NURSING CARE OF PATIENTS 24 HOURS POST ICU DISCHARGE: KNOWLEDGE AND ATTITUDE AMONG GENERAL WARD NURSES IN TERTIARY HOSPITALS, DAR ES SALAAM, TANZANIA.

Nazahed Richard, BScN

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By

Nazahed Richard

A Dissertation Submitted in (Partial) Fulfillment of the Requirement for the Degree of Masters of Science in Nursing (Critical care and Trauma) of Muhimbili University of Health and Allied Sciences

October, 2021

CERTIFICATION

The undersigned certifies that he has read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled; **Nursing care of patients 24 hours Post ICU Discharge: Knowledge and Attitude among general ward Nurses in tertiary Hospitals, Dar Es Salaam, Tanzania,**

in (Partial) fulfillment of the requirement for the Degree of Masters of Science in Nursing (Critical care and Trauma) of Muhimbili University of Health and Allied Sciences

_____

Dr. Dickson Mkoka

(Supervisor)

_____

Mr. Masunga Iseselo

(Co-Supervisor)

_____

Date

DECLARATION AND COPYRIGHT

I**, Nazahed Richard** 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 similar of any other degree award.

Signature……. Date……

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DEDICATION

Having a successful son or daughter is the best thing that the parents would wish to have. And therefore, I being a mother, this is also my dream.

I therefore dedicate this work to my lovely children Bryan, Ivanna and Gian. I wish them all the best in their journey to success. May the Almighty God protect and lead them to that success that their parents wish them through hard working in their studies.

ABSTRACT

Background: Delay in recognition of patient's deterioration, incompetency on sepsis recognition and management were the common problem resulted on provision of suboptimal nursing care to patient post ICU. It was observed that there are number of death and re - admission of post ICU patients. In Tanzania, studies revealed, nurses were ineffective on providing appropriate nursing care due to limited technological skills and knowledge for making decision when managing patient in general ward. **Currently no published study has been identified in Tanzania regarding nurses' knowledge and attitude in caring patients 24 hours post ICU discharge.**

Aim: To assess nursing care of patients 24 hours post ICU; Knowledge and Attitude among general ward nurses in Tertiary hospitals, Dar es salaam, Tanzania.

Materials and Methods: A descriptive cross-sectional study employed to 169 respondents selected by multistage random sampling from three tertiary Hospitals. A self-administered questionnaire was used. Data were analysed by SPSS version 23.0 and p-Value was used as a cut-off point on assessing relation between variables in the study.

Result: Majority 57.4% of participants were 20 - 34 years old, more than half were female 62.7%, with diploma in nursing 62.7%, work in medical wards 68.6% and 50.6% with 2 - 5 years working experience. The mean score of nurses' knowledge was 3.882 (STD dev. =1.834). Regarding knowledge 85.8% were unable to identify exact number of vital sign used to measure physiological status. But 84.6% understood the change in level of consciousness and vital signs. Regarding attitude, the mean score was 3.298(STD dev. =0.6085). Working area was statistically significant with level of knowledge regarding care of post ICU patient (X^2 = 13.510; df=3; p=0.004). Working area, experience, participant who had diploma or degree show a statistical significant with attitude toward caring patients after discharge from ICU (p<0.005).

Conclusion and recommendation: The study find that there is low level of knowledge on ways to assess airway patency, use of Bag Valve and Mask for patient with shallow breathing. The study recommend that general ward nurses should be provided with relevant trainings in support of appropriate nursing care to post ICU patients.

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ABBREVIATIONS

ABCDE	Airway, Breathing, Circulation, Disabilities and Exposure
AVPU	Alert, Verbal, Pain, Unresponsive
CCU	Coronary Care Unit
CPR	Cardiopulmonary Resuscitation
EMD	Emergency Medicine Department
ICU	Intensive Care Unit
JKCI	Jakaya Kikwete Cardiac Institute
MNH	Muhimbili National Hospital
MOI	Muhimbili Orthopaedic Institute
MUHAS	Muhimbili University of Health and Allied Sciences
SBAR	Situation, Background, Assessment and Recommendation
SPSS	Statistical Package Social Sciences

DEFINITION OF TERMINOLOGY

Intensive Care Unit special area in a hospital were critically ill patients who need close and frequent observation can be cared, by qualified and trained staff, with highly equipped machines.

Knowledge theoretical understanding of measures to patients post ICU.

Nursing care is a collaboration of care in promotion of health, prevention of illness, including assessment of response to health status through planning, implementation and evaluation to ensure positive patients' outcome.

Post ICU patients is the one who discharged from ICU to general ward.

OPERATIONAL DEFINITION:

GOOD KNOWLEDGE: This refers to nurses, who scored above or equal to the mean score (70% to 100%) of the knowledge questions, were considered as having good knowledge about caring 24 hours for patient discharge from ICU.

POOR KNOWLEDGE: This refers to nurses, who scored below or equal to the mean score (0% to 69.9%) of the knowledge questions, were considered as having poor knowledge about caring 24 hours for patient discharge from ICU.

POSITIVE ATTITUDE: This refers to the nurses who scored above or equal to the mean score (30 to 50) of the attitude questions, were considered as having favorable attitude about caring 24 hours for patient discharge from ICU.

NEGATIVE ATTITUDE: This refers to the nurses who scored below or equal to the mean score (0 to 29.9) of the attitude questions, were considered as having unfavorable attitude about caring 24 hours for patient discharge from ICU.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study.

Admission and discharge of patients from Intensive Care Units (ICUs) was associate with the factors like need for intensive care and available beds due to shortage of ICU beds and staff in limited resource setting (Mtango *et al.*, 2019). Similarly, admission of patients in ICU requires triage weighing benefit and risk involved for balancing distribution of resources availability (Blanch *et al.,* 2016). Although a decision to discharge patients from ICU is made when the team is satisfied that the patient can continue with care in general ward. Then, studies have indicated that about 20% of patients dying after ICU discharge in general ward were expected to survive (Lighthall *et al*., 2016). Therefore, nursing care is a major component of the health services which determine the quality health services (Shawa, 2012).

An effective recovery and survival of critically ill patient require a close observation and assessment after being transferred in general wards from ICUs. Nowadays it is increasingly becoming more apparent that, general ward nurses play a significant role in assessing and observing patient at risk of becoming critically ill (Chellel *et al.*, 2020). However, 12 hours shift or longer is common in nursing care when patients-to-nurse ratio kept with a lower number of nursing hours for improving patient outcome, but also there a higher risk of delaying in observing vital sign among healthcare assistance (Lighthall *et al.*, 2016). **Therefore, in this case, knowledge and attitude of general wards nurse towards observation of patients at risk of becoming critically are extremely important in increasing the health outcome (Ryan *et al.*, 2015).**

The development of science and technology has increase the quality of care needed to patient for better health outcome and avoiding death after discharge from ICU into general wards. Besides, there were several problems that affect the provision of optimal care for the first 24 hour following discharge from ICU. A recent study shows recognition and management of sepsis, mobilization and provision of nutrition were frequently problem that influence sub-optimal care to post ICU patient (Vollam *et al.,* 2021). This highlight the need for nurses to have adequate knowledge and positive attitude in assessing and observing patients 24 hours post ICU discharge. Therefore, a close collaboration and education for general ward nurse on providing continuing nursing care to post ICU patient is needed. The continuous monitoring of critically ill patients involves the clinical follow up of eight vital signs such as assessment of pulse rate, respiratory rate, temperature, blood

pressure, oxygen saturation, pain, level of consciousness, and urine output to prevent patient deterioration (Elliott *et al.*, 2012).

A study done in Tanzania on experience of caring critically ill patient in a general ward shows, nurses were unable to provide optimal care to critically ill patients because of shortage of critical care prepared personnel (Mselle and Msengi, 2018). This implies that nurses require knowledge for managing critically ill patient in the general ward. Moreover, positive attitude remains important in practicing nursing care for critically ill patients admitted 24 hours post ICUs. A qualitative study show delayed on information transfer to specialist during practices was due to communication barrier between nurses and doctors which affect ICU triage among critically ill patient in Tanzania (Mtango *et al.,* 2019). This motivate the researcher to conduct a study on determining the knowledge and attitude of general ward nurses in assessing and monitoring post ICU patients 24 hours following discharge from Intensive care unit.

