching impact on both academic discourse and clinical practice in the field of perioperative pain management.

CHAPTER FOUR

4.0 RESULTS

4.1 Demographics characteristics of study participants

The study involved 114 healthcare providers from all surgically relevant departments at MMH, the majority were aged thirty one years and above 72(63.2%) and most of them being females 75(65.8%). Regarding marital status most of the respondents, 92 (80.7%) were married. Most of the respondent were from OBGY department 48 (42.1%), additionally specialist were 22 (19.3%), registrars 31 (27.3%) and 61(53.5%) nurses. With regard to working experience, most of the respondents have been working in surgical wards for more than five years 52(45.6%). Most of the respondent held a bachelor's degree46 (40.4%). (***Table 1***)

Table 1: Demographic characteristics of healthcare providers at MMH (N=114)

Variables	Category	N	%
Age	21-30	42	36.8%
	31-50	72	63.2%
sex	female	75	65.8%
	male	39	34.2%
Marital Status	single	16	14.0%
	married	92	80.7%
	widow	3	2.6%
	Divorced	3	2.6%
Department	surgery	18	15.8%
	anaesthesia	17	14.9%
	OBGY	48	42.1%
	Orthopedic	6	5.3%
	Neurosurgery	10	8.8%
	ENT	9	7.9%
	Ophthalmology	6	5.3%
Profession	specialist	22	19.3%
	Registrar	31	27.2%
	Nurse	61	53.5%
Education level	certificate	4	3.5%
	Diploma	42	36.8%
	Degree	46	40.4%
	Masters	22	19.3%
Experience	<2 years	32	28.1%
	2-5 years	30	26.3%
	> 5 years	52	45.6%

4.2 Practice on perioperative pain management among surgical healthcare providers

Among the 114 healthcare providers who participated in the study, only 16 (14%) had good level of practice on perioperative pain management. (*Figure 2*)

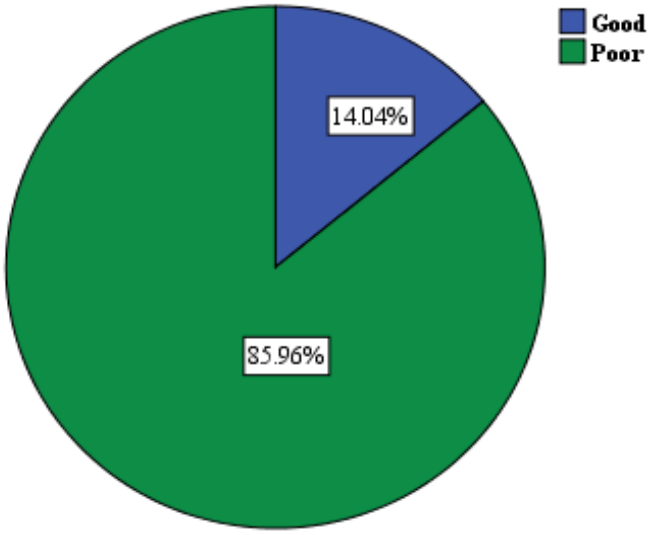


Figure 2: Level of perioperative pain management practice among healthcare providers at MMH

4.3 Response to individual practice questions

The vast majority of the respondents, 99 (86.8%) do assess pain in the perioperative period in the hospital. Eleven of the respondents (9.6%) relied on patient facial expression while 7 (6.1%) relied on verbal report from patient. Surprisingly 106 healthcare providers (93.0%) do not utilize any pain assessment tool in their assessment of pain. Eighty-nine (78.1%) of the respondents failed to document the findings after assessment. Ninety three (81.6%) of the respondents assess the need for administration of analgesia perioperative and 47 (41.2%) didn't always concur with patient's statement about their pain.

Table 2: Individual response to questions on the practice of perioperative pain management

Question	Frequency	Percent
1. Do you assess for pain in patient during perioperative period?		
Yes	99	86.8%
No	15	13.2%
2. If yes, do you use a pain assessment tool? *(If no, please go to question 4)*		
Yes	8	7.0%
No	106	93.0%
3. If yes, how frequently do you use a pain assessment tool for patients?		
Sometimes	4	3.5%
Often	2	1.8%
Routinely	2	1.8%
4.Please, name the tool(s) you use		
numerical assessment tool	1	0.9%
Wong baker facial expression tool	2	1.8%
5. If you do not use a pain assessment tool, please describe your method of assessing pain for patients during perioperative period:		
facial expression	11	9.6%
verbal patient report	7	6.1%
facial expression and vitals	4	3.5%
facial expression and verbal patient report	2	1.8%

6. Do you document the findings after pain assessment		
Yes	25	21.9%
No	89	78.1%
7. If yes, how frequently do you assess and document pain?		
Whenever necessary	18	15.8%
Sometimes	9	7.9%
Routinely	1	0.9%
8. Do you assess the need for administration of analgesia preoperative and postoperatively?		
Yes	93	81.6
No	21	18.4%
9. Are pain scores and management discussed with patient during preoperative period?		
Yes	67	58.8%
No	47	41.2%
10. Do you always agree with patients' statements about their pain?		
Yes	78	68.4%
No	36	31.6%

4.4 Factors associated with practice on perioperative pain management

The study also assessed the factors which affect the practice of perioperative pain management.

With regards to knowledge on perioperative pain management, 13(44%) healthcare providers who had an adequate knowledge of perioperative pain management practices had a good level practice on perioperative pain management than those with inadequate knowledge 3(3.5%). (X^2= 30.566, p= <0.001).

Regarding attitude towards perioperative pain management, 12 (27.3%) healthcare providers who had positive attitude had good levels of perioperative pain management practice than those who had negative attitude (5.7%) this results were statistically significant (X^2=10.407, p= <0.001).

