

**FACTORS AFFECTING NURSE'S CLINICAL DECISION MAKING IN
THE CRITICAL CARE UNITS: A DESCRIPTIVE STUDY IN
DAR ES SALAAM, TANZANIA.**

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**MSc. Nursing (Critical Care and Trauma) Dissertation
Muhimbili University of Health and Allied Sciences
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**Muhimbili University of Health and Allied Sciences
School of Nursing**



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By

Gracensia B Tairo

**A dissertation submitted in (partial) Fulfillment of the Requirements for the Degree of
Masters of Nursing (Critical Care and Trauma) of**

**Muhimbili University of Health and Allied Sciences
October, 2021**

CERTIFICATION.

The undersigned certifies that she has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled; *“Factors affecting nurse’s clinical decision making in the critical care units: A descriptive study in Dar es Salaam, Tanzania”*, in (partial) fulfillment for the requirement for Masters of Science in Nursing (Critical Care and Trauma) of Muhimbili University of Health and Allied Science.

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(Co-Supervisor)

Date:

DECLARATION AND COPYRIGHT

I, **Gracensia B Tairo**, declare that this **dissertation** is my work and that it has not been submitted to any other university or academic institution for a similar purpose of an academic award.

Signature..... Date.....

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DEDICATION

This dissertation is dedicated to the family, my husband Boniphace, my beloved son Junior, Returiane and my daughters Joane, Purity, and Charity as well as my young brother Theodomiri B Tairo

ABSTRACT

Background

Globally, clinical decision-making is regarded as a vital element for nurses' professional performance. Studies have shown decision made by nurses especially to critically ill patients admitted in intensive care units has led to positive patient's outcomes. However, institutional and individual factors can hamper a nurse's clinical decision and lead to negatively nurse's performance and patient's outcome.

Objective: The general objective of the study was to assess factors affecting nurses' clinical decision-making to critically ill patients at Muhimbili national hospital (MNH) in Dar es Salaam, Tanzania.

Material and Methods: This was a descriptive cross-sectional design employing a quantitative approach, conducted at Muhimbili National Hospital (MNH), Dar es Salaam. A structured self-administered questionnaire was given to 142 nurses. The selection of participants was through a simple random method. Data were cleaned and analyzed descriptively by using the computer software IBM SPSS version 21. Univariate and bivariate analyses were conducted to determine the factors affecting nurses' clinical decision-making. A *p*-value of < 0.05 was used to ascertain significant relationships between dependent and independent variables.

Results: Concerning individual factors which affect nurses clinical decision making more than half of participants pointed out that inadequate training on basic life support, the workload in the clinical setting, and inadequate/poor communication with other health personnel are factors that affect nurses' clinical decision making by 55.8 %, 62%, and 57.2% respectively. Institutional factors identified as factors affecting nurses' decision making were the absence of authority by nurses, shortage of staff, and lack of motivation in the working area by 52.8%, 66.9%, and 75.3% respectively.

Conclusion: The hospital management must address the identified factors which interfere with nurses' clinical decision-making for better outcomes of critically ill patients.

Keywords: Nurses clinical decision making, critical care units, critically ill patient.

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LIST OF ABBREVIATIONS

ACLS	:	Advanced cardiovascular life support
ATLS	:	Advanced trauma life support
BLS	:	Basic life support
CDM	:	Clinical Decision Making
CCUs	:	Critical Care Units
CIP	:	Critically Ill Patients
ICU	:	Intensive care unit.
IRB	:	Institution review board
NICU	:	Neonatal Intensive Care Unit
MSc	:	Masters of Science in Critical Nursing.
MAICU	:	Maternity Intensive Care Unit
MICU	:	Medical Intensive Care Unit
MNH	:	Muhimbili National Hospital
MUHAS	:	Muhimbili University of Health and Allied Sciences
PICU	:	Pediatric Intensive Care Unit.
SPSS	:	Statistical Package for Social Sciences
SICU	:	Surgical Intensive Care Unit
TMNC	:	Tanzania Nursing and Midwifery Council

DEFINITION OF TERMS

Clinical decision-making is the most and primary concept in the field of nursing which affects the course of patient care and its recovery (Razieh *et al.*, 2018). However, it can be regarded as interventions and strategies, improving patients' clinical status of their life-threatening conditions in the recovering state.

A **critically ill patient** is a patient who is admitted to the hospital due to life-threatening conditions or potential life-threatening physiological alterations who need close monitoring in special units with good supplies, advanced equipment, and machines. (Lilian T and Halima, 2018).

Effective clinical decision making is the most component in professional nursing practice, which consists of gathering, processing, and prioritizing critically ill patient information's to choose the most alternative, implement nursing action, and evaluate the results to improve patient outcomes. (Nibbelink, 2018).

Critical care unit also known as the Intensive Care Unit is a specialized hospital unit that is well equipped, in terms of supplies, with advanced equipment and working machines and enough staff dedicated to the care critically ill patients who need life-support and those at extremely high risk for organ failure and death. (Ervin *et al.*, 2018)

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Decision-making is regarded as a vital element of the nurses' professional performance (Alaseeri, Rajab, and Banakhar, 2019). Clinical decision-making is the good process of making judgments based on patient care and management (Gizaw *et al.*, 2018). The process starts by assessing the patients, diagnosis, and ends by making decisions on what to be done, based on the conducted assessments and diagnosis (Mboineki *et al.*, 2019). With that regards a nurse needs to collaborate with other health professionals to provide the best holistic healthcare services to critically ill patients.

A study done by (Bacon, Shrestha, and Jenkins, 2019) shows that nurses can make the right decisions for their patients if they are involved in decision making. Knowledge, experience, and a supportive working environment help them make better decisions while caring for critically ill patients (Farčić *et al.*, 2020).

Nurses understand patients' progress deeper compared to any other health care providers because they stay with patients longer (Mboineki *et al.*, 2019). Regardless of them being with patients longer than other health care professionals, there is a need of working closely to improve good relationships, job satisfaction, and efficient clinical performance (Morley and Cashell, 2017; Mousazadeh *et al.*, 2019; Buljac-Samardzic, Doekhie and Van Wijngaarden, 2020).

The Muhimbili national hospital used to conduct on job training for the health care professional to improve knowledge and skills for effective clinical decision making. The training includes basic life support (BLS), Pediatric emergency training, and advanced cardiovascular life support (ACLS). Although these trainings are there, the number of clinical decision making in the critical care units made by nurses are still few. Therefore, the study will assess the factors that affect nurses' clinical decision-making to critically ill patients.