1.2 Problem Statement

Inadequate provision of nursing care within first 24 hours affects patient recovery and resulted to an increased mortality and morbidity rate after discharged from ICU. **A post ICU patient in-hospital mortality rate ranged from 4-13% globally (Santamaria *et al.*, 2016; Vollam *et al.*, 2018). Moreover, the prevalence was reported to be 6.6% in European countries like England and Wales (Vollam *et al.*, 2021). Notably, a study done in South Africa document 5.3% of in hospital death occurred following ICU discharge (Wise *et al.*, 2017).** However, nurses play a major role of delivering a continuum nursing care especially when assessing and observing vital signs from patients. Then, several factors identified to affect delivery of optimal nursing care 24 hours following discharge from ICU. A study done from a higher income country such as United Kingdom reveled absence of nutritional planning, incompetency on sepsis recognition and management were the common problem resulted on provision of suboptimal nursing care to patient after discharge from ICU (Vollam *et al.*, 2021). Hence, the occurrence of in hospital death can be preventable and avoidable when improving nursing care within first 24 hours to promote patient recovery following ICU discharge.

Usually, patient returns to general wards after being discharged from ICU when their condition improve. In a low and middle income countries most of post ICU patient have experienced adverse event like re-admissions to ICU and eventually a death. **An evidence from Tanzania shows nurses were ineffective on providing appropriate nursing care resulted from limited**

technological skills and knowledge for making decision when managing critically ill patient in a general wards (Mselle and Msengi, 2018). This implies there is concern regarding nurses' knowledge and attitude on providing nursing care to patient following discharge from ICU. **Currently no published study has been identified in Tanzania regarding nurses' knowledge and attitude of caring patients 24 hours post ICU discharge.** Therefore, the study therefore focused to assess knowledge and attitude among general ward Nurses on provision of care to patients 24 hours post ICU discharge in Tertiary hospitals, Dar es salaam Tanzania.

1.3 Rationale of the Study

This study was conducted in the light of paucity of information on knowledge and attitude with regards to caring for 24 Hours Post ICU Patients in Tertiary Hospitals in Dar es Salaam, Tanzania. Information from this study will enlighten the healthcare provider on present situation regarding knowledge and attitude in caring 24 hours post ICU discharged patients at MNH and hence add to the body of knowledge. Moreover, the findings of this study provided evidence based information which will act as the catalyst on formulation of policy and guideline for improving basic nursing care to patients 24 hours following ICU discharge. To Muhimbili National Hospital administration and other selected tertiary institute, the findings will help them to be aware of ward nurse's knowledge and attitude on caring patients 24 hours Post ICU.

1.4 General research question

What is the nurse's knowledge and attitude in caring 24 hours post ICU discharged patients in general ward?

1.4.1 Research Questions

i. What is the nurses' level of knowledge on caring for 24 hours post ICU patients in general ward?
ii. What is nurses' attitude towards 24-hour post ICU patients in general ward?
iii. What is the association between demographic characteristic and nurse's knowledge on caring for 24 hours post ICU patients in general ward?
iv. What are the association between the demographic characteristic and nurse's attitude on caring for 24 hours post ICU patients in general ward?

1.5 Broad Research Objective.

To assess nurses' knowledge and attitude among general ward nurses on caring for 24 Hours Post ICU discharged Patients in Tertiary Hospitals in Dar es Salaam, Tanzania.

1.5.1 Specific Objectives

i. To determine nurses' level of knowledge on caring for 24 hours post ICU patients in general ward.

ii. To determine nurses' attitude towards 24-hours post ICU patients in general ward.

iii. To determine association between the social-demographic characteristic and nurse's knowledge on caring for 24 hours post ICU patients in general ward.

iv. To determine association between the social-demographic characteristic and nurse's attitude on caring for 24 hours post ICU patients in general ward.

1.6 Conceptual Framework.

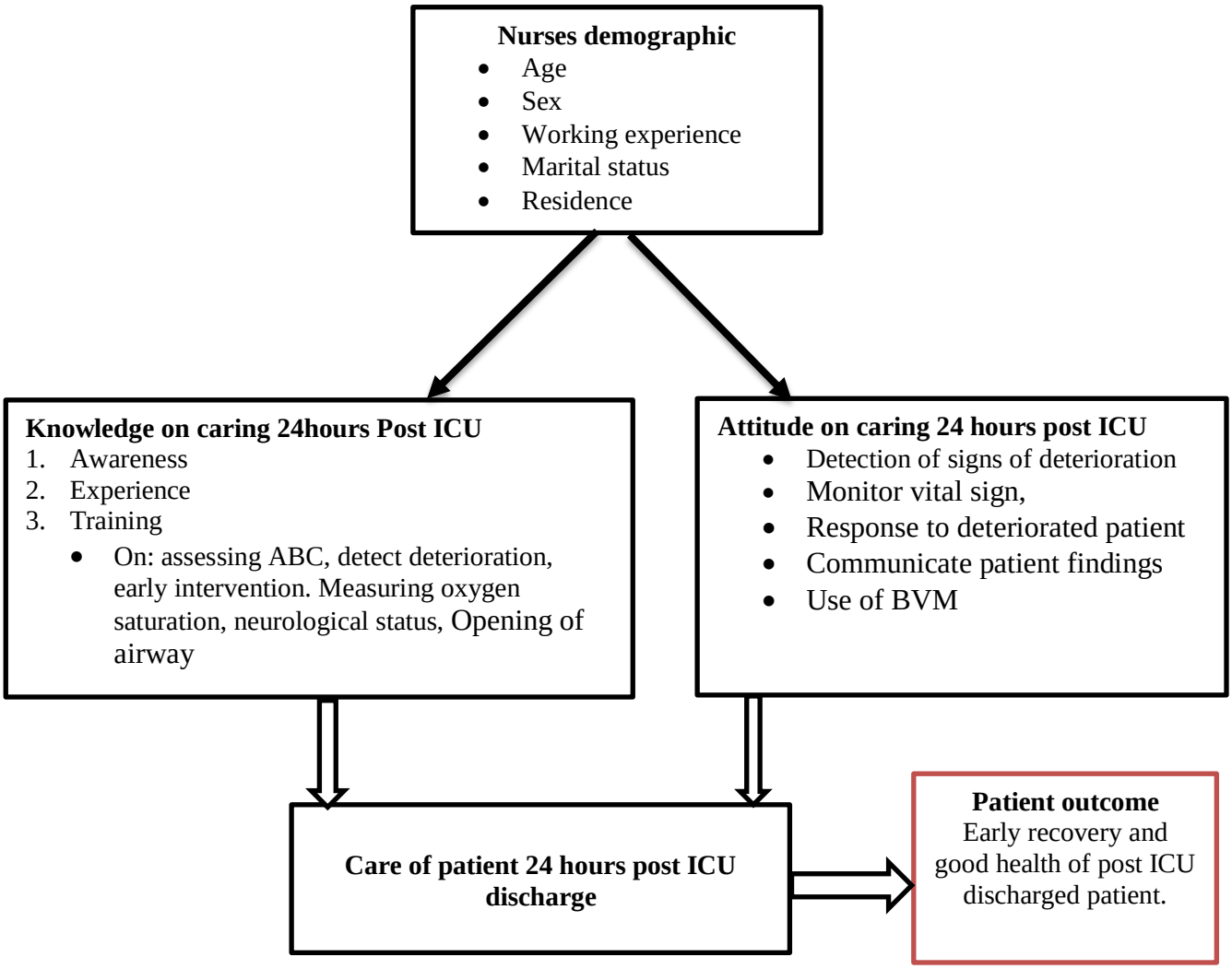

Figure 1: Conceptual framework on nursing care of patient 24 hours post ICU constructed by the researcher.