With availability of pain assessment tools, 5 (18.5%) of those who had assessment tool had good level of perioperative pain management practice than those who didn't have one (12.6%); however this was results not statistically significant ($X=^2$ 0.589, p= 0.527).

On familiarity with pain assessment, 10(25.6%) of the healthcare providers who were familiar had good level of perioperative pain management practice than those who were not familiar with assessment tools, this results were statistically significant (X^2=6.618, p=0.01).

Regarding availability of guideline/standard treatment, those who had guidelines had good level of perioperative pain management practice (20.0%) than those who didn't have one (13.8%) though, this was not statistically significant (X^2=0.154, p=0.537).

With regards to training on perioperative pain management, those healthcare providers who had training had good level of perioperative pain management practice (16.7%) than those who didn't receive any training (13.5%), however this was not statistically significant (X^2= 0.123, p=0.716). (***Table 3)***

Table 3: Relationship between factors and perioperative pain management practice among healthcare providers at MMH-Zanzibar
n=114

Variables	N	Perioperative pain management practice (%)		X^2	P value
		Good	Poor		
Knowledge					
adequate	29	13 (44.8%)	16 (55.2%)		**<0.001***
inadequate	85	3 (3.5%)	82 (96.5%)	30.566	
Attitude					
Positive	44	12 (27.3%)	32(72.7%)		**<0.001***
Negative	70	4 (5.7%)	66 (94.3%)	10.407	
Availability of pain assessment tools					
Yes	27	5(18.5%)	22 (81.5%)		0.527
No	87	11 (12.6%)	76 (87.4%)	0.589	
Familiarity with pain assessment tool					
Yes	39	10 (25.6%)	29 (74.4%)		
No	75	6 (8.0%)	69 (92.0%)	6.618	**0.01***
Availability of guideline/standard treatment					
Yes	5	1 (20.0%)	4 (80.0%)		0.537
No	109	15 (13.8%)	94 (86.2%)	0.154	
Training on perioperative pain management					
Yes	18	3 (16.7%)	15 (83.3%)		
No	96	13 (13.5%)	83 (86.5%)	0.123	0.716

4.5 Bivariate and multivariate regression analyses of factors associated with good level of perioperative pain management practice

In the bivariate logistic regression analysis, the independent variables, i.e. knowledge, attitude and familiarity with pain assessment tools were found to be significantly associated with good level of perioperative pain management practice. Knowledge has an odds ratio of 22.2 (95% CI: 5.672-86.952, p <0.001), while attitude and familiarity with pain assessment tools had odds ratios of 6.18 (95% CI: 1.849-20.704 p =0.003) and 3.97 (95% CI: 1.318-11.927 p=0.014). (Table 4).

In multivariate logistic regression analysis adjusting for confounders, all the variables, knowledge, attitude and familiarity with pain assessment tools retained their significant association with good level of perioperative pain management practice. Knowledge had an adjusted odds ratio of 32.8 (95% CI: 6.496-165.574, p=<0.01), attitude had an adjusted odds ratio of 5.0 (95% CI: 1.125-22.358, p=0.035) and familiarity with pain assessment tools had an odds ratio of 5.3 (95% CI: 1.101-25.168, p=0. 037). These findings suggest that all the three variables independently contribute to good level of perioperative pain management practice, even after accounting for the potential confounding factors. (Table 4).

Table 4: Bivariate and multivariate analysis of factors associated with good level of practice on perioperative pain management among healthcare providers at MMH n=114

Variables	Perioperative pain management practice (%)		COR (95%CI)	P value	AOR (95%CI)	P value
	Good	Poor				
Knowledge						
Adequate	13(44.8%)	16(55.2%)	22.208 (5.672-86.952)*	<0.001	32.795(6.496-165.574)**	<0.001
inadequate	3 (3.5%)	82(96.5%)	1		1	
Attitude						
Positive	10(23.3%)	33(76.7%)	6.187(1.849-20.704)*	0.003	5.014(1.126-20.809)**	0.035
Negative	6 (8.5%)	65 (91.5%)	1		1	
Availability of pain assessment tools						
Yes	5(18.5%)	22(81.5%)	1.570 (0.493-5.003)	0.445		
No	11(12.6%)	76(87.4%)	1			
Familiarity with pain assessment tool						
Yes	9 (23.7%)	29(76.3%)	3.966(1.318-11.927)*	0.014	5.264 (1.101-25.168)**	0.037
No	7 (9.2%)	69(90.8%)	1		1	
Availability of guideline/standard treatment						
Yes	1 (20.0%)	4 (80.0%)	1.567 (0.164-14.984)	0.697		
No	15(13.8%)	94(86.2%)	1			
Training on perioperative pain management						
Yes	3 (16.7%)	15(83.3%)	1.277(0.324-5.028)	0.727		
No	13(13.5%)	83 86.5%)	1			

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

CHAPTER FIVE

5.0 DISCUSSION STUDY STRENGTHS AND LIMITATIONS

5.1 The Level of practice on perioperative pain management

The study aimed to evaluate the level of practice of perioperative pain management among healthcare providers in surgical wards, with practice considered good if the score exceeded 70%. Our findings revealed a concerning trend, with 86.0% of healthcare providers exhibiting poor practices regarding pain management. This indicates a significant gap in care quality, potentially leading to substandard surgical outcomes and prolonged hospital stays. Notably, our results align with previous research conducted by Negash in Ethiopia (19), where 75.42% of healthcare providers demonstrated poor practice. Similarly, studies conducted in Ethiopia by Dana (20) and Jaleta (39) reported overall poor levels of practice.

However, our findings diverged from other studies which found higher levels of practice compared to our study, Phuong Hoang Vu in Vietnam reported a moderate level of practice (mean sore 8.4) (20), Zeleke in Ethiopia revealed 57.5% of the study participant had good practice and only 42.5% had poor practice (21) and similar in Ethiopia a study by Negussie revealed 60.5% of the healthcare providers had good practice level (37).