1.2 Problem statement

Nurses are often the first point of entry to the health care system and provide the majority of health services. Some critically ill patients die a few minutes post-admission into the critical care settings because of delayed or improper decisions. Studies show that about 41.4% of overall ICU mortality is due to suboptimal care to critically ill patients (Sawe *et al.*, 2014). Suboptimal care partly is contributed by poor or lack of proper clinical decision-making. A quick assessment, early problem identification, and deciding on effective interventions depend on the knowledge and skills of a nurse (Mboineki *et al.*, 2019). Studies reveal that nurses lack caring ability due to the inability to make clinical decisions that are important in managing critically ill patients (Mselle & Msengi, 2018). Therefore poor decision-making can make a patient's condition more critical and in some cases cause permanent injuries or death (Abedi, Karimi, and Tehranineshat, 2020). Evidence from Tanzania insisted that, for the best patients outcome, nurses should participate in clinical decisions on the treatment of patients (Mboineki *et al.*, 2019). This is consistent with the nurse's guiding principle that encourages teamwork and nurses collaboration with other health care providers. Clinical decision-making in a clinical patient is paramount in determining desired outcomes of the patients. However, little is known at Muhimbili National Hospital on factors affecting nurses' clinical decision-making to critically ill patients in the critical care units, this is the critical step towards improving the safety and outcome of the patients. Therefore, the purpose of this study is to assess the factors affecting nurses' clinical decision-making to critically ill patients in the critical care units at MNH.

1.3. Conceptual Framework

In clinical decision-making, two models have been recognized: the intuitive-humanist model and the information-processing model. The information-processing model is more analytical thinking which focuses on objective data logically. Intuitive thinking is the process that occurs rapidly in experience and emotion. In this study, intuition in clinical decision-making can be more trustworthy, effective, and reliable. When nurses use the intuition humanist model to make a clinical decision he/she will play a major role in the management of the disease outcomes to critically ill patients in critical care units. Nurses' clinical decision-making ability, individual,

family, and institutional factors are the variables in this model. The effectiveness and efficiency of nurses' clinical decision-making to critically ill patients may be affected by either individual, institutional, and family factors (Paulina Espinosa-Rivera, 2019 , Jafarpoor, Vasli, and Manoochehri, 2020 & Mboineki *et al.*, 2019). In this study, the focus was on two factors, individual and institution. Understanding these factors will help nurses and management to overcome them to improve quality of care, manage hard situations and diagnose patients' conditions, hence reducing mortality rates.

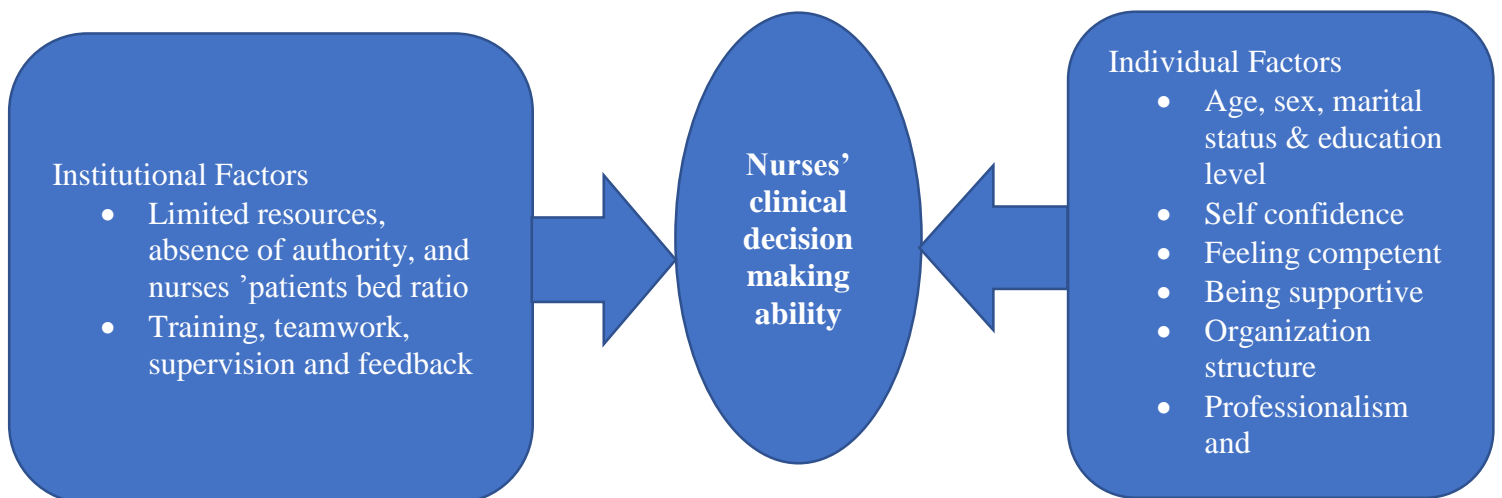


Figure 1: Conceptual framework: An intuitive-humanist model for nurses' clinical decision-making in critical care units. (Taghadosi, Ajorpaz and Aghajani, 2021).

Education level

A study done by (Wu *et al.*, 2016) shows that educational level and experience have positive impacts on nurses' clinical decision making. However, the studies point out that, despite increased attention to clinical decision-making in the nursing curriculum, no efficient training intervention has been studied emphasizes that need.

Level of self-confidence

Self-confidence is the belief and feeling of confidence regarding oneself, and about self-respect, abilities, and skills to organize actions required to reach objectives while foreseeing the effort and attitude to overcome obstacles and failures (Paulina Espinosa-Rivera, 2019). Moreover, Self-confidence encompasses the feelings of well-being that come as a result of the agreement made with oneself and with the surrounding people, while experiencing deep positive emotions that will enable nurses to act courageously and foster self-assessment. According to the study done by (Paulina Espinosa-Rivera, 2019), state that, "self-confidence provides the nurse with the feeling of control and ability to influence the situations and increases the possibility of making independent decisions". However, lacking self-confidence would result in self-doubt causing the nurse to feel weak and powerless so that he/she avoids participating in the decisions.

Organization structure

The study done by Poortaghi *et al.*, 2020 examined the effect of organization structure on the nurse's clinical decision making. The structure and culture of the health care system were other important factors affecting nurses' participation in clinical decision-making in that study.