1.6.1 How the conceptual framework adopted in this study.

The conceptual framework of this study provide the relationship between dependent (care of patient 24hours post ICU discharge) and independent variable (Nurses demographic characteristic, knowledge and attitude) from the research topic to fit the objective of the study. The framework was constructed after familiarize with different literature regarding knowledge and attitude of nurses for caring patients post ICU discharge shown in **(Figure 1).**

Early recovery and good health outcome of post ICU discharged patient depend on the quality care delivered 24 hours after discharge from ICU. However, provision of nursing care in first 24 hours depends on nurse's knowledge and attitude. Then, nurses' knowledge comprised of nurses' awareness on various issues regarding nursing care like ABCDE approach, which includes assessment of Airway, Breathing, Circulation, Disability, and exposure, detecting deterioration, early intervention, neurological status. Besides, nurse's attitude could be either positive or negative event determined on how they perceive, feel, beliefs, values provision of nursing care to patients following discharge from ICU. Therefore, this study depict how these factors affect nursing care in the first 24 hours after discharge from ICU. The scheme shows the relationship between the independent variables and dependent variable **(Figure 1).**

CHAPTER TWO: LITERATURE REVIEW

Care for critically ill patient in general ward need thorough assessment and close monitoring so that any deterioration can be identified on time and managed accordingly. As part of nursing care, detecting patient deteriorating in general ward need monitoring of simple observation and measure of variable such as blood pressure and pulse (Vincent *et al.*, 2018). A nurse must know how to measure and interpret these values and act accordingly (Elliott, M and Coventry, A 2012). Various researches such as those by Garrard and Young, 1998; McQuillan *et al.*, 1998; McGloin *et al.*, 1999 indicated that, general ward care of critically ill patients is suboptimal and suggests that the signs of impending critical illness or cardiac arrest are being missed (Franklin and Mathew, 1994; Schein *et al.*, 1990). Respiratory rate is a key predictor of both cardiac arrest and admission to intensive care (Fieselmann *et al.*, 1993; Goldhill *et al.*, 1999), yet outreach teams have become aware, through anecdotal evidence, that ward nurses often fail to record this vital sign. Death in general ward contribute to hospital mortality and some of the death can be preventable by improved care (Wallis *et al.*, 1997).

Critically ill patients admitted in general ward present with deranged vitals which may be observed but cannot be acted upon by nurses and physicians due to several reasons such as shortage of staff and environment to manage such patients (Mselle and Msengi, 2018). Study shows that some patient who are discharge from ICU die unexpectedly and such deaths could be prevented with better standard of care. Furthermore, seminar reach shows that one of every five patients who died after ICU discharge was expected to survive. (Mallcom *et al.*, 2012). Monitoring of critically ill patient is needed in general ward for identification of patient deterioration and improve patient outcomes in general ward (Vincent *et al.*, 2018).

A study by Moreno *et al.*, 2001 revealed that for total of 4621 patients 621 (13.4%) died in ICU. 4000 Patients discharged alive, 303 died before hospital discharge (32.8%) from these 4000 discharged alive 241 (6.0%) were discharged home, 2958(74.0%) to general ward, 362 (9.1%) to other ICU and 357 (8.9%) to another hospital. A study by Seok Lee *et al.*, in 2005 revealed that, of the 1498 patients admitted to the general ICU, 1339 patients were discharged alive from hospital, 114 patients died in the ICU and 45 patients died during their post ICU hospital stay. The study revealed further that, 28% of the deaths after intensive care occurred in general wards before discharge from hospital. Among those patients who died in general wards, 7(15.5%) were expected to survive.

The role of general wards nurses cannot be underestimated particularly on patient safety and in ensuring ICU patients receive the best care possible. There has been a gradual shift away from basic nursing practice on tradition, expert opinion, trial and error and personal experience towards assessing and observing post ICU discharged patients. Research indicate that, ward care of critically ill is suboptimal and that the sign of impending critical illness or cardiac arrest are being missed (Chellel *et al.*, 2002). Observation that can be done in general ward includes respiratory rate, Oxygen saturation, fluid intake, output and balance records. Most ICU discharged patients require nutritional support thus assessment of nutritional requirements is another important variable that general ward nurses are required to be monitoring. For effective assessment and observation of 24 hours post ICU discharged patients to happen, general ward care should be directed by relevant guidelines and protocols. A number of literatures have shown that, the quality of life could be low after discharge from the ICU and after a period of critical illness with most patients unable to accomplish simple physical task without exhaustion. The survival rate at discharge from ICU was 66.9%, at hospital discharge, 61.6 and death 44.6% die during follow up, 33% in the ICU, 13 % in the hospital and 15% at 18 months after discharge (Fildissis *et al.*, 2007). A study of 351 multiple trauma patients two years after the discharge found health related quality of life is low from pre-admission to one-year post discharged. (Mata *et al.*, 1996). The outcome measure for patients requiring intensive care management is an important measure for health-related quality of life.

2.1 Nurses' knowledge on caring for 24 hours post ICU patients in general ward

Management of critical ill patients need nurse with formal training (Mselle and Msengi, 2018). Knowledge allow nurses and other health professionals to plan for and provide appropriate care of post ICU patients. Most clinical interventions for critical ill patients require the expertise of appropriate trained doctors, the safety and maintenance of the procedures and experienced nursing care, with constant bedside observation to ensure monitoring and immediate detection of deterioration (Taylor and Odell, 2011). Common acute illness occurs gradually over several hours and associated with deterioration of vital signs in the patients (Atkinson, 2013). Then, a nurse to identify patients at risk of clinical deterioration, patients must be observed and assessed frequently by nurse followed by appropriate interpretation to make clinical decisions using clinical judgment (Atkinson, 2013).

Moreover, nurse should aware of several physiological parameters to be measured for identifying patient at risk of critical illness. These includes, heart rate, respiratory rate, systolic blood pressure, level of consciousness, oxygen saturation and temperature (NHS, 2007). It is recognized that abnormal physiology is associated with adverse clinical outcome with common abnormal physiology being hypotension and falling level of consciousness (Goldhil and McNarry 2004). Also nurse experience of monitoring of urine output hourly, biochemical analysis such as lactate, blood glucose, base deficit, arterial pH and pain management (Atkinson, 2013). Therefore, review of many systems through those physiological parameters had significant implication to improve nurses' knowledge in delivering of nursing care 24hour following discharge from ICU.

Management of pain is still a challenge globally, study done in Ghana shows that 48% of nurses had low knowledge on post-operative pain management (Al-Quliti and Alamri, 2015). Nutrition was given low priority when nurses had to priorities other nurse's practices**. Inadequate knowledge towards nutrition was found among nurse (Fletcher and Crey, 2011). Thus, for patient at risk of critical illness there are parameters which need nurse assessment and observation to identify them. A nurse needs to identify early the cause of deterioration, treat, and monitor the patient**. Observation of vitals is paramount as they reflect tissue oxygenation once taken and interpreted, communicated and reviewed in the right time and appropriately (ACT, 2012). Thus, a Nurse with adequate knowledge will have In-depth understanding of how important is nursing care to the patients 24 hours post ICU discharge.

2.2 Nurses' attitude on caring for 24 hours post ICU patients in general ward

Nurses' attitude is crucial in assessing and monitoring post ICU patients especially in first 24 hours after their discharge from ICU. During provision of nursing care, a lack of critical care knowledge and communication is a barrier in identification of critically ill patient in general ward (Mtango *et al.,* 2019). There is a need to understand attitude so that we provide collaborative, patient centred care to post ICU patients. Nurses knowledge will reflect nurse's attitude towards post ICU patients. Study shows that Nurses working in ICU had better knowledge and positive attitudes towards physical assessment in critical ill patients (Tilahun and Kassew, 2020). Lack of equipment supplies and medicine, lack of expertise, lack of special room for caring critically ill patients and made them feel powerless in providing appropriate and effective care to critically ill patient (Mselle and Msengi, 2018).

2.3 Social demographic Factors influencing provision of care to post ICU patients

Nurses' education level is associated with improved outcomes for patients (Gigli *et al.*, 2020). Among many factors contributing to nurses knowledge on pain management was training, reading guidelines and education status (Wondimagegn *et al.*, 2021). The role of nurse includes ability to measure, interpret and act which include the communication of findings to other medical personnel. As a key player in managing patients nurse must observe and assess patients repeatedly, interpret findings and make sound clinical decision using clinical judgement (Atkinson, 2013).

Nurses attitude is influenced by level of education, working experience of > 5 years and working in general ward with a specialty (Mok *et al.*, 2015). Shortage of staff, lack of time and inadequate training was also noted as factors affecting fluid balance chart documentation in general ward (Jeyapala *et al.*, 2015). Furthermore, Nurses perceive practice of vital signs monitoring as time consuming (Mok *et al.*, 2015). Several factors including age, gender, level of education, working experience, working unit, working hours per week are associated with knowledge and attitude of nurses (Olivera *et al.*, 2017).

CHAPTER THREE: METHODOLOGY

3.1 Study design

The study was descriptive cross-sectional study employing a quantitative approach to assess knowledge and attitude on caring for 24 hours after discharge from ICU. Then was conducted among Nurses who deliver care to post ICU discharged patient in their daily nursing activities.