Odile in Rwanda revealed majority of the participant had moderate level practice 79% (106) while only 1% (2) reported overall low levels of practice (24). Despite these differences in reported percentages, it is evident that the level of pain management practice among health professionals remains suboptimal across various settings (20, 21, 22, 25).

While the majority (86.8%) of the respondents in our study reported assessing pain during the perioperative period, most (93%) did not utilize validated pain assessment tools, such as the numeric rating scale. This finding is consistent with similar studies, indicating a widespread reliance on subjective assessment methods rather than standardized tools. For example, a study conducted at Tikur Anbessa Specialized Hospital in Ethiopia (20) found that 86% of participants never used pain scales, instead relied on simple patient inquiries. Similarly, in Vietnam, Phuong

Hoang Vu's (17) study showed that while 83.3% of healthcare providers regularly assessed postoperative pain, only 32.2% used validated tools.

The variability in the use of assessment tools observed in our study may be attributed to factors such as unavailability of these tools in the study area. Consequently, it is likely that perioperative pain assessment and measurement are suboptimal overall. This contrasts with findings from a study in Rwanda by Dana (21), where all nurses surveyed reported using assessment tools, highlighting potential differences in healthcare infrastructure and practices across countries.

5.2 Factors associated with the level of practice on perioperative pain management

5.2.1 Knowledge on perioperative pain

This study found a significant association between healthcare providers' knowledge levels and the practice of perioperative pain management. Specifically, healthcare providers with adequate knowledge were 46 times more likely to exhibit good levels of pain management practices compared to those with inadequate knowledge. This finding is consistent with research conducted in Rwanda by Odile (21) and Jaleta in Ethiopia (36) , which similarly identified knowledge as a contributing factor to increased practice levels in post-operative pain management These results emphasize the importance of education and training in equipping healthcare providers with the necessary knowledge to effectively manage perioperative pain.

5.2.2 Attitude toward perioperative pain management

Another significant factor associated with the level of practice of perioperative pain management is healthcare providers' attitudes towards pain management. This study revealed that healthcare providers with a positive attitude towards perioperative pain management were 5.0 times more likely to demonstrate good levels of pain management compared to those with a negative attitude. Similar findings were reported in a study conducted in Ethiopia by Zeleke (18), where a favorable attitude was associated with a higher likelihood of good practice in postoperative pain management. These results underscore the importance of fostering positive attitudes among healthcare providers, which may lead to greater acceptance of pain assessment tools and a commitment to achieving total pain relief for patients.

5.2.3 Familiarity with the use of Pain assessment tool during perioperative period

Familiarity with pain assessment tools emerged as another significant factor influencing the practice of perioperative pain management. Healthcare providers who were familiar with these tools were 5.3 times more likely to demonstrate good levels of pain management compared to those who were not familiar. Similar findings were reported in a study conducted in Ethiopia by Zeleke (21). This finding highlights the importance of healthcare providers' ability to effectively utilize pain assessment tools to capture patients' pain experiences, identify the type and impact of pain, and create appropriate treatment plans. By ensuring healthcare providers are familiar with these tools, healthcare facilities can enhance the quality of perioperative pain management and improve patient outcomes (18).

5.2.4 Availability of standard guideline

The availability of standard guidelines for perioperative pain management was also examined as a potential factor influencing practice levels. While this study found a trend towards improved practice levels among healthcare providers who reported the availability of standard guidelines, the association was not statistically significant. Nevertheless, previous studies have highlighted the importance of guidelines in improving pain management and patient satisfaction (18, 22, 25). In this study, the majority of participants109 (96%) reported unavailability of protocols or guidelines for perioperative pain management, suggesting a need for further investigation into the role of guidelines in guiding practice and improving patient care.

5.2.5 Training of perioperative pain management

Finally, the impact of training on perioperative pain management on practice levels was explored. While this study did not find a significant association between training and practice levels previous researches suggests that comprehensive training programs can indeed have a positive impact on practice. Studies conducted by Zeleke in Ethiopia(21), Tadesse (28) and and Jaleta have shown that healthcare providers who receive training in pain management are more likely to demonstrate good practices compared to those who do not receive training. These findings underscore the importance of ongoing education and training initiatives to equip healthcare providers with the necessary skills and knowledge to effectively manage

perioperative pain. Despite the lack of statistical significance in our study, the consistent findings across multiple studies highlight the potential benefits of training programs in improving perioperative pain management practices.

Overall, the factors associated with the level of practice on perioperative pain management highlight the multifaceted nature of this crucial aspect of healthcare delivery. Adequate knowledge, positive attitudes, familiarity with pain assessment tools, availability of standard guidelines, and training in perioperative pain management all play important roles in shaping healthcare providers' practices.

5.3 Study strengths and limitations

5.3.1 Study strengths

This was the first study to be done in Zanzibar-Tanzania evaluating healthcare provider's level of practices and associated factors regarding perioperative pain management, serving as a foundational study. It establishes a benchmark for future research endeavors in pain management.

The study utilized a standard validated checklist Knowledge and Attitudes Survey Regarding Pain (KASRP) where content of the tool is derived from current standards of pain management such as the American Pain Society, the World Health Organization, and the National Comprehensive Cancer Network Pain Guidelines.

The study meticulously adhered to ethical considerations, ensuring participants' consent and upholding the highest standards of research integrity

Moreover finding in this study could be used to improve healthcare providers' knowledge and competency through training and continuing medical education (CME) programs regarding perioperative pain management

5.3.2 Study limitations

Despite its strengths, this study is not without limitations.

Firstly, the findings may not be fully generalizable beyond the specific hospital setting in which the study was conducted, limiting the broader applicability of the results to other healthcare settings in Zanzibar.