Being supportive

Conducive facilities, financial welfare, and emotional support were considered necessary for the development of clinical decision-making. The feeling of being unsupported increases the length of hospital stay, hospital cost, loss of productivity, and morbidity and mortality of patients(Poortaghi *et al.*, 2020).

Feeling competent

Competent in the working area is a necessary factor that influences nurses' clinical decision-making. Clinical decision-making depends on one's capability to gather, understand, and integrate the data that focus on the patients' needs and identify the clinical situation. (Jafarpoor, Vasli and Manoochehri, 2020). Competence can be defined as having a good level of knowledge, skills, and experiences with the ability to use them properly while making a clinical decision for critically ill patients.

Professionalism and communication

Knowing the standards of practice, play a major role for nurses making their decisions in critical care units. In addition by providing adequate information to patients and relatives directly ensure the continuity of care for critically ill patients (Gillespie and Peterson, 2009).

Family involvement

Involving family members in making clinical decisions for patients could play a major role in healthcare services if it is logical and purposeful (Jafarpoor, Vasli, and Manoochehri, 2020). Their presence is linked with reduction of mental and psychological problems, hospital costs, faster recovery, shortened hospital stay, alleviation of patient and family concerns as well as family empowerment in terms of patient healthcare.

Absence of authority Limited resources, and nurses patient's ratio

Nurses considered "authority" as a prerequisite in clinical decision-making. Also, authority to nurses provides timely and quality care to critically ill patients (Poortaghi *et al.*, 2020). However, the condition of the patients and the practice environment affect the ability of nurses to use their authority. Furthermore, shortage in the nursing workforce and unequal nurse's bed ratio were emphasized as barriers to clinical decision-making. These caused nurses to feel unable to meet their clients' needs and gave them a feeling of inability to have control over their work while providing care to critically ill patients

Training, teamwork, supervision, and feedback

Providing regular on-the-job training increases nurses' knowledge and skills to improve nurses' clinical decision-making skills (Razieh *et al.*, 2018). Moreover, regular supervision, feedback, and working as a team in the unit, will improve interprofessional relationships and reduce suboptimal care to critically ill patients (Mboineki *et al.*, 2019).

1.4 Rationale of the study

The study was designed to assess factors affecting nurses' clinical decision-making to critically ill patients at Muhimbili national hospital. The findings of this study can provide useful information to nurses working in ICU and EMD regarding factors affecting their clinical decision-making. By understanding, factors affecting their clinical decision-making will help them deal with individual ones to improve their clinical decision-making for benefit of their patients. The hospital management can pay attention to both individual and organizational factors that affect nurses' clinical decision-making and set strategies aiming to improve nurses' clinical decision-making and ultimately improve patient care outcomes.

1.5. Research Questions

Broad research question

What are the factors affecting nurses' clinical decision-making to critically ill patients in critical care units at Muhimbili National Hospital?

Specific Research questions

- i. What are the individual factors affecting nurses' clinical decision-making to critically ill patients in critical care units at Muhimbili National Hospital?
- ii. What are the institutional factors affecting nurses' clinical decision-making to critically ill patients in critical care units at Muhimbili National Hospital?

1.6. Objectives

General objective

To assess the factors affecting nurses' clinical decision-making to critically ill patients in critical care units at Muhimbili national hospital (MNH) in Dar es Salaam, Tanzania.

Specific objectives

- i. To determine the individual factors, that affect a nurse's clinical decision-making to critically ill patients in critical care units at Muhimbili National Hospital.
- ii. To determine institutional factors that affect a nurse's clinical decision-making to critically ill patients in critical care units at Muhimbili National Hospital.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1. Introduction

Nurses' clinical decision-making is very important in the critical care units to increase high-quality care and improve patient care. Globally, healthcare undergoing wide changes which include advances in technology. New technologies increase a hard time for decision-makers especially those who are not being used to the new technologies (Maharmeh *et al.*, 2016). Nurses working in the critical care units have been widely exposed to response to new knowledge, political pressure, and the development of ongoing technical advances in health care. Nurses' clinical decision-making is a very complex process and it is important at all levels of the management process and comprises of different levels of complexity (Maharmeh *et al.*, 2016). Effective clinical decision-making depends on the efficiency and accuracy assessments made by nurses (Muir, Clinical and Standard, 2016).

According to Heyhoe *et al.*, 2016 clinical decision-making involves both knowledge and clinical experience. Nurses who timely make the clinical decision may directly affect patients' care (Razieh *et al.*, 2018). Nurses are responsible for promoting health and preventing illness as their primary role but also caring for patients with physical, psychological, and spiritual needs (Mishra, 2015). Nurses as other professionals, while working in the clinical area are faced with various ethical challenges in their professional life which require critical decision making (Gizaw *et al.*, 2018), &Jamshidian, Shahriari &Aderyani, 2019). Proper decision-making will improve the outcome of the patient while its verse-versa will worsen their condition and may even cost their life. While studies in developed countries show that there is an increase in the decision made by nurses and the quality of their care increases day after day, in developing countries the situation is the opposite. An empowered, skilled, knowledgeable, and good team player nurse is more likely to make proper clinical decisions especially in an emergency where there is no time to waste at all (Bijani *et al.*, 2021). However, low organizational management,

ethical issues and resource constrain are factors that affect nurses' clinical decision-making. Nurses are willing to make clinical decision-making, but they feel like they are not authorized to do so. (Griffiths, 2019). Most of the clinical decisions are made by doctors who have limited time with a patient. With that regard, nurses see that making clinical decisions is not part of their role which directly affects the quality of patient's care.

Several studies show that nurses in critical care units unusually deal with unstable patients whose health situation changes rapidly (Ramezani-Badr *et al.*, 2009, Griffiths, 2019). They need to be in a position of making proper decisions rapidly for the benefit of the patient (Maharmeh *et al.*, 2016). Moreover, the most significant characteristic of a critical care nurse is the ability to make clinical decisions in such numerous and complex working situations (Ramezani-Badr *et al.*, 2009).