3.2 Study area.

This study was conducted in three tertiary hospital of Muhimbili National Hospital (MNH), Jakaya Kikwete Cardiac Institute (JKCI) and Muhimbili Orthopedic Institute (MOI) were both located at Upanga West Ward in Ilala municipality in Dar es Salam region. These are the largest public and tertiary as well as teaching hospital hospitals in Tanzania. Moreover, MNH is referral hospital with bed capacity 1500 and six ICUs which are medical ICU, surgical ICU, renal ICU, obstetric ICU, pediatric ICU and neonatal ICU. Also MOI, has bed capacity of 343 and one ICU for admitting patient with trauma, neurological and orthopedic problems. Furthermore, JKCI has a bed capacity of 103 attending approximately 100 inpatients and 700 outpatients per week. JKCI has ICU that admit patient post cardiac surgery with 9 bed capacity and CCU has 8 bed capacity. Therefore, three Tertiary Hospitals were selected because they have wide range of operating ICUs alongside general wards that post ICU patients are admitted.

3.3 Study population

The study population were all nurses working in three tertiary hospitals (MNH, JKCI and MOI) and providing care to patient in a general ward. In these hospital number of general ward nurses was 300. General ward nurses are those with certificate, diploma and degree on nursing practices. Then the study targeted all general ward nurse who are responsible on receiving and delivering nursing care to post ICU patients.

3.4 Inclusion and exclusion criteria.

3.4.1 Inclusion criteria

The study included all registered and enrolled nurses working in general ward with more than 6 months' experience were included in this study.

3.4.2 Exclusion criteria

The following are the exclusion criteria of the study.

i. Registered and enrolled nurses who were in full time study schedule.

ii. Also Nurses who were in administration position and not providing direct care to post ICU patients were excluded.

3.5 Sample size calculation.

The sample size for quantitative approach was obtained using the formula for estimating sample size with finite population (Kothar, 2008). For the quantitative data on knowledge and attitude. Because population was known in all three institutions.

$$n = \frac{z^2.N.\sigma^2}{(N-1)e^2 + Z^2\sigma^2}$$

The sample size estimation for finite population was:

n = size of sample

N = size of the population = 300 (Total number of general ward nurses in 3 tertiary hospitals)

e = acceptable error (the precision) = 0.08.

= standard deviation of population = 74.99, estimated from the distribution of number of nurses present in the selected three hospitals (206, 43, 50)

z = standard variety at 95% a given confidence level = 1.96

Therefore, our desired sample size was obtained by including the above parameters

However, 153 nurses were desired sample size in this study, then, for non-responsive rate,1 added 10% non- response rate (153 *0.1) = 16 nurses.

Therefore, the minimum sample size of the study was169

To obtain the required sample size, the researcher ensured appropriate proportion of the selected sample was drawn from the three tertiary hospitals. The researcher therefore adopted the formula of stratified sample as described by Kothar, 2008. In stratified sampling, population is divided into several sub-populations that are individually more homogeneous (strata), then researcher select items from each stratum to establish a sample.

Pi represented the proportion of population included in stratum i, and n represents the total sample size.

Number of elements selected from stratum;

$$i = n.\ P$$

Sample size, n = 169

Population size, N 300 (Which is divided in three strata of size N1= 206, N2= 44, N3= 50)

Thus, the proportion for each tertiary hospital will be;

n1 = n. P1 = 169 (206/300) = 116

n2 = n. P2 = 169 (44/300) = 25

n3 = n. P3 = 169 (50/300) = 28

Thus, the sample sizes for each tertiary hospital was 116, 25, 28 respectively which was in proportional to the sizes of the strata 206:44:50

3.6 Sampling techniques

A multistage random sampling technique used to select eligible participants in this study in both of three tertiary Hospitals which are JKCI,MNH and MOI (Sedgwick, 2015). The choice of this technique was due to the fact that nurses were front liner and responsible in delivering nursing care 24hours to patient following ICU discharge, then this technique enabled the researcher to divide the population into groups thus conduct research (Elfil and Negida, 2019). Initially sample from three hospitals were selected by simple random sampling. At the hospital level, nurses were stratified from each department into register nurses and subsequently allocated in each stratum. Finally, the list of nurses in each stratum was obtained via the nurse in charge and the questionnaire was administered to the participants using simple random selection according to their sampling fraction.

3.7 Variables

3.7.1 Independent variable

The following are the independent variables of this study

i. Nurse's knowledge
ii. Nurses attitude.
iii. Nurses demographic characteristics.

3.7.2 Dependent Variable

The dependent variable in this study was care of 24 hours post ICU patient.

3.8 Data collection procedure

Permission letter for conducting the study from MUHAS Institutional Review Board (IRB); MOI and MNH with REF No. HD/MUH/T/502/2019; AB.145/146/02/104 and MNH/TRCU/Perm/2021/170 was obtained and presented to nursing in charge in a specified general ward. The sampling frame obtained from hospital administration and used to recruit nurses to the study after obtained their consent to participant in the study. Moreover, a random sample of number ONE/TWO tickets was drawn from the box by nurses, those who draw tickets with

number ONE was selected to the study. Then the selected nurses were requested to sign a written consent form upon voluntary decision to participate in the study.

A self-administered questionnaire was administered to the participants after obtained their consent to participate to the study. To maximize their response rate, data collection was done at a convenient time according to the duty rooster of the particular wards. Moreover, each participant was given an ample ranged between 15 and 20 minutes for complete filling of questionnaire from the day questionnaire administered. After completing, questionnaire was collected by the researcher and the researcher assistant to prevent the loss of the questionnaire during data collection.

3.9 Data collection tools

A self-administered questionnaire was used to collect information on knowledge and attitude regarding nursing care to patients 24hours post ICU discharged in a general ward. Several literature were reviewed related to attitude and knowledge regarding nursing care to patients post ICU to develop questionnaire which fitted the objective of the study (Santamaria *et al.,* 2016; Mselle and Msengi, 2018; Vollam *et al.*, 2018; Hendriks *et al.,* 2019). Moreover, questionnaire comprises of the four sections. Section "A" described nurse's demographic characteristics including variable like age, sex, nursing education level and working experiences. Section "B" comprised of the question multiple choices question on nurses' level of knowledge on caring patients 24hours post ICU. Furthermore, section "C" consisted of the Likert scale with five-point ranged from strongly agree to disagree whereby 1= strongly agree, 2=agree, 3=Neutral, 4=disagree, 5=strongly disagree for assessing attitude toward nursing care to patients 24hours post ICU.

3.10 Training of research assistants.

Two research assistants with a diploma in nursing and good communication skills in both Swahili and English languages were recruited for data collection. A two (2) days training was conducted to research assistants on the purpose of the study, the objectives safeguard respondents' confidentiality and how to use the research tools including checking the tool for completeness. However, to minimize conflict of interest from research assistant, then they were obtained from the same settings. Therefore, research assistants were responsible to ensure the successful submission of questionnaires to the researcher with a maximum responsive rate from different general wards of MNH, MOI and JKCI.

3.11: Pre-testing of the tools

Pre-testing of the data collection tool was conducted at Mloganzila Hospital consisting of seventeen (17) general ward nurses, but not included in the sample to enhance validity and reliability of the data collection tool before the actual study. The tool was checked and the questions were rephrased to clear the misunderstanding, or misconception of some of the specified questions, to fit the participants' interpretations during data collection.

3.12. Validity

Validity of the study was achieved by reviewing all questions with the help of two experts from Muhimbili National Hospital and Muhas. They provided an opinion on the coverage of the item of the research objectives. The comments and clarification from reviewers were taken into consideration and analyzed to assure the validity of the tools.

3.13 Reliability

Reliability is the degree to which an instrument measures the same way each time, it was used under the same conditions with the same subjects (Femke, 2003). In this study, test-retest reliability involved the sample of seventeen (17) general ward nurses of the (10%) sample size. Study participants recruited to test the tool before the actual study but they were not included in a sample. The Cronbach's alpha of was found to be 0.92 for internal consistency to concepts used in for the questionnaire. Then necessary improvement was made to improve the tool and the same tools was administered to all participants and only the researcher and researcher assistant were participated in the data collection to ensure reliability.

3.14 Data analysis plan and measurement of variable

We conducted data cleaning and entered into a computer software for analysis. A Statistical Package for Social Sciences (SPSS) version 23.0 was used for data analysis. Descriptive statistics was performed to present frequency and percentage of the categorical variable like sex, age, level of nursing education, working experience of the respondents and etc. The cross tabulation of variable was performed to determine correlated variable used establish association between dependent and independent variables. Moreover, a Chi square and p-Value of less than 0.05 was used as a cut-off point for the association between variable with statistical significance.