Furthermore, the use of self-administered questionnaires may not capture the full spectrum of healthcare providers' actual practices in perioperative pain management. Future research endeavors may benefit from employing observational methods to gather more nuanced and comprehensive data.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The findings of this study revealed a concerning trend in perioperative pain management practices among healthcare providers at Mnazi Mmoja Hospital. The study highlights a poor level of practice, primarily attributed to inadequate knowledge, negative attitudes, and a lack of familiarity with pain assessment tools. While the majority of healthcare providers reported assessing pain during the perioperative period, the lack of utilization of validated pain assessment tools and documentation underscores significant gaps in the level of practice.

6.2 Recommendation

Based on these findings, several recommendations are proposed to improve perioperative pain management practices at Mnazi Mmoja Hospital and beyond. Firstly, the immediate adoption of validated pain assessment tools for verbal patients and nonverbal pain scale for nonverbal patients, is recommended. These scales can be conveniently attached to healthcare providers' identification to ensure accessibility and utilization. Additionally, quality improvement initiatives aimed at enhancing pain management practices should be implemented to address the identified gaps.

Ongoing educational programs through on-site or off-site training and continuous medical education (CME) focused on perioperative pain management are also strongly recommended to improve healthcare providers’ knowledge and attitudes in this area. These programs can help raise awareness of good practices and foster a culture of excellence in pain management. Furthermore, the development and implementation of guidelines and protocols specific to perioperative pain assessment and management are essential to standardize practices and ensure consistency in care delivery.

Lastly, it is recommended that future research endeavors extend beyond Mnazi Mmoja Hospital to other hospitals in Zanzibar to gain broader insights into perioperative pain management practices. By implementing standardized practices and protocols across different healthcare settings, a higher standard of practice can be achieved, ultimately leading to improved patient outcomes and quality of life.

By integrating these recommendations into practice, Mnazi Mmoja Hospital and other healthcare facilities in Zanzibar can work towards enhancing perioperative pain management practices and providing optimal care to patients in the perioperative period.

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APPENDICES

Appendix I: Consent form

CONSENT AGREEING TO TAKE PART IN THE STUDY, PERIOPERATIVE PAIN MANAGEMENT PRACTICES AND ASSOCIATED FACTORS AMONG HEALTHCARE PROVIDERS' AT MNAZI MMOJA HOSPITALS IN ZANZIBAR, TANZANIA.

Dear Sir/Madam,

Greetings, I am Dr. Sumayya Mussa from the Department of anaesthesia at MUHAS. I am undertaking a research on perioperative pain management practise and associated factor among healthcare providers' at Mnazi Mmoja hospitals in Zanzibar.

You are invited to participate.

PURPOSE OF THE STUDY: Evaluating perioperative pain management practice and associated factors among healthcare providers.

HOW TO PARTICIPATE: This consent form will be signed by the healthcare provider to confirm their willingness to participate.

CONFIDENTIALITY: Your responses will be kept private and will be useful for this study in order to create a future improvement in pain management.

COSTS: No payment is required for your participation.

VOLUNTARY PARTICIPATION AND RIGHTS TO WITHDRAW:

You are free to stop taking part in the study at any moment the study is entirely voluntary.

RISKS: any risk is expected.

BENEFITS: By participating in this survey, you'll enable us to get direct feedback from healthcare providers on management of pain preoperatively.

The findings from this study will help in the advancement of quality of pain management care.

CONTACT PERSONS:

Do not hesitate to get in touch with the following if you have any questions concerning this study:

Dr. Sumayya S Mussa
Principal Investigator
Muhimbili University of Health and Allied Sciences (MUHAS)
Department of Anaesthesiology
P.O. Box 65001 Dar Es Salaam.
Tel. +255 712868505.

Please get in touch with the following if you want to learn more about your rights as a study participant.

Dr Edwin Lugazia
Head of Department of Anaesthesia MUHAS
PHONE NO: +255 754283900 +255713283900
Email: elugazia@gmail.com
P.O. Box 65001 Dar Es Salaam

Dr Nahya Salim Masoud
Director of Research, Innovation and Publication
Muhimbili University of Health and Allied Sciences (MUHAS)
P.O. Box 65001 Dar es Salaam
Tel. +255-22-2152489

I would appreciate it if you would agree to take part in this research.

I_____ have grasped the aforementioned details, and the investigator has satisfactorily addressed my queries. I voluntarily consent to taking part in this study.

Name of the participant: _____

Signature of the participant: _____Date _____

Signature of Investigator _____ Date: _____

Appendix II: Questionnaire for participants

I am SUMAYYA S MUSSA students at MUHAS-School of Medicine in the department of anesthesiology. The aim of my research is to assess of perioperative pain management practice and associated factors among healthcare providers working at MMH.

We guarantee that the information you supply will be kept confidential while we use this questionnaire to gather the information we need for our study. Please omit writing your name.

Fill questionnaire with all honesty.

Section A: **Socio demographic data**. Tick the right answer.