While nurses are required to be experienced and skilled enough to make a proper clinical decision, a study at MNH reveals that they lack skills that help them make quick clinical decision making (Lilian T and Halima, 2018)

2.2. Individual factors affecting nurses 'clinical decision making

The study done by Maharmeh *et al.*, 2016 showed that there are wide changes in technology in health care. Training to this new equipment is not adequate, hence imposing a great burden on nurses who are working in the critical care units. These lead them to find the easiest and most clinical choices for caring for the patients which affect their decision-making abilities. Clinical decision-making requires nurses to be experienced and knowledgeable with relevant information for quality healthcare. The study done by Gizaw *et al.*, 2018 revealed that clinical decision-making is influenced by many factors such as experience, education, assertiveness, personal beliefs, and values. The other factors are authority, being competence, self-confidence, continuous supervision, communication, and collaboration with other health personnel. Empowered, nurses become more comfortable and confident in their clinical practice hence safety and high-quality healthcare services (Wu *et al.*, 2016).

2.3. Institutional factors affecting nurses 'clinical decision-making.

Inside professional, nurses faced challenges, such as shortage of staff, opposed ethics, and required self-rule (Keshk and Aly, 2018). Therefore, there is a need to emphasize educational opportunities and regular on-the-job training within and outside the institution for safety and good development of critical thinking disposition within professionals.

Despite them being few, they are not appreciated, well trained, and well-funded. They are working in resource constrain with the heavy workload and stressful environment which lead to a lot of improvisation and jeopardize their capacity in making clinical decisions in the critical care units (Mishra, 2015, Razieh *et al.*, 2018, Majuta, 2016).

Apart from these institutional challenges, there is also an existing traditional belief that doctors perceive themselves as superior, more powerful, and competent than nurses and they tend to keep clinical decision- making to themselves and ignore the nurses(Mboineki *et al.*, 2019). Studies show that nurses who practice clinical decision-making have a major impact on patient outcomes and safety (Gizaw *et al.*, 2018). Therefore there is a need to recognize and completely avoid factors that affect nurses' clinical decisions and frequently encourage the implementation and utilization of factors that facilitate clinical decision-making in the critical care units.

CHAPTER THREE

3.0 METHODOLOGY

3.1. Study design

This was a cross-sectional descriptive study design conducted at Muhimbili National Hospital (MNH), Dar es Salaam, Tanzania. This method was selected to allow the accurate collection of information required for this research study. The study focuses on assessing the factors affecting nurses' clinical decision-making to critically ill patients in critical care units. A descriptive quantitative was a suitable approach as the information was collected and described individually at the time of data collection and describe the extent of how nurses make their clinical decisions for critically ill patients in critical care units, during their working hours.

3.2. Study setting

The study was conducted at Muhimbili National Hospital (MNH). MNH serves as a referral National Hospital and is located at Upanga ward, Ilala District, Dar salaam. It has four adult Intensive Care Units (ICUs) namely Medical ICU (MICU), Surgical ICU (SICU), and Maternity ICU (MAICU). MNH has one Pediatric ICU (PICU) and one Neonatal ICU (NICU). It has a designated Emergency Medicine Department (EMD). The EMD receives all emergency referrals and provides services for acutely ill patients with life-threatening conditions. The ICUs at MNH attends 250 critically ill patients per month while EMD attends 400 outpatients per week, admitting 200 inpatients per week. As of 28 March 2021, the total nurses in all ICUs and EMD at MNH were 126 and 62 respectively. Nurses who are working in ICU and EMD are enrolled and registered nurses. The site was selected as it receives referrals of critically ill patients from different hospitals all over the country.

3.3. Study population

The study population was enrolled and registered nurses working in critical care units at MNH. Registered nurses are health care professionals who work as part of health care teams to promote health, prevent and treat disease (Liu and Aunguroch, 2018). Enrolled nurses a person enrolled by the Nurses Board as such but who is not "authorized to administer medications" by the Nurses Board

Both registered and enrolled nurses were selected because of the following: - both were allocated in ICU and EMD and were responsible to provide care to critically ill patients. They are obliged to make clinical decisions whenever they detect life-threatening conditions in their patients.

3.4. Sample calculation

The study was conducted in the selected units at MNH with a population of 188 nurses which is a finite population. Thus, the sample size was calculated by using Yamane's (1967) formula to determine the sample size which was required for the completion of the study and was articulated as follows.

$$n = \frac{N}{1 + N(e)^2}$$

Were

n = required simple size.

N = refers to the population size; where by 188 is the total number of all nurses working in the critical care units at Muhimbili National Hospital (Muhimbili National Hospital, 2020)

e =margin of error estimated at 5% (0.05)

Thus

$$\begin{aligned} n &= \frac{188}{1 + 188(0.05)^2} \\ n &= \frac{188}{1.47} = 127.89 \\ n &= 128. \end{aligned}$$

This sample size was adjusted for a 10% non-response rate:

$$\begin{aligned} n &= 128 \times 100\% / 100\% - 10\% \\ &= 128 \times 1 / 0.90 = 142. \end{aligned}$$

Therefore, the number of nurses to participate in the study was **142 nurses**

3.5. Sampling method and Procedure.

The participants of this study were selected by using a simple sampling method. Since this study involves nurses from ICUs and EMD at MNH then the proportional stratified method was used to ensure all nurses from the selected unit are represented equally. The proportional sample size of each unit was calculated as shown in **Table 1** below. Thereafter, a simple random sampling method was used to choose the nurses from each unit by using a lottery. For the participants who were agreed to participate in this study, informed consent was given to each participant and requested to sign it.

Table 1: Proportional sample size for each critical care unit.

S/N	Units	Sample number per unit	Total no of nurses
1	PICU	The sample will be $(29/188) * 142$	21.9 nurses
2	NICU	The sample will be $(21/188) * 142$	15.7 nurses
3	MAICU	The sample will be $(19/188) * 142$	14.4 nurses
4	MICU	The sample will be $(26/188) * 142$	19.6 nurses
5	SICU	The sample will be $(31/188) * 142$	23.3 nurses
6	EMD	The sample will be $(62/188) * 142$	46.8 nurses
		Total	142 Nurses

3.7. Inclusion criteria

The study include all registered and enrolled nurses working in ICU and EMD for at least six months.

3.8. Exclusion criteria

The study excludes all nurses who deal with administrative issues.