Nurse's knowledge was categorized into two; Low Knowledge and High Knowledge. A 10 multiple choices questions use to assess level of Knowledge. Correct answer scored by respondent had value = 1marks while incorrect score = 0 thereafter the total marks scored = 10 marks and total

score converted to percentage to obtain 100%. Therefore, respondent who scored 70% presented as a High Knowledge while below 70% presented Low Knowledge regarding nursing care to patients 24hours post ICU. This method of scoring has been previously used to assess the knowledge of nurses (Hendriks *et al.,* 2019).

Nurse's Attitudes towards caring patient 24 hours post ICU discharge was measured and analyzed by using five Likert scale. Ten statement were used to measure the attitude of nurses on nursing care to post ICU using an ordinal scale of five level of Likert scale (5=Agree, 4=strongly agree, 3=Neutral, 2= disagree, 1=strongly disagree). At the end, general attitude scores were computed to get a cut off points to present three levels as follow; based on the ten statements 10 x 5 = 50 as the one with highest score of attitudes, 10 x 3 = 30 as the one with the intermediate level, while 10 x 1 = 10 as the one with lowest attitude. The average score from 6 to 29 were considered to have negative attitude, the average score of 30 indicated moderate attitude while those score from 31 to 50 were considered to have positive attitude.

Table 1 : Representation of data analysis

Specific objectives	**Variable**	**Level of Measurement**	**Analysis**
Social demographic characteristic	Age, sex, level of education, type of general ward, working experience	Nominal Ordinal	**Descriptive:** Frequencies and Percentages
Determine nurses' attitude towards 24-hours post ICU patients in general ward.	Positive attitude Negative attitude.	Nominal	**Descriptive**: Frequencies and Percentages
Determine nurses' level of knowledge on caring patients 24 hours post ICU in general ward.	High Knowledge Low Knowledge	Nominal	**Descriptive**: Frequencies and Percentages
Determine association between the demographic characteristic and nurses knowledge on caring patients 24hours post ICU in general ward	• Demographic characteristic • Knowledge on caring patients 24hours	Nominal Ordinal	Test of Association between independent vs Dependent variables • Chi-square and p-value
Determine association between the demographic characteristic and nurses attitude on caring patients 24hours post ICU in general ward	• Demographic characteristic • Attitude on caring patients 24hours	Nominal Ordinal	

3.15 Ethical clearance

The study was approved by the Institutional Review Board (IRB) of Muhimbili University of Health and Allied Sciences (MUHAS). The permission to conduct this study was obtained from the three tertiary hospitals including JKCI, MOI, and MNH before commencement of

the process of data collection. A written informed consent was given to respondents before data collection and upon received a clear explanation of the study and its objectives, the risks, benefits of taking part in the study as well as the right to withdraw or participate in the study to ensure transparency. This leads to an informed choice for the respondent to engage in the study without coercion. Anonymity was taken care of by used numbers instead of names to maintain confidentiality and all data collected from the field were locked in a safe cupboard and researcher handled the key. Moreover, the computer was secured by used a password from the time of data entry and analysis as well as report written where by only authorized personnel were allowed to access the data.

3.16 Dissemination plan.

Upon the completion of the study, it will be submitted to Muhimbili University of Health and Allied Science, Muhimbili School of Nursing, Publication in peer review journal and MUHAS library. Also findings of the study will be disseminated to MNH, JKCI and MOI and the findings will be disseminated at national and international scientific conferences.

CHAPTER FOUR: RESULTS

4.0 Introduction.

This chapter presents the findings, interpretation and analysis of the data collected from the administered questionnaire. Descriptive statistics such as percentage and frequencies alongside tables and charts used to present data and all the variables of the study; chi-square test has been performed to investigate association between nurse's demographic characteristic and level of knowledge as well as attitude regarding nursing care to patient after discharged from ICU.

4.1 Demographic Information of respondents

A total of 169 nurses participated in this study. Majority of participants (57.4%) were aged 20 – 34 years. More than half of participants were female (62.7%). Majority (62.7%) had diploma level of education. While (68.6%) of participants were working in medical ward. Majority (50.6%) worked 2 - 5 years in their current working station. **(Table 2)**

Table 2: Demographic Information of Respondents

Variable	Frequency	Percentage (%)
Age		
20 – 34 years	97	57.4
35 – 49 years	64	37.9
50 +	8	4.7
Gender		
Male	60	35.5
Female	109	64.5
Level of education		
Diploma	106	62.7
Degree	63	37.3
Working area		
Private ward	19	11.2
Medical ward	116	68.6
Surgical	34	20.1
Working experience		
6month to 1year	22	13
2-5 years	86	50.6
6-10 years	36	21.3
10 +years	25	14.8
TOTAL	**169**	**100**

4.2 Nurses Knowledge on caring patients 24 hours Post ICU in general ward.

Respondents' knowledge was assessed by ten questions regarding caring patients 24 hours post ICU discharge. The mean score of nurses' knowledge regarding caring 24-hour post ICU was 3.882 (STD dev. =1.834).

4.2.1. Response from participants to the knowledge testing questions.

In this study, (85.8%) of participants were unable to identify exact number of vital sign used for measuring physiological status. Moreover (77.5%) of participants were not familiar with the uses of bag valve mask on assisting patient of either shallow, slow or not breath. (72.2%) of participants were not aware on emergency drugs used in case of emergency and (71.6%) on types of airway maneuvers applied to open airway.

On the other hand, (84.6%) of the respondents understood the change in level of consciousness and vital signs was a physiological parameter to indicate the deterioration of post ICU patient. Also, (78.8%) of respondent knows ABCDE was the approach uses to asses' patient admitted in general ward from ICU, followed by awareness on uses of AVPU to assess level of consciousness (68.6%) and (60.9%) of respondents understood oral and nasal pharyngeal were the common adjuncts/devices used for opening airway.

Table 3: Nurses' Knowledge on caring patients 24 hours post ICU in general ward.

Variable	Right n (%)	Wrong n (%)
ABCD as an approach used to assess patient admitted from ICU.	133 (78.8%)	36 (21.3)
Look, Listen and feel as an approach to assess airway patency to post ICU.	48(28.4%)	121(71.6%)
Head tilt and chin lifting as types of airway Manoeuvres applied to opening airway.	48(28.4%)	121(71.6%)
Oral air way and nasal pharyngeal airway as common airway adjunct used to opening airway.	103(60.9%)	66(39.1%)
Bag Valve and Mask as device used to assist patient with either shallow, slow or not breathe.	38(22.5%)	131 (77.5%)
Hypoglycemia, Hypoxia, Trauma as causes of altered level of consciousness.	62(36.7%)	107(63.3%)
AVPU as an approach used to assess level of consciousness.	116(68.6%)	53(31.4%)
Vital signs as measure of physiological status	24(14.2%)	145 (85.8)
Parameters as indicating deterioration.	143(84.6%)	26(15.4%)
Emergency drugs as used in emergency situation	47(27.8%)	122(72.2%)
Overall knowledge score	31(18.3%)	138(81.7%)

4.3 Nurses attitude toward caring patients 24 hours Post ICU in general ward.

Attitude of the respondents was assessed by ten questions towards caring 24 hours to patient after discharge form ICU. The mean attitude score of the respondents was found to be 3.298(STD dev. =0.6085).

4.3.1 Response from respondents to the attitude testing questions.

The analysis shows that (98.2%) of the participants were confident in assessing post ICU patient. Moreover (88.8%) of participants agreed both on patient ratio/work load affect nurse's ability and expectation in caring as well as managing post ICU patient. (72.8%) of participants agree that handover during transfer is sufficient to provide care and (62.1%) of participants agreed that enough training was available to nurse on caring of post ICU patient.

On the contrary, majority (81.1%) of participants disagree that they don't feel good when post ICU patient deteriorate. Beside (78.1%) of participants disagree assessment and observation of patient from ICU is not work of nurse, followed by (46.2%) of participants disagree assessment and observation of patient consume a lot of time for nurses and (45.6%) of participants disagree that there are enough guidelines on assessing post ICU patient in the wards.

Table 4: Nurses' attitude towards caring patients 24 hours post ICU in general ward.