1. Age in years

1. 21-25 ☐ 2. 26 -30 ☐ 3. 31and above ☐

2. Sex:

1. Female ☐ 2.Male ☐

3. Marital status:

1. Single ☐ 2.Married ☐ 3. Widow ☐ 4.Separated ☐ 5. Divorced ☐

4. Department

1. Surgery ☐ 2.Anaesthesia ☐ 3. OBGY ☐ 4.Orthopedics ☐
5. Neurosurgery ☐ 6.ENT ☐ 7.Opthalmology ☐

5. Type of profession

1. Specialist ☐ 2.Registrar ☐ 3. Nurse ☐

6. Education level:

1. Certificate ☐ 2. Diploma ☐ 3.Degree ☐ 4.Masters ☐ 5.Others ☐ ☐

7. Working experience in

1. Less than 2 years ☐ 2. 2 to 5 years 3. More than 5 years ☐

Section B :(Questions related to practice)

1. Do you assess for pain in patient during perioperative period?
   1. Yes ☐ 2. No ☐
2. If yes, do you use a pain assessment tool?
   1. Yes ☐ 2. No ☐

(If no, please go to question 4)

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

   1. Sometimes ☐ 2. Often ☐ 3. Routinely ☐

Please, name the tool(s) you use_____

4. 4. If you do not use a pain assessment tool, please describe your method of assessing pain for patients during perioperative period:

_____
_____
_____
_____

5. Do you document the findings after pain assessment?
   1. Yes ☐ 2. No ☐

6. If yes, how frequently do you assess and document pain?
   1. Whenever necessary ☐ 2. Sometimes ☐ 3. Often ☐ 4. Routinely ☐

7. Do you assess the need for administration of analgesia preoperative and postoperatively?
   1. Yes ☐ 2. No ☐
8. Are pain scores and management discussed with patient during preoperative period?
   1. Yes ☐ 2. No ☐
9. Are pain scores and management discussed with patient during postoperative period?
   1. Yes ☐ 2. No ☐
10. Do you always agree with patients' statements about their pain?
    1. Yes ☐ 2. No ☐

Section C: Assessment of knowledge

True/False-Circle all correct responses for each statement. Each correct response will get a score of one (1) and a wrong response a score of zero (0).

1. **T F** Vital signs are always reliable indicators of the intensity of a patient's pain.
2. **T F** because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.
3. **T F** Aspirin and other non-steroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.
4. **T F** Respiratory depression rarely occurs in patients who have been receiving stable doses of Opioids over a period of months.
5. **T F** Combining analgesics that work by different mechanisms (e.g., combining an NSAID with an opioid) may result in better pain control with fewer side effects than using a single analgesic agent.
6. **T F** The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.
7. **T F** Children less than 11 years old cannot reliably report pain so clinicians should rely solely on the parent's assessment of the child's pain intensity.
8. **T F** Giving patient's sterile water by injection (placebo) is a useful test to determine if the pain is real.
9. **T F** Vicodin (hydrocodone 5 mg + acetaminophen 300 mg) PO is approximately equal to 5-10 mg of morphine PO.
10. **T F** Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.
11. **T F** Benzodiazepines are not effective pain relievers and are rarely recommended as part of an analgesic regiment.
12. **T F** Narcotic/opioid addiction is defined as a chronic neurobiological disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.
13. **T F** the term 'equianalgesia' means approximately equal analgesia and is used when referring to the doses of various analgesics that provide approximately the same amount of pain relief.
14. **T F** Sedation assessment is recommended during opioid pain management because excessive sedation precedes opioid-induced respiratory depression.

ASSESSMENT OF ATTITUDE

	Strongly Agree	Agree	Not sure	Disagree	Strongly disagree
1. Cultural background affects your perioperative care of a patient's report of pain.					
2.patient should experience discomfort prior to giving the next dose of pain medications					
3. visual assessment of the patient reporting pain influences your response and treatment of pain					
4. The patient who frequently requests pain medication influences your response time to analgesic administration.					
5.You anticipate pain in all surgical procedures before you assess and treat pain in a patient					
6. Using pain tools (instruments) is integral in perioperative pain management.					
7. Patients should be encouraged to endure as much pain as possible before using an opioid.					
8. A patient's spiritual beliefs may lead them to think pain and suffering are necessary					
9. Analgesic opioids should not be administered to patients with a history of substance abuse.					
10. It is a patient's right to expect total perioperative pain relief as a consequence of treatment					
11. Morphine is a very strong drug. POP patients would be content with just one dose.					
12. The type of surgery done affects your response to pain management.					
13. Of pain expression does not mean lack of pain.					
14.Effective analgesia is an essential part of perioperative management					

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

A.Is their pain assessment tools in your hospital 1. Yes ☐ 2. No ☐

B. Are you familiar with assessment tools 1. Yes ☐ 2. No ☐

C. Does your hospital have guide lines or standards on perioperative pain management?

1. Yes ☐ 2.No ☐

D. Ever participated in training related to perioperative pain management?

1. Yes ☐ 2.No ☐

If answer is NO

Reasons why training is not provided

No demand/not a priority ☐

Lack of financial resources ☐

Lack of human resources/technical skills ☐

g. Others (please identify)

_____

_____

_____

Appendix III: Consent form - Swahili version

FOMU YA MAKUBALIANO YA KUSHIRIKI KATIKA UTAFITI

utangulizi

Naitwa Dk.Sumayya S Mussa ni Daktari katika shahada ya Uzamili katika Chuo Kikuu Cha Sayansi za Tiba cha Muhimbili. Nafanya utafiti juu ya tiba ya maumivu wakati wa upasuaji na mambo yanayohusiana kati ya watoa huduma za upasuaji katika Hospitali ya Mnazi Mmoja.

Ninaomba ushirikiano wako.

Nia ya Utafiti: Kutathmini mazoea katika tiba ya maumivu wakati wa upasuaji na mambo yanayohusiana kati ya watoa huduma za upasuaji.

Jinsi ya Kushiriki: Watoa huduma za upasuwaji ambao watakuwa tayari kushiriki watasaini fomu hii ya idhini ili kukubali ridhaa yake.

Usiri: Habari inayopatikana kutoka kwako itakuwa ya siri na itakuwa na msaada katika utafiti huu na kuruhusu kuanzisha mpango wa kuboresha utunzaji katika siku zijazo.

Gharama: Hamna Malipo yoyote inahitajika kwa ushiriki wako.

Utayari wakushiriki au kujitoa: Ushiriki huo ni wa hiari na una haki ya kujiondoa kutoka kwa kushiriki katika utafiti wakati wowote.