3.9. Data collection tool

The self-administered questionnaire was used to collect data from ICUs and EMD nurses. The questionnaire consisted of two parts. The first part was on the participant's demographic characteristics. The second part of the questionnaire had questions related to individual and institutional factors that affect nurses' clinical decision-making. The questions in the questionnaires were obtained after reading various studies related to this study. Some of the questions were modified by a researcher with assistance from ICU experts, while others were adopted from the questionnaire by Mutisya, 2008. The data collection took place from May to June 2021. Permission to data collection was granted from MNH's Executive Director, and the Heads of the selected critical care units (PICU, NICU, MAICU, SICU, MAICU, and EMD). Upon agreement to participate the participants were consulted and given written consent to sign before filling in the questionnaire. Data were collected using an English structured questionnaire. A self-administered questionnaire was filled by the participants at their convenient time. A completed filled questionnaire was collected daily to observe the quality of responses and find out the missed information for improvement.

3.10 Validity

The validity of the tools used in this study was assessed by two experts, specialized critical care nurses who were experienced from MUHAS School of Nursing. They aimed to check if the tools had content that covered the study objectives, literature, and whether questions were clear and well answered. The modification of the questions was done soon afterward. The content validity is concerned the degree to which an instrument has an appropriate sample of items for the construct being measured and is based on expert judgment (Mohajan, 2017)

3.11. Reliability

Reliability is the degree to which an assessment tool produces stable and consistent results (Mohajan, 2017). Internal consistency was used to measure the reliability of ten items patterned to individual and institutional factors affecting nurses' clinical decision-making in ICUs and EMD in the questionnaire. Cronbach's alpha (α) of 0.812 was obtained; this value reflects a higher internal consistency of the tool.

3.12. Data analysis

Data were entered into the IBM Statistical Package for the Social Sciences (SPSS) database program version 21 for analysis. A data cleaning procedure was conducted to identify missing items in the data set. Independent variables such as age, sex, years of experience, and education levels were analyzed in terms of frequency and percentage. In bivariate analysis, Pearson's Chi-square Test was used to assess the association between independent variables (age, education level, and years' experience) and factors, the outcome variable. Statistical significance was considered to exist at $p < 0.05$.

3.13. Ethical considerations

The ethical clearance approval to conduct this study was obtained from the MUHAS Institutional Review Board (IRB). Permission to conduct the study at the study site was granted from Muhimbili National Hospital administration. Informed consent, which explained the purpose and procedure of the study, was obtained from participants by signing a consent form. To ensure voluntary participation participants were informed of their right to withdraw from the study at any time. Privacy and confidentiality were achieved by identifying participants through coded numbers during data collection to ensure anonymity. All collected data during the study was kept in the researcher's locked cabinet, in a locked office.

3.14. Submission and dissemination of the findings

The research findings from this study provide useful information on the current nurse's practice of caring for critically ill patients in critical care units. This will have an impact on improving the patient's safety and the quality of care they receive during a life-threatening situation, as well as influencing the quality of nurses' clinical decision-making in critical care settings. Therefore, copies of the results of this research will be disseminated to the School of nursing- MUHAS where it will be submitted for the award of Master's Degree in Critical Care and Trauma Nursing, the Muhimbili National Hospital, and the Ministry of Health, Community Development, Gender, Elderly and, Children. For the sake of spreading knowledge the results will be published in academic and professional journals, as well as professional conferences inside and outside Tanzania.

CHAPTER FOUR

4.0 RESULTS

4.1. Socio-demographic characteristics data of the participants

All 142 selected enrolled and registered nurses for the study agreed to participate. Of 142 participants 53(65.4%) were Assistance Nurses officers (ANO). Nearly two-thirds of participants 71 (74.6%) were female. One-third of participants 40(71.4 %) had working experience between 5 to10 years. More than half of the participants 53(69.7%) were in the 30-39 years age interval. (Table 2 below).

Table 2; Socio-Demographic characteristics study of the participants

Characteristics	Frequency N	Percentage %
Gender		
1. Male	47	33.1
2. Female	95	66.9
Age group		
1. 20-29	13	9.2
2. 30-39	76	53.5
3. 40-49	46	32.4
4. 50-69	7	4.9
Level of education		
1. Certificate	10	7.0
2. Diploma	79	55.6
3. Advanced Diploma	2	1.4
4. Bachelor Degree	47	33.1
5. Master's Degree	4	2.8
Working Experience		
1. Less than 1year	3	2.1
2. 1 – 5 years	53	37.3
3. 6 – 10 years	56	39.4
4. Above 10 year	30	21.1
Currently working place		
1. PICU	22	15.5
2. NICU	16	11.3
3. MICU	20	16.2
4. SICU	23	16.2
5. MAICU	14	9.9
6. EMD	47	33.1

4.2 Factors affecting decision making

4.3 Individual factors

Inadequate training on basic life support was rated by 62(55.8%) of the participants as a factor affecting nurses' clinical decision-making in critical care units. Regarding workload in the working area, about 88(62 %) of the participants checked it as a factor affecting nurses' clinical decision-making in critical care units. The other factor which was rated high by 81(57.2%) of the participants as one of the factors that affected nurses' clinical decision making in critical care units was inadequate/poor communication with other health personnel. Regarding lack of training on advanced cardiac life support and lack of confidence to make clinical decisions 54(38%) and (127(89.4%) rated it as not factors that affect nurses' clinical decision making (Table 3 below).

Table 3: Descriptive statistics of Individual factors related to nurses clinical decision making

Factors	Yes	No
Lack of training on basic life support	62 (55.8%)	80 (54.2%)
Workload prevents clinical decisions	88(62%)	55(38%)
Lack of training on advanced cardiac life support.	54(38%)	88(62%)
Inadequate nurse's communication with other personnel affect clinical decision making	81(57.2%)	61(42.8)
Lack of confidence to make clinical decisions	15(10.6%)	127(89.4%)

4.4 Institutional factors.

The absence of authority to nurses was rated by 75(52.8%) of the participants as a factor affecting nurses' clinical decision-making in critical care units. Regarding lack of motivation in the working area 107(75.3%), of the participants checked it as a factor affecting nurses' clinical decision-making in critical care units. Participants also rated lack of regular training, shortage of staff as well as limited recourse as institutional factors which affect nurse's clinical decision making in critical care units by 85 (59.8%), 95(66.9 %) and 79(55.6%) respectively.

Table 4: Descriptive statistics of Institutional factors related to nurse's clinical decision making

Factors	Yes	No
Lack of regular training	85 (59.8%)	57 (40.2%)
Limited recourses	79(55.6%)	66(44.4%)
Absence of authority to nurses	75(52.8%)	67(47.2%)
Shortage of staff	95(66.9%)	67(47.2%)
Lack of motivation and encouragement.	107(75.3%)	35(24.7%)

4.5. Associations between Socio-demographic characteristics and factors affecting decision-making ability.

Factor affecting decision-making ability was not associated with work experience, education level, and age group among Nurses working at ICU and EMD. There was a significant association between gender and factors affecting decision-making ability with a p-value of 0.02 (See Table 5).