Variable	Agree n (%)	Disagree n (%)
Patient ratio as factor facing nurses	150 (88.8%)	19 (11.2%)
Confidence in assessing patients	166 (98.2%)	3(1.8%)
Institution and professional support in caring patient	148 (87.6%)	21(12.4%)
Know exactly what is expected in the care of patient	150 (88.8%)	19(11.2%)
Feel good when patient deteriorate	32(18.9%)	137(81.1%)
Enough guidelines in assessing patient	92(54.4%)	77(45.6%)
Assessment and observation is not work of a nurse	37(21.9%)	132(78.1%)
Sufficient hand over is provided during patient transfer	123(72.8%)	46(27.2%)
Assessment and observation of patient consume a lot of time	91(53.8%)	78(46.2%)
Enough training on nursing care of patients	105(62.1%)	64(37.9%)
Average attitude score	**120(71.0%)**	**49(29.0%)**

4.4: Association between demographic characteristic and nurse's knowledge on caring patients 24 hours post ICU in general ward

The study shows significant association between participant working area either private, medical or surgical wards with level of knowledge regarding care to patients 24hours after discharge from ICU (X^2 = 13.510; df=3; p=0.004). Besides, there were no statistical difference with level of knowledge and the following demographic characteristic; age, gender, level of education, year of working experience (p>0.05).

Table 5. Association between demographic characteristic and nurse's knowledge on caring for 24 hours post ICU patients in general ward

Demographic variables		Level of knowledge		Significance (p-Value)
		Poor knowledge n (%)	Good knowledge n (%)	
Age				
	20-34 years	76(55.1%)	21(67.7%)	X^2 = 2.403; df=2; p=0.301
	35-49 years	56(40.6%)	8(25.8%)	
	50 +	6(4.3%)	2(6.5%)	
Gender				
	Male	51(37.0%)	9(29.0%)	X^2 = 0.694; df=1; p=0.405
	Female	87(63.0%)	22(71.0%)	
Level of education				
	Diploma	85(61.6%)	21(67.7%)	X^2 = 0.409; df=1; p=0.522
	Degree	53(38.4)	10(32.3)	
Working area				
	Private ward	16(11.6%)	3(9.7%)	**X^2 = 13.510; df=3; p=0.004**
	Medical ward	92(66.6%)	24(77.4%)	
	Surgical	30(21.7)	4(12.9%)	
Working experience				
	6months to 1 year	20(14.5%)	2(6.5%)	X^2 = 5.30; df=3; p=0.156
	1-5 year	65(47.1%)	21(67.7%)	
	5- 10year	30(21.7%)	6(19.4%)	
	10 +	23(16.7%)	2(6.5%)	

4.5 Association between the demographic characteristic and nurse's attitude on caring for 24 hours post ICU patients.

The study shows significant association between whether participant who had diploma or degree and attitude toward caring patients 24hours after discharge from ICU; (X^2 = 7.352; df=1; p=0.007). Moreover, there was also significant relationship between participants working area whether from

private, medical or surgical ward and attitude toward caring 24hours post ICU patient; (X^2 = 15.563; df=3; p=0.001). Furthermore, there was a statistical relationship between years of working experience and attitude toward caring patients 24 hours post ICU; (X^2 = 6.382; df=3; p=0.04). Besides, the study did not show any significant association between age (X^2 = 4.158; df=2; p=0.125); gender (X2 = 0.245; df=1; p=0.621) and attitude toward caring 24hours post ICU patient.

Table 5: Association between the demographic characteristic and nurse's attitude on caring patients 24 hours post ICU in general ward

Demographic variables	Level of attitude		Significance (p-Value)
	Negative attitude	Positive attitude	
Age			
20-34 years	24(49.0%)	73(60.8%)	X^2 = 4.158; df=2; p=0.125
35-49 years	24(49.0%)	40(33.7%)	
50 and above	1(2.0%)	7(5.8%)	
Gender			
Male	16(32.7%)	44(36.7%)	X^2 = 0.245; df=1; p=0.621
Female	33(67.3%)	76(63.3%)	
Level of education			
Diploma	23(46.9%)	83(69.2%)	**X^2 = 7.352; df=1; p=0.007**
Degree	26(53.1%)	37(30.8%)	
Working area			
Private ward	10(20.4%)	9(7.5%)	
Medical ward	23(46.9%)	93(77.5%)	**X^2 = 15.563; df=3; p=0.001**
Surgical	16(32.7%)	18(15.0%)	
Working experience			
Six months to 1 year	10(20.4%)	12(10.0%)	**X^2 = 6.382; df=3; p=0.04**
1-5 year	19(38.8%)	67(55.8%)	
5- 10year	10(20.4%)	26(21.7%)	
Above 10 year	10(20.4%)	15(12.5%)	

CHAPTER FIVE: DISCUSSION

5.0 Discussion of result

This chapter discusses main findings related to nurse's knowledge of care to patient 24 hours Post ICU discharge in general ward and general aspect of factors affecting nurses' attitude on caring patients 24-hours Post ICU discharge.

5.1 Demographic characteristics

Provision of nursing care in the first 24hours following discharge from ICU is very important to prevent the occurrence of adverse event to patient in the general wards. Therefore, nursing professionals should have a considerable level of education that supports them to execute their roles to provide care to patients 24 hours post ICU.

As indicated in the findings from this study, it is apparent that most nurses working in general ward are females in the youth age group with a diploma in nursing and they have two to five years of experience. The finding is similar to the study done in Ethiopia regarding knowledge and attitude of nurses towards patient safety and its associated factors which found that majority of study participants were female at the younger age with a more than five year of working experiences (Biresaw, Asfaw and Zewdu, 2020).

5.2 Nurses knowledge on caring patients 24 hours post ICU

Assessment of post ICU patient who are admitted in the general ward is important for monitoring patients' progress and identify early signs of deterioration. Then nurses' professionals should have the adequate knowledge to enhance the capacity for continuum of care to patient following discharged from the ICU.

Our study revealed that majority of nurses were unaware of number of vital signs used to measure the physiological status. With some of participant monitoring only three vitals. The finding is supported by the review of literature which identify more than half of the nurses were unaware of the abnormal vital sign displayed by one-fifth of the patients. Unawareness of the vital sign among nurses resulted into delay detection and recognizing of the deteriorated patients (Mok, Wang and Liaw, 2015). In this regards, a comprehensive assessment of critically ill patients such as assessment of post ICU patients, nurses require assessment of eight patients' vital signs. These vital signs are pulse rate, respiratory rate, temperature, blood pressure, oxygen saturation, pain, level of consciousness, and urine output (Elliott & Coventry, 2012). Vitals such as respiratory rate is one among vitals that is not monitored in the ward. A patient from ICU need monitoring all of

the vitals that can tell the progress and intervention status. Some of the patient while in ICU they are intubated. Having an Endotracheal tube is very painful as one can experience. Thus need to be assessed on pain, as well for suction to insure that airway is patent and secretion does not occlude the airway. Monitoring only three vitals means that delay in identifying deterioration is likely for post ICU patients in general ward.

Not only the vitals but also the use of bag valve and mask to assist patient with either shallow, slow or not breathe. The study findings show that majority of study participants were unaware on the use of bag valve and mask. Similar findings have been reported from Botswana which shows that nurses lack skills in providing bag and mask ventilation to patients with cardiac arrest (Rajeswaran, Cox, Moeng and Tsima, 2018). For a patient who came from ICU need close monitoring especially on vital sign which tells if the patient is deteriorating or improving. Through vitals a nurse can anticipate for patient outcome and plan on care. Some of the patient were mechanically ventilated hence at risk of deterioration. Thus nurse need to know when to administer oxygen therapy and when to assist breathing with Bag Valve and Mask (BVM). Because the patient who is not breathing or with shallow breathing the BVM will provide adequate gas exchange at the alveolar level and adequate circulation to the tissue.

Patients who are admitted in general ward from ICU sometimes went to cardiac arrest that requires immediate resuscitation. Nurses caring such patients are required to be knowledgeable on the resuscitative measures including drugs that are needed during resuscitation. Study indicates that very few nurses caring for Post ICU are knowledgeable on emergency drugs commonly used in emergency situation like adrenaline, dopamine and magnesium sulphate. Several studies indicate the knowledge gap about resuscitation of deteriorating patients among nurses working in general ward (LingChuaa. et al. 2019). Knowledge on Rescusitation especially Rescusitation drugs is necessary for nurses, as they are the frontline in the care of patients. They are spending most of the time with the patients, are in position to identify deterioration when knowledgeable they can interpret the patient's presentation and act accordingly to prevent complication, save life and quality of life after hospital discharge.