Hatari: Hamna hatari yoyote inatarajiwa.

Faida: Ushiriki wako katika utafiti huu utatusaidia kupata maoni moja kwa moja kutoka kwa watoa huduma ya usingizi na ganzi katika kusimamia matukio muhimu yanayotokea wakati wa upasuaji.

Natumaini kuwa habari kutoka kwa utafiti huu itasaidia kuboresha ubora ya huduma.

Nitakushukuru kwa kushiriki kwako utafiti huu. Ahsante.

Mawasiliano

Ikiwa una maoni yoyote juu ya utafiti huu, tafadhali usisite kuwasiliana:

Dk. Sumayya Mussa
Mpelelezi mkuu
Chuo Kikuu cha Afya na Sayansi za Muhimbili (MUHAS)
Idara ya Anesthesiology
P.O. Box 65001 Dar Es Salaam.
Simu +255 712868505

AU

Endapo utakuwa na swali lolote kuhusu haki zako kama mshiriki katika utafiti huu wasiliana na:

Dr Edwin Lugazia
Msimamizi wa Utafiti na Mkuu wa Idara ya Anaesthesiology MUHAS
PHONE NO: +255 754283900 +255713283900
Email: elugazia@gmail.com
P.O. Box 65001 Dar Es Salaam

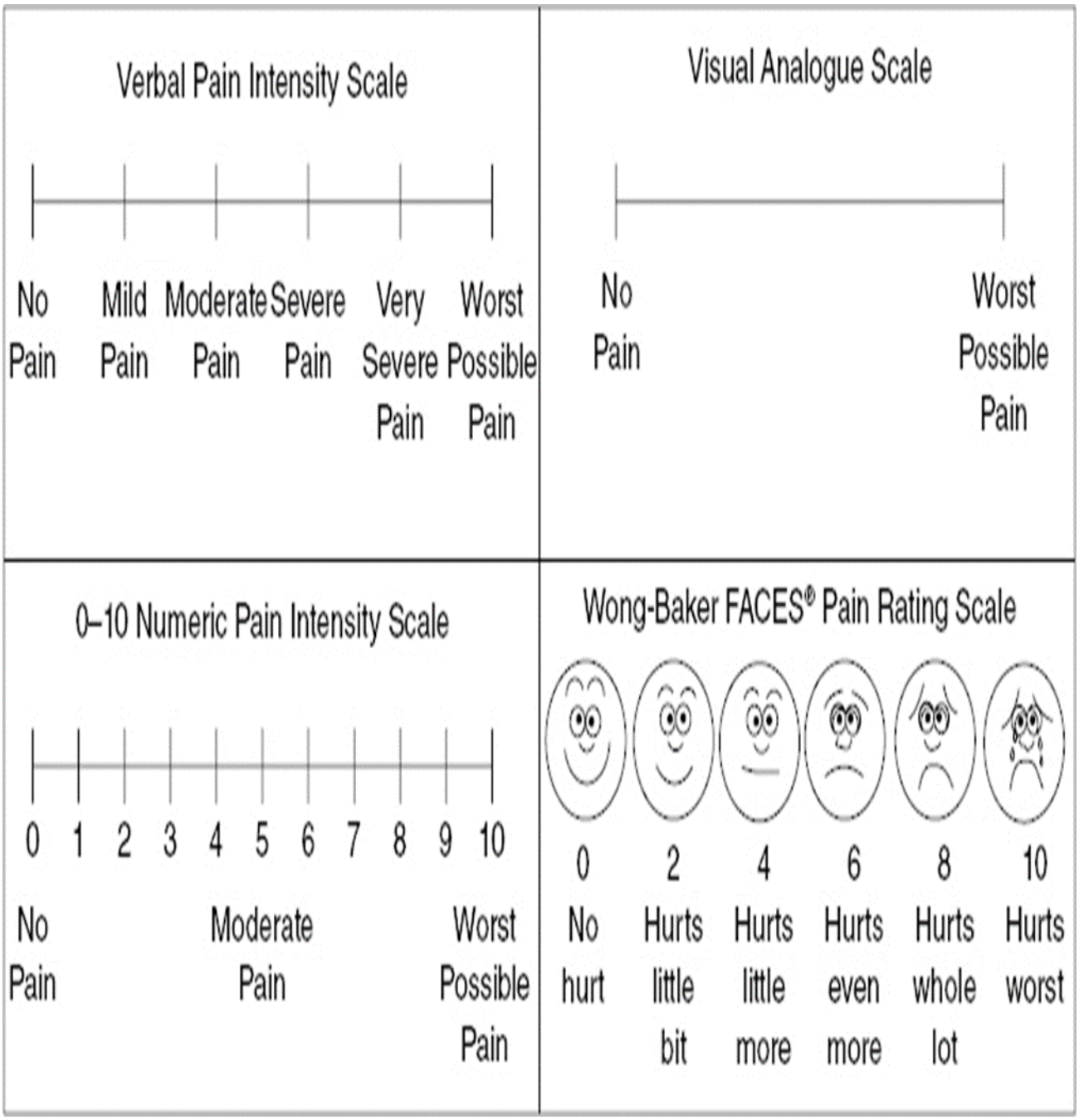
Dr Nahya Salim Masound
Mkurugenzi wa Utafiti na Uchapishaji MUHAS
Muhimbili University of Health and Allied Sciences (MUHAS)
P.O. Box 65001 Dar es Salaam
Tel:+255-22-2152489

Mimi……nimeelezwa/nimesoma yaliyomo katika fomu hii na nimeelewa maana yake. Nakubali kushiriki katika utafiti huu.