Nurses characteristics	Factor affecting decision-making ability	Nurses characteristics
Gender (p=0.02)	Yes n (%)	Gender (p=0.02)
Male	26(55.3)	Male
Female	71(74.6)	Female
Age group(p=0.27)		Age group(p=0.27)
20-29 yrs.	7(53.8)	20-29 yrs.
30-39 yrs.	53(69.7)	30-39 yrs.
40-49 yrs.	31(67.4)	40-49 yrs.
50-59 yrs.	6(85.7)	50-59 yrs.
Working experience in yrs. (p=0.55)		Working experience in yrs. (p=0.55)
<1	1(33.3)	<1
1-5	35(66.0)	1-5
5-10	40(71.4)	5-10
>10	21(70.0)	>10
Level of education (p=0.55)		Level of education (p=0.55)
Certificate	8(80.0)	Certificate
Diploma	53(65.4)	Diploma
Bachelor	32(68.0)	Bachelor
Master's degree	4 (100)	Master's degree

CHAPTER FIVE

5.0 DISCUSSION

5.1. Overview

Nurses in the critical care units use many sources of information, such as their experience, knowledge, stories about their patients, advice from their colleagues and doctors. The complicated health situation in critical care areas highlights the complexity and the importance of nurses' decision-making. Patients in critical care units are seriously ill and frequently unstable and their health changed rapidly, these changes require nurses to make decisions quickly in a limited period in the critical care units to save critically ill patients' life.

5.2. Demographic characteristic of study participants

This study aimed to assess factors affecting nurses' clinical decision-making in the critical care units.

Some decisions are taken by a nurse who is looking after the patient and there are those joint decisions that are taken by both a nurse and a doctor. According to a study done by (Heyhoe *et al.*, 2016), clinical decision-making involves both knowledge and clinical experience. In this study most (39.4%) nurses were having 5-10 years of experience. However, there was no association between years of experience and identified factors that affect the decision-making ability of a nurse. Females were more likely to identify factors affecting the decision-making ability of a nurse compared to males (p-0.02). This might be justified by the fact that they are more in the health care sector than men.

5.3 Individual factors affecting nurse's clinical decision making in the critical care unit

According to the study done by (Boafo, 2018) the most mentioned factor that influenced nurses' decision-making in the critical care unit was the clinical experience. Similarly, (Maharmeh *et al.*, 2016) found that experienced nurses had the power to take some risky non-nursing decisions and the power to question the physicians about their treatment decisions. These attributes of

experience and intuitive decision-making were not found with less experienced nurses in critical care settings. In our study, there was no relationship between working experience and identification of the factors affecting nursing clinical decision-making. The differences observed might be due to differences in education level between participants of this study and the other studies. Concerning individual attributes increased workload during caring for the critically ill patient has been pointed out as a factor affecting nurse's decision-making 61.97%. These resemble a study done by Mishra, 2015. Moreover, more than half of the participants (55 %) pointed out inadequate training on basic life support as one factor that affects clinical decision-making. This was similar to studies done by Mboineki *et al.*, 2019 and Alaseeri *et al.*, 2019 showed out almost the same result.

5.4. Institution factors affecting nurse's clinical decision making in the critical care unit

More than half of participants (52.8%) pointed out that lack of authority to nurses is one of the factors affect their clinical decision-making ability. This finding is similar to with the study done by Bijani *et al.*, 2021 which found the same results. Participants in this study (75.4%) rated lack of motivation in working areas as a factor affecting clinical decision-making. This finding is resembling with the study conducted by Mishra, 2015. In Mishra study participants rated lack of motivation by 71%, Similarities in these two studies might be because motivation tends to increase work morale hence raising the performance. Nearly two-third of the participants (66.9%) rated shortage of staff as an institutional factor that affects nurses in making their clinical decision in the critical care unit. This finding is similar to the study done by (Poortaghi *et al.*, 2020). The study reveal that shortage in the nursing workforce, lack of care facilities and unequal nurse's bed ratio are the barriers to clinical decision-making. These barriers lead nurses to feel unable to meet their clients' needs and inability to have control over their work while providing care to critically ill patients,

5.5 Limitations of the study

The risk of participants asking others who filled the questionnaires may happen if the participants who had already filled the questionnaires are around while the other participants receive the questionnaires for filling. The risk of participants sharing responses during filling of the questionnaires was mitigated by giving clear instructions to participants before filling in the questionnaire.

The data were collected from a small sample size of nurses working in critical care units at Muhimbili National Hospital (MNH) Dar es Salaam region. Therefore, a generalization that cares provided to all critically ill patients in critical care units is affected by poor decision making, hence suboptimal care. However, participants were selected by simple random from all intensive care units within Muhimbili National Hospital.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The findings of this study have provided a better understanding of the factors affecting nurses' clinical decision-making in the critical care units in the context of Tanzania. The results revealed that clinical decision-making for nurses is affected by individual factors and organizational factors. Individual factors identified were such as on job training, inadequate equipment, and supplies, minimal knowledge, and skills on basic life support. Institutional factors identified were; absence of authority by nurses, shortage of staff, and lack of motivation. Therefore, to enhance nurse clinical decisions to critically ill patients, hospital managers need to address individual and institutional factors that might influence nurses' clinical decisions.

6.2 Recommendations

- Ministry responsible for health, Health universities, together with critical care organizations in the country should develop an undergraduate curriculum/formal training courses for intensive care unit.
- This training should be competency-based, preparing an individual to specialize in providing care and monitoring a patient's condition while in the intensive care units.
- The hospital/ Institution should also make sure that there is adequate equipment and so that once the decision is made its implementation should not be an issue.
- Hospital administration should develop regular training sessions that will be provided via on job training to address critical care skills, for all individuals who providing care to the critically ill patient to the critical care units.
- This on-job training program for staffs should be conducted in a way that it addresses the knowledge and skills needed for caring a critically ill patient.

More research needs to be done to:

- Identify patients and family factors that affecting nurses clinical decision making in critical care units
- Identify most common adverse events or complications due to inadequate nurse's clinical decision making of critically ill patients in critical care units in Tanzania.