Ensuring patency of airway is one of the key nursing responsibilities for patients who are critically ill (Higginson, Jones & Davies, 2010). More than half of participants in this study knew devices that are used for establishing patent airways. Furthermost most of participants consider oral air

way and nasopharyngeal airway as an important common airway adjuncts/ device used to open the airway. However, very few nurses in this study know what to do when they asses airway patency for patients who are critically ill like those who have been admitted in the general ward from ICU. Nursing care of a patient who is critically ill and admitted in general ward has to involve assessment of airway patency by looking for secretion, listening for snoring and feeling for exhaled air (Higginson, Jones & Davies, 2010).

In contrast, the finding of this study identify majority of nurses understood the change in level of consciousness and vital signs was the physiological parameters to indicate the deterioration of post ICU patient. The finding from the review of various study established that for managing patient at risk of becoming critically ill underpin the need to monitor change in level of consciousness for it is one of the vital physiological parameters indicating deterioration of patients (Romanelli & Farrell, 2021). As revealed from the study findings, a considerable proportion of respondents indicated that level of consciousness is assessed by using AVPU. Various protocols for managing patient at risk of becoming critically ill underpin the need to monitor change in level of consciousness for it is one of the vital physiological parameters indicating deterioration of patients (Romanelli & Farrell, 2021). Basing on the findings of these studies it can be stated that nursing care to post ICU patients need one with knowledge.

5.3 Nurses attitude toward caring 24 hours post ICU patients

Attitude toward caring of patients 24-hours post ICU involve the role of nurse on monitoring patient condition through assessment of the vital signs. However, assessment of vital signs alone is not always sufficient to detect deterioration in patients in a general ward at an early stage. Then, attitude toward caring of patients 24 hours following discharge from ICU involves a timely recognition and response to clinical deterioration to ensure the patient safety.

The findings in this study show majority of respondents were confident and had a positive attitude toward assessment of the post ICU patients. What the study noted with regard to the attitude towards nursing caring to patients 24 hours post ICU was similar to the study findings regarding nursing observation and assessment of patients through a combined approach of tacit, intuitive and explicit knowledge source for making clinical decision (Atkinson, 2013).

On the contrary, majority of respondents disagree that they don’t feel good when post ICU patient deteriorate. This is consistent with the review of literature indicated that, nurses' usually feel worry during the process of recognizing deteriorating patients on general wards which may help nurses

to provide care when they articulated their feeling into a better communication on deterioration (Douw *et al.,* 2015). Also, Ward nurses also recognized patient deterioration through 'gut feelings or a sixth sense' and identified this as intuition (Massey 2017).

5.4 Association between demographic characteristic and nurse's knowledge on caring for 24 hours post ICU patients in general ward

The finding of the study revealed a significant association between participants working area either private, medical or surgical wards with level of knowledge regarding care of patients 24 hours after discharge of ICU. This is consistent to the finding reported by previous study which stated that, participants working from the general wards were significantly associated with nurses' knowledge regarding patient safety (Zewdu, 2020).

5.5 Association between the demographic characteristic and nurse's attitude on caring participants 24 hours post ICU patients

The finding of the study shows that there is a significant association between nursing education, participants working area, years of working experience and attitude toward caring 24 hours post ICU patient. This was concurrent with the study findings which revealed that, information about patient safety received during initial or continuing education, training about patient safety and knowledge of patient safety were found to have a significant association with the attitude of nurses towards patient safety (Biresaw, Asfaw and Zewdu, 2020).

Therefore, above discussion reveals that, general ward nurses require continued trainings and guidelines so that to identify, interpret and intervene patient presentation. Through assessment of airway, breathing, circulation and disability. Through good communication of patient's presentation. Provision of nursing care to 24 hours post ICU patients require nurses with adequate knowledge, positive attitude for positive patient's outcome.

5.6 Study Limitation

Being cross-sectional design in nature, the study only managed to evaluate the presence of an association between knowledge, attitude, and demographic characteristics of the study participants for caring 24 hours post ICU patient. This limitation was mitigated through the use self-administering questionnaire given to nurses from various ward to increase the validity of the study, also inclusion criteria of using only relevant study participants, and finally the inclusion of statistically significant value for the association between independent variables and the outcome variable. Another limitation observed was that restricting the

study only to MNH, JKCI and MOI hospitals which led to limit the generalization to the total population of all health care facilities in the country, therefore investigation of knowledge and attitude on caring 24 hours post ICU with a larger sample representing all health care facilities in Tanzania is worthwhile.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Low level of knowledge regarding care of patients in general wards in this study is an indicator that study respondents were not knowledgeable enough on emergency drugs used in emergency, vital signs that measure physiological status, approach used to assess level of consciousness, how to assist patient with either shallow, slow or not breathe, airway Manoeuvres used to open airway and how to assess airway patency to post ICU. However, nurses had a good attitude toward caring 24hour to post ICU contributed by nurses' confidence on assessing patients, ability of nurses to manage post ICU despite of heavy workload, positive expectation on caring post ICU patient, support from the institution and sufficient handover during transfer of post ICU patients.

6.2 Recommendations

However, nurses in this study had low level of knowledge regarding care of patients 24 hours post ICU which was statistically significant to the working area. Then the study recommended that

This study recommends that;

1. **The sampled tertiary hospitals administration need to support relevant trainings to nurses with responsibility to manage 24 hours post ICU patients in view of enhancing their skills and knowledge in managing 24 hours post ICU patients.**

2. **The hospitals administration advised to ensure development and sufficient availability of relevant guidelines on management of 24 hours post ICU patients in view of promoting proper practices in caring for 24 hours post ICU patients.**

3. **It is imperative for the tertiary hospitals sampled for this study to enhance its efforts in improving the current low nurse patient ratio in view of increasing staff efficiency.**

4. Observational study can be done to determine nurse's knowledge and attitude, aiming at nurse's assessment and observation while caring for patients 24 hours post ICU discharge.

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APPENDIX

Appendix I: Questionnaire

NURSING CARE OF PATIENTS 24 HOURS POST ICU; KNOWLEDGE AND ATTITUDE AMOUNG GENERAL WARD NURSES (English version)

Part A: Introduction and rapport building

Part B: Participant's background information

A. Instructions:

- **Thank you for consenting and willingness to respond to my questions.**
- **Please answer all questions to the best of your knowledge.**
- **This questionnaire has three parts which contain 30 questions; please, I will appreciate your responses to all questions.**
- **Any information you give will be used for the purpose of this study only and will be treated as confidential.**
- **Your full participation will greatly contribute to this study.**

Serial No……

Date ……

B. Participant's background information

DEMOGRAPHIC INFORMATION (Circle were appropriate).

1. **Age**
   a) 20 - 34 years
   b) 35 – 49 years
   c) 50 +

2. **Gender**
   a) Male
   b) Female

3. **Level of education**
   a) Diploma
   b) Degree
   c) Master

4. **Participant working area**
   a) Private ward
   b) General ward
   c) Medical ward

5. **Participant years of experience in the working station:**
   a) Six months to 1 year
   b) 1-5 years
   c) 5-10 years
   d) Above 10 years

Part II: Questionnaire

Determining nurse's knowledge on caring 24 hours post ICU discharged patients. (Circle the most correct answer)

6. **What approach do you use to assess the patient admitted in the ward from ICU?**
   a) Position the patient
   b) Put on oxygen
   c) ABCDE
   d) Do suction
7. **To assess for airway patency in patient post ICU, a nurse will do the following:**
   a) Look for breathing effort
   b) Look for secretion, listen for snoring, Feel for exhaled air
   c) Do Chest Auscultation
   d) Look for Oxygen saturation
8. **Two types of airway manoeuvres which can be applied in opening airway are:**
   a) Positioning and suctioning
   b) Head tilt and chin lifting
   c) Positioning and oxygen therapy
   d) Oxygen therapy and suctioning
9. **What are the common airway adjuncts/ devices used to open the airway?**
   a) Tongue depressor and nasal prong
   b) Oral air way and nasal pharyngeal airway
   c) Face mask and nasal prong
   d) Oral air way and face mask