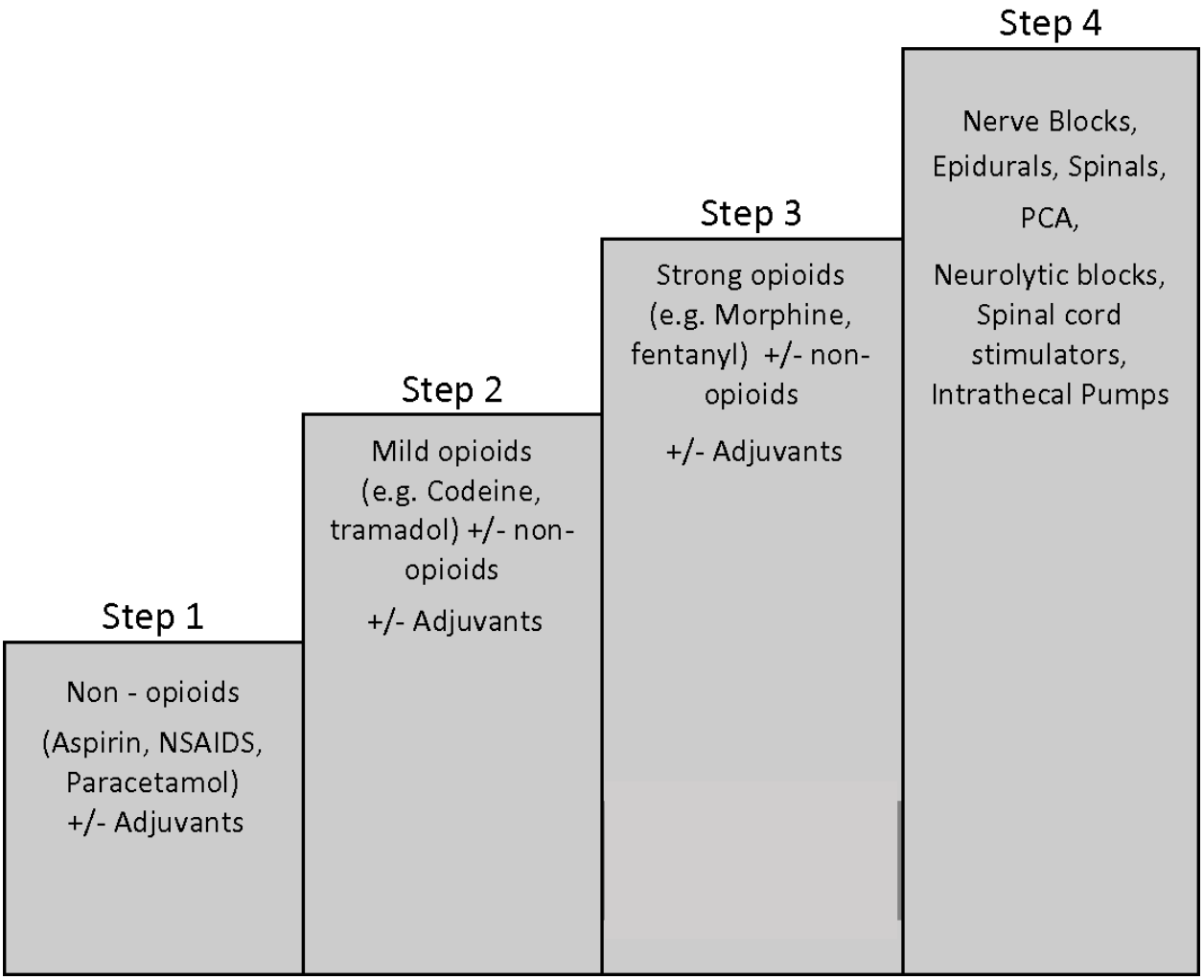
Sahihi……..(Mshiriki) Tarehe……..

Sahihi…….. (Mtafiti) Tarehe……..

Appendix Iv**: Pain assessment tools**


Verbal Pain Intensity Scale
No Pain
Mild Pain
Moderate Pain
Severe Pain
Very Severe Pain
Worst Possible Pain
Visual Analogue Scale
No Pain
Worst Possible Pain
0–10 Numeric Pain Intensity Scale
0 1 2 3 4 5 6 7 8 9 10
No Pain
Moderate Pain
Worst Possible Pain
Wong-Baker FACES® Pain Rating Scale
0 No hurt
2 Hurts little bit
4 Hurts little more
6 Hurts even more
8 Hurts whole lot
10 Hurts worst

Appendix V: WHO pain ladder



Appendix Vi: Letter for ethical clearance-MUHAS

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – RESEARCH, INNOVATION AND PUBLICATIONS

In reply quote;
Ref. No.DA.282/298/01.C/1568 Date:07/03/2023

MUHAS-REC-03-2023-1568

Sumayya S. Mussa,
Department of Anesthesiology,
School of Medicine,
MUHAS.

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: EVALUATION OF PERIOPERATIVE PAIN MANAGEMENT PRACTICE AND ASSOCIATED FACTORS AMONG HEALTH CARE PROVIDERS AT MNAZI MMOJA HOSPITAL IN ZANZIBAR, TANZANIA.

Reference is made to the above heading.

I am pleased to inform you that the Chairman has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 07/03/2023
EXPIRATION DATE OF APPROVAL: 06/03/2024

STUDY DESCRIPTION:
Purpose:
The purpose of this prospective Hospital-based analytical cross-sectional study is to evaluate perioperative pain management practice and associated factors among healthcare providers at Mnazi Mmoja Hospital-Zanzibar.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided:
https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%2013692.pdf and in the MUHAS archives.