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APPENDICES

Appendix I: Structured questionnaires on factors affecting nurse's clinical decision making in critical care setting.

NUMBER

Social Demographic Data. (Put tick where applicable)

1. What is your gender?

- a) Male
- b) Female

2. What is your age?

- a) 20 - 29yrs
- b) 30 - 39yrs
- c) 40 - 49yrs
- d) 50 - 59yrs

3. What is your level of education?

- a) Certificate
- b) Diploma
- c) Advanced Diploma
- d) Bachelor's degree
- e) Master's degree
- f) PhD
- g) Other specify.....

4. Which critical care unit are you currently working?

- a) Pediatric Intensive Care Unit (PICU)
- b) Neonatal intensive care Unit (NICU)
- c) Medical Intensive Care Unit (MICU)
- d) Surgical Intensive Care Unit (SICU)
- e) Maternal Intensive Care Unit (MAICU)
- f) Emergency Medicine Department (EMD)

5. How many years of working experience do you have at the units?

- a) 6 months to 1 year
- b) 1 year to 5 years
- c) 6 years to 10 years
- d) Above 10 years

Nurses knowledge on clinical decision making

6. Nurses ability to make clinical decision making to critical ill patients

- 1. Yes
- 2. No

Part II. Questionnaires.

Individual factors that affect nurse's clinical decision making to critically ill patients (Put tick where applicable)

What are the individual factors affecting nurse's clinical decision making to critically ill patients critical care units?						
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
7	Lack of basic life support training					
8	Lack of advanced Cardiac life support training					
9	Workload in the working area					
10	Inadequate nurse's communication with other personnel affect clinical decision making					
11	Working is stressful with lack of support					
12	Am not self-confidence enough to make clinical decisions					
13	Non-nursing duties that decreased their relationship with patients					

Part III Questionnaires.

Institutional factors that affect nurse's clinical decision making to critically ill patients (Put tick where applicable)

What are the institution factors affecting nurse's clinical decision making to critically ill patients in critical care units		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14	Lack of regular training makes it hard for staff to make clinical decisions.					
15	Limited recourses prevents make clinical decisions					
16	Absence of authority to nurses prevents makes clinical decisions					
17	Shortage of staffing about a nurse-patient ratio.					
18	Lack of motivation and encouragement affects nurse's clinical decision making.					
19	Staff timely receives feedback and support.					

Appendix II: Informed Consent (English version).

**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)
DIRECTORATE OF RESEARCH AND PUBLICATIONS**



MUHAS INFORMED CONSENT FORM

ID NO: HD/MUH/T.504/2019.

Consent to participate in a study.

TITLE: FACTORS AFFECTING NURSE'S CLINICAL DECISION MAKING IN CRITICAL CARE UNITS AT MUHIMBILI NATIONAL HOSPITAL- UPANGA.

NAME: GRACENSIA BONAVENTRA TAIRO.

Purpose of the Study: The purpose of the study is to assess factors that affecting nurse's clinical decision making to critically ill patients in critical care units at Muhimbili National Hospital.

What Participation Involves: If you agree to join the study, you will be interviewed in order to answer a series of questions in the interview guide prepared for the study.

Confidentiality: The information from the study will be kept in a safe place with access to authorized personnel only and will be used for research purposes only. No names will be used instead identification number will be used to represent the participants.

Risks: For this study we do not expect any risk while participating in this study.

Rights to withdraw and Alternatives: To participate in this study is completely your choice. You are free to choose either to participate in this study or not. You can decide to stop participating in this study at any time you wish even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled.

Benefits: If you agree to take part in this study there are no direct benefits that you will get from this study but we believe the information you will provide will help in improving nurse’s practice regarding making clinical decisions to patient with life threatening conditions at Muhimbili National Hospital- Upanga- Dar es Salaam.

Compensation: There will be no compensation of any kind for participating in this study.

Whom to contact: In case of any questions about this study, don’t hesitate to contact the principal investigator Gracensia Bonaventura Tairo Muhimbili University of Health and Allied Sciences School of Nursing P.O. Box. 65004 Dar es Salaam, through Mobile +255 715975078 or research supervisor Dr Beatrice Mwilike, Muhimbili University of Health and Allied Sciences School of Nursing P.O. Box. 65004 Dar es Salaam, Mobile+255 712620924.

If you ever have questions about your rights as a participant, you may contact the Director of Research and Publications Committee DR BRUNO SUNGUYA, Muhimbili University of Health and Allied Sciences P.O. Box 65001 Dar es Salaam Tel + 255 222150302.

Do you agree?

Participant agrees..... Participant does not agree.....

I.....have read the content in this form. My questions have been answered. I agree to participate in this study.

Signature of participant

Signature of principal investigator

Date of signed consent.....

Appendix III: Fomu ya ridhaa (Kwa lugha ya Kiswahili).

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI
KURUGENZI YA TAFITI NA UCHAPISHAJI.
FOMU YA RIDHAA.



Nambari ya usajili: HD/MUH/T.504/2019.

Naitwa Gracensia Bonentura Tairo, ni mwanafunzi wa mwaka wa pili katika shahada ya uzamili ya huduma kwa wagonjwa mahututi (Wasiojiweza) katika chuo kikuu cha afya na sayansi shirikishi Muhimbili. Ninafanya utafiti kuhusu “KUCHUNGUZA SABABU ZINAZOFANYA WAUGUZI KUSHINDWA KUTOAMAAMUZI KWA WAGONJWA MAHUTIHUTI WALIOLAZWA KATIKA VITENGOMAALUMU VINAYVO HITAJI UANGALIZI WA KARIBU KATKA HOSPITALI YA TAIFA- UPANGA”. Utafiti huu unawahusu wauguzi wanaofanya kazi katika vitengo maalumu vya wagonjwa mahututi katika idara ya dharura na ajali na vitengo maalumu vya kuwapa huduma wagonjwa mahututi katika Hospitali ya Taifa Muhimbili, tawi la Upanga Dar es Salaam, Tanzania.

Umuhimu wa utafiti huu: Utafiti huu unalenga kuchunguza sababu hasa zinazo athiri wauguzi kwenye kutoa maamuzi kwa wagonjwa mahututi katika vitengo maalumu kwa wagonjwa wanahitajit uangalizi wakaribu katika Hospital ya Taifa Muhimbili-Upanga.