10. **Patient who is not breathing, have shallow breathing or slow breathing should be assisted to breathe by using a:**
    a) Face mask
    b) Oxygen
    c) Bag Valve Mask
    d) Suction
11. **Causes of altered level of consciousness includes:**
    a) Hypoglycemia and renal
    b) Hypoglycemia, Hypoxia, Trauma and sedatives or analgesia drugs
    c) Hypoglycemia, Hypoxia, Trauma and sedatives or analgesia drugs
    d) Hypoglycemia, Hypoxia, Trauma and electrolytes
12. **Level of consciousness is assessed by using:**
    a) AVPU
    b) Blood pressure
    c) Eye opening
    d) Motor response
13. **How many vital signs measure the physiological status of the patient?**
    a) 3
    b) 8
    c) 7
14. **The following are Physiological parameters indicating deterioration for a post ICU patient.**
    a) Change in level of consciousness and vital signs
    b) Change vital signs and sleep pattern
    c) Change in vital signs and eating habit
    d) Change in level of consciousness and sleep pattern
15. **What emergency drugs do you normally use in case of emergency in this ward?**
    a) Hydrocortisone, Dexamesathone and Normal saline
    b) Epinephrine, dopamine, lidocaine and Magnesium sulphate
    c) Adrenaline, hydrocortisone and furosemide
    d) Epinephrine, hydrocortisone and Dexamesathone

Determining Nurses attitudes towards 24 hours post ICU patients in general ward (Tick the most correct answer)

SN	Characteristics	Agree	Strongly agree	Neutral	Disagree	Strongly disagree
1.	The nurse patient ratio/ work load is one of the factor affecting nurses in managing post ICU patient					
2.	I have confidence in assessing Post ICU patients					
3.	There is institution and professional support in caring for post ICU patient					
4.	I know exactly what is expected of me in caring post ICU patients					
5.	I feel good when a post ICU patient deteriorate					
6.	There are enough guidelines on assessing post ICU patient in this ward					
7.	Assessment and observation of patient from ICU is not a work of a nurse in general ward					
8.	Hand over during patient transfer is sufficient to provide care for post ICU patients					
9.	Assessment and observation of patient consume a lot of time for nurses					
10	There are enough training on nursing care to post ICU patients					

Appendix II: Consent form.

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

Greeting,

My name is Nazahed Richard, a student from Muhimbili University of Health and Allied Sciences; I would like to welcome you to participate in this study.

Study goal

Nursing care of patients 24 hours post ICU discharge; Knowledge and attitude among nurses in general ward.

Type of data and procedure

If you agree to join the study, you will be asked to answer a series of questions in the questionnaire prepared.

Participant selection

You have been selected to be part of this study, and that is why we would like to interview you. This study is conducted by Nazahed Richard in collaboration with the Muhimbili University of Health and Allied Sciences, School of Nursing and this study is currently taking place at Muhimbili Hospital (JKCI, MOI & MNH) in Dar es Salaam.

Potential Risk

I do not expect that any harm will happen to you because of joining this study however if any physical injury resulting from participation in this research happen, I will guide you to obtain medical treatment according to the current standard of care in Tanzania. There will be no additional compensations for you.

Potential benefits

If you agree to take part in this study, your contribution will help us to explore the nurse's knowledge and attitude in caring 24 hours post ICU discharged patients in general ward and will help the hospital, university, government and community on their plan in health sectors; also it will be an opportunity for you to volunteer in this study for the benefit of others and the country.

It helps the individual to identify nursing assessment and observation of 24 hours post ICU patients in general ward that can help in improving patient outcome and decrease the cost to the hospital, government and community at large.

The results of this study will be used to assist the Ministry of Health, Muhimbili National Hospital, and MUHAS Academic Center in developing public health programs that target efforts to improve patients' outcome and decrease the mortality rate of the post ICU patients.

Confidentiality

The information you provide is confidential and will not be disclosed to anyone. It will only be used for research purposes. Your personal information will not be disclosed. You may be contacted by the survey team again only if it is necessary to complete the information on the survey. Refusal to participate or withdraw from the study will not involve penalty or loss of any benefit which you are otherwise entitled.

Voluntary participation

Your participation is voluntary, and you can withdraw from the survey after having agreed to participate. You are free to refuse to answer any question that is asked and the questionnaire.

Contact information

If you have any questions about this survey, you may ask me or contact to Nazahed Richard telephone 0768774128. If you have questions about your rights as a participant and need further clarification, you may call Director of Research and Publication Dr. Bruno Sungunya, Muhimbili University of Health and Allied Science (MUHAS), P. O. Box 65001, Dar es Salaam, Tel. no +255222152467. Fill free to ask the question.

Consent to participate

Signing this consent indicates that you understand what will be expected of you and are the willingness to participate.

Name of participant ……...……

Signature of participant …… Date…….

Name of researcher……...……

Appendix III: 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: 26/05/2021

MUHAS-REC-05-2021-640

Nazahed Richard,
MSc. in Critical Care and Trauma,
School of Nursing,
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: NURSING CARE OF PATIENTS 24 HOURS POST ICU DISCHARGE: KNOWLEDGE, ATTITUDES AND PRACTICES AMONG GENERAL WARD NURSES IN TERTIARY HOSPITALS, DAR ES SALAAM, 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: 26/05/2021
EXPIRATION DATE OF APPROVAL: 25/05/2022

STUDY DESCRIPTION:
Purpose:
The purpose of this descriptive cross-sectional study is to determine the current knowledge, attitude and practices among general ward nurses in caring for patients 24 hours post ICU discharge in tertiary Hospitals Dar es salaam, Tanzania.

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-%20619.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

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 IV: Permission Letter- MOI

MOI
MUHIMBILI ORTHOPAEDIC INSTITUTE

P.O. Box 65474; DAR ES SALAAM, TANZANIA, MUHIMBILI COMPLEX
Executive Director: +255-022-2153359
General lines: +255-022-2151298/2152937/2152938
FAX: +255-022-2151744
E-Mail: info@moi.ac.tz
Website: www.moi.ac.tz
OFFERING SERVICES IN ORTHOPAEDICS, NEUROSURGERY AND TRAUMATOLOGY

AB.145/146/02/104 **2nd July, 2021**

Director,
Postgraduate studies,
Muhimbili University of Health and Allied Sciences,
P.O.Box 65001,
Dar es Salaam

RE: APPROVAL FOR PERMISSION TO CONDUCT A RESEARCH AT MOI

Reference is made to your letter dated 28th May, 2021 regarding the above heading.

On behalf of the management of the institute (MOI), I would like to officially inform you that permission has been granted for your request for **Nazahed Richard** to conduct a study titled ***'Nursing Care of Patients 24 Hours Post ICU discharge:Knowledge, attitudes and practices among general ward nurses in tertiary hospitals, Dar es Salaam Tanzania.*** Therefore, you are kindly requested to inform her to start data collection as requested.

It's my hope that you will extend enough cooperation's regarding this matter.

Mary Robert
For: Executive Director.

Cc: Medical Doctor-MOI

Cc: Director of Nursing- MOI

Cc: Dean, School of Nursing-MUHAS

Appendix V: Permission Letter- JKCI

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/2021/170 Date: 03rd June, 2021

Block Manager
- Mwaisela
- Kibasila
- NPC I& II
- Sewahaji

Muhimbili National Hospital

RE: PERMISSION TO COLLECT DATA AT MNH.

Name of Student	**Nazahed Richard**
Title	**"Nursing Care of Patients 24 Hours Post ICU Discharge: Knowledge, Attitudes and Practices Among General Ward Nurses in Tertiary Hospital, Dar es Salaam Tanzania".**
Institution	Muhimbili University of Health and Allied Sciences
Supervisor	Dr. Dickson Mkoka
Co – Supervisor	Mr. Masunga K. Isselo
Period	03rd June 2021, to 30th August, 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,

TEACHING, RESEARCH & CONSULTANCY UNIT
P.O. Box 65000
DAR-ES-SALAAM
MUHIMBILI NATIONAL HOSPITAL

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

c.c DNS
c.c **Nazahed Richard**

Appendix VI: 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.502/2019

28th May, 2021

EXECUTIVE DIRECTOR,
MUHIMBILI ORTHOPAEDIC INSTITUTE,
P.O BOX 65474,
DSM-TANZANIA.

Re: INTRODUCTION LETTER

The bearer of this letter is Nazahed Richard (HD/MUH/T.502/2019), 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: **"NURSING CARE OF PATIENTS 24 HOURS POST ICU DISCHARGE: KNOWLEDGE, ATTITUDES AND PRACTICES AMONG GENERAL WARD NURSES IN TERTIARY HOSPITALS, DAR ES SALAAM, TANZANIA".**

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 Mwanthwa
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Dean, School of Nursing, **MUHAS**
cc: Nazahed Richard

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