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1038; Direct Line:+255-22-2152489;Telefax:+255-22-2152489;E-mail:drp@muhas.ac.tz;Web:https://www.muhas.ac.tz

Appendix Vii: Letter for ethical clearance Zanzibar

REVOLUTIONARY GOVERNMENT
OF ZANZIBAR

Ministry of Health,
P. O. Box 236,
Street: Mnazi Mmoja - Zanzibar
Tel: +255-24-2233644
Email: info@moh.z.go.tz
Website: www.moh.z.go.tz

Zanzibar Health Research Institute,
P.O. Box 236,
Street: Binguni – Zanzibar
Fax: +255 – 24 – 2231613
Tel: +255(0) 776 264 880
Email: estudent@zahri.go.tz

Ref: NO. ZAHREC/05/ST/JUNE/2023/104 09th June, 2023

Sumayya S Mussa,
Student Researcher,
MUHAS.

RE: ETHICAL CLEARENCE FOR CONDUCTING HEALTH RESEARCH IN ZANZIBAR

This is to certify that research protocol titled **"Evaluation of Perioperative Pain Management Practice and Associated Factors Among Health Care Providers at Mnazi Mmoja Hospital in Zanzibar, Tanzania."** was received and reviewed on the 04th June, 2023.
We would like to inform you that your proposal has been **"Approved"** for implementation.

Sites of Research: Mnazi Mmoja Hospital.

The Principal Investigator has to:

i. Submit your progress report and final report upon completion of Research.
ii. Seek permission for Publication of results from ZAHREC.
iii. Submit Copies of the final Publications to ZAHREC.
iv. Seek approval for any changes made to the approved protocol prior to their implementation

Any researcher who deviates or fails to comply with these conditions shall be guilty of an offence and shall be liable **Six months: 09/06/2023 - 08/12/2023**
Thanks in advance.

ZANZIBAR HEALTH RESEARCH INSTITUTE
16 JUN 2023
P.O. Box 236, ZANZIBAR

Dr. Mayassa S. Ally,
CHAIR- HRCC,
ZANZIBAR HEALTH RESEARCH INSTITUTE,
BINGUNI,
ZANZIBAR.

Amour S. Mohamed,
DIRECTOR GENERAL,
MINISTRY OF HEALTH,
ZANZIBAR.

Appendix VIII: Government permit for data collection at MNH

SERIKALI YA MAPINDUZI YA ZANZIBAR
AFISI YA MAKAMU WA PILI WA RAIS,

22279 Barabara ya Vuga,
Vuga, S.L.P. 239,
70460 Mjini Magharibi, Zanzibar

Tovuti : www.ompr.go.tz
Barua pepe : Info@ompr,go,tz

CA.33/411/01G/ 13 **14/08/2023**

MKURUGENZI MTENDAJI,
HOSPITALI YA RUFAA MNAZI MMOJA,
ZANZIBAR.

KUH: RUHUSA YA KUFANYA UTAFITI

Kwa heshima, naomba uhusike na mada ya hapo juu.

Serikali ya Mapinduzi ya Zanzibar imemruhusu **Ndg. Sumayya Shaban Mussa** mwanafunzi kutoka **Chuo Kikuu cha Afya na Sayansi Shirikishi, Muhimbili** anaesomea **Shahada ya Uzamili** katika fani ya **Udaktari (Anaesthesiology)** kufanya utafiti katika mada inayohusiana na **"Evaluation of Perioperative Pain Management Practice and Associated Factors Among Health Care Providers".** Utafiti huo utafanyika katika Hospitali ya Rufaa Mnazi Mmoja, Zanzibar kuanzia tarehe **11/08/2023** mpaka **11/02/2024.** Tunaomba asaidiwe ili aweze kukamilisha utafiti huo.

Kwa nakala ya barua hii mara baada ya kumaliza utafiti, mtafiti anatakiwa kuwasilisha nakala (copy) 3 za ripoti ya utafiti huo, Afisi ya Makamu wa Pili wa Rais - Zanzibar.

Naambatanisha na kivuli cha kibali cha kufanyia utafiti.

Wako mtiifu,

Gharib H. Kombo

SIAJABU S. PANDU,
/KATIBU MKUU,
OFISI YA MAKAMU WA PILI WA RAIS,
ZANZIBAR.

NAKALA: Ndg. Sumayya Shaban Mussa (0713 868505).

Appendix VIII: Data collection permit AT MMH

IDARA YA MAFUNZO NA UTAFITI MMH

Tarehe: 30/03/2023

Nd. SUMAYA SHABAN MUSSA
Mwanafunzi/Mfanyakazi..... MUHAS
Chuo/Ofisi/Hospitali..... MUHAS

KUH: RUHUSA YA KUFANYA UTAFITI.

Mada ya hapo juu inahusika na barua hii.

Umbi lako la kuja kudadisi baadhi ya wagonjwa/wafanyakazi kwa lengo la kulamilisha utafiti huo limepokewa na kuzingatiwa. Ruhusa imetolewa kuja kwa ajili ya udadisi huo unaohusiana na

Evaluation of Perioperative Pain Management practice and associated factors among Health Care Providers.

kuanzia tarehe ya barua hii kwa muda wa mwezi mmoja.

Unatakiwa kuwasilisha matokeo ya utafiti wenu ofisini kwa Mkurugenzi Mtendaji mara baada ya uandishi wa ripoti hiyo kumalizika na kuwasilisha kwenye Taasisi husika.

Unatakiwa kuvaa vitambulisho vyenu muda wote wa kazi hii kwenye maeneo ya hospitali. Pia muwe na kopi ya barua hii. Kutokana na upungufu wa wafanyakazi hospitalini hapa hamruhusiwi kutumia wafanyakazi wa hospital kwa kazi yako hii.

Natanguliza shukurani za dhati kwa mashirikiano

Ahsante

Ahm Ali Amour
MD,MMED (INTERNAL MEDICINE) and DTMH
Mkurugenzi Mafunzo na Utafiti
Hospitali ya Mnazi Mmoja.
Zanzibar.

Nakla:
- Mkuu wa Idara HMM