Jinsi ya kushiriki.

Ili kushiriki katika utafiti huu, utasailiwa ili kuweza kujibu maswali kutoka kwenye dodoso lililoandaliwa kwa ajili ya utafiti huu ambapo utaulizwa na mtafiti nae ataandika maelezo yako.

Usiri: Majibu yote yatakusanywa kutoka katika eneo la utafiti na yatahifadhiwa sehemu maalum ambapo wahusika tuu ndio wataruhusiwa kuzipata taarifa hizo. Pia majina hayatumika badala yake tutatumia nambari ya utambulisho tu.

Madhara: Hatutegemei kukutokea madhara yoyote kwa kushiriki kwako katika utafiti huu.

Haki ya kutoshiriki au kusitisha kushiriki na mbadala

Kushiriki katika utafiti huu ni chaguo lako, na una haki ya kukubali au kukataa kushiriki katika utafiti huu. Pia unaweza kusitisha kushiriki katika utafiti huu muda wowote utakapojisikia hivyo hatakama umeshakubali kushiriki. Kukataa kushiriki au kusitisha kushiriki katika utafiti huu hakutakufanya upoteze haki zako za msingi au kupata adhabu yoyote.

Faida: Ikiwa unakubali kushiriki katika utafiti huu hakuna faida ya moja kwa moja ambayo utapata kutokana na utafiti huu, lakini tunaamini yakwamba habari utakayotoa itasaidia kuboresha ufanisi kwa wauguzi katika kushiriki kwenye kutoa maamuzi kwa wagonjwa mahututi katika Hospitali Taifa- Upanga, Dar es Salaam

Mawasiliano.

Kama utakuwa na swali lolote kuhusu utafiti huu unaweza kuwasiliana na mkuu wa utafiti huu Gracencia Bonaventura Tairo, Shule ya Uuguzi ya Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili, S.L.P. 65004, Dar es Salaam, namba ya simu +255 715975078 au unaweza kuwasiliana na msimamizi wa utafiti huu DR BEATRICE MWILIKE, Shule ya Uuguzi Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili, S.L.P. 65004, Dar es Salaam namba ya simu +255 712620924

Na ukiwa na swali lolote kuhusu haki zako kama mshiriki, unaweza kuwasiliana na Mkurugenzi wa Utafiti wa Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili, DR BRUNO SUNGUYA, S.L.P. BOX 65004, Dar es Salaam. Tel + 255 222150302

Je unakubali?



Mshiriki kakubali.....Mshiriki hajakubali.....

Mimi..... nimesoma na nimeelewa maelezo ya fomu hii. Maswali yangu yote yamejibiwa na nakubali kushiriki katika utafiti huu

Sahihi ya mshiriki..... Sahihi ya mtafiti..... Tarehe

Appendix IV: Approval of Ethical clearance

UNITED REPUBLIC OF TANZANIA
 MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
 MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR - RESEARCH AND PUBLICATIONS

Ref. No.DA.282/298/01.C/ Date: 21/05/2021

MUHAS-REC-05-2021-626

Gracensia B Tairo,
 MSc. in Critical Care and Trauma,
 School of Nursing
MUHAS

**RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED:
 FACTORS AFFECTING NURSE'S CLINICAL DECISION MAKING IN THE
 CRITICAL CARE UNITS AT MUHIMBILI NATIONAL HOSPITAL.**

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: 21/05/2021
 EXPIRATION DATE OF APPROVAL: 20/05/2022

STUDY DESCRIPTION:
Purpose:
 The purpose of the observational cross sectional study is to asses factors affecting nurses' clinical decision making in critical care units.

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-%20651.pdf> and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain data transfer agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain material transfer agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country,
8. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
9. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
10. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website <https://drp.muhas.ac.tz/>.



Dr. Bruno Sunguya



Chairman, MUHAS Research and Ethics Committee



Cc: Director of Postgraduate Studies

Appendix V: Introduction letter,

UNITED REPUBLIC OF TANZANIA
 MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
 MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
 OFFICE OF THE DIRECTOR – POSTGRADUATE
 STUDIES

Ref. No. HD/MUH/T.504/2019 24th May, 2021

EXECUTIVE DIRECTOR,
 MUHIMBILI NATIONAL HOSPITAL,
 P.O BOX 65000,
 DSM-TANZANIA.

Re: INTRODUCTION LETTER


The bearer of this letter is Gracensia B. Tairo (HD/MUH/T.504/2019), a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MSc. Critical Care and Trauma.

As part of her studies she intends to do a study titled: **“FACTORS AFFECTING NURSES’ CLINICAL DECISION MAKING IN THE CRITICAL CARE UNITS AT MUHIMBILI NATIONAL HOSPITAL”**.

The research has been approved by the Chairman of University Senate.

Kindly provide her with the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.



Ms. Victoria Mwanitwa
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Déan, School of Nursing, MUHAS
 cc: Gracensia B. Tairo



9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1015; Direct Line:+255-22-2151378;Telefax:+255-22-2150465;E-mail:dpgs@muhas.ac.tz;Web:<https://www.muhas.ac.tz>

Appendix VI: Permission letter to collect data at MNH

THE UNITED REPUBLIC OF TANZANI

MINISTRY OF HEALTH, COMMUNITY
DEVELOPMENT, GENDER, ELDERLY
AND CHILDREN

MUHIMBILI NATIONAL HOSPITAL

In reply please quote;

Ref. No.: MNH/TRCU/Perm/2021/140 Date: 25th May, 2021

Block Manager
- Mwisela
- Emergency Medicine
- Maternity I
- Paediatrics
- General ICU
Muhimbili National Hospital

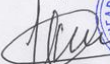
RE: PERMISSION TO COLLECT DATA AT MNH.


Name of Student	Gracensia B. Tairo
Title	"Factors Affecting Nurses' Clinical Decision Making in the Critical Care Units at Muhimbili National Hospital".
Institution	Muhimbili University of Health and Allied Sciences
Supervisor	Dr. Beatrice Mwilike
Co – Supervisor	Mr. Gift Lukumay
Period	25 th May 2021, to 30 th June , 2021

Approval has been granted to the above mentioned student to collect data at MNH.

Kindly ensure that the student abide to the ethical principles and other conditions of the research approval.

Sincerely,


Reid B. Mchome
 Coordinator –Teaching, Research and Consultancy Unit



c.c DNS
c.c **Gracensia B. Tairo**

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