Nurses knowledge on initial assessment and management for traumatic brain injury patients in regional referral hospital Dar es salaam, Tanzania.

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NURSES KNOWLEDGE ON INITIAL ASSESSMENT AND MANAGEMENT FOR TRAUMATIC BRAIN INJURY PATIENTS IN REGIONAL REFERRAL HOSPITAL DARES SALAAM, TANZANIA.

By

Shida Michael Mossy

Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degreeof Master of Science in Nursing (Critical Care and Trauma) ofMuhimbili University of Health and Allied Sciences

October, 2020

CERTIFICATION

The undersigned certifies that she has read and hereby recommends for acceptance by the University of Muhimbili Health and Allied Sciences a dissertation entitled **"Nurses Knowledge on Initial Assessment and Management for Traumatic Brain Injury Patients in Regional Referral Hospital Dares Salaam, Tanzania"** in partial fulfillment of the requirements for the degree of Master of Science in Nursing (Critical Care and Trauma) of Muhimbili University of Health and Allied Science.

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Dr. Dickson Mkoka, PhD

(Supervisor)

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Date

DECLARATION AND COPYRIGHT

By submitting this thesis/dissertation I, **Shida Michael Mossy**, declare that this is my own original work and it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature…… Date……..

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ABSTRACT

Background: Traumatic brain injury is defined as an insult to the brain, which is caused by an external physical force that may produce a diminished or altered state of consciousness (Delucca, 2012).TBI is a leading cause of death and disability in trauma patients worldwide (Vella et al., 2017). Although nurses perform multiple range of activities in traumatic brain injury patients but data of the nursing roles on assessment and management of TBI patients in Tanzania is limited

Aim: The aim of this study was to assess nurse's knowledge on initial assessment and management for traumatic brain injury patients in regional referral hospital Dares salaam, Two specific objectives guided the study; first was to determine nurses knowledge on initial assessment for traumatic brain injury(TBI) in regional referral hospitals Dares salaam. Second was to determine nurses knowledge on initial management for TBI in regional referral hospitals Dares salaam

Methods: A quantitative cross-sectional design was used, where by a structured questionnaire assessed 129 nurses about their knowledge on initial assessment and management for TBI Nurses working in OPD were conveniently recruited. Data was analyzed using SPSS computer software version 23. Analysis was done with the assistance of a statistician from the national institute for medical research (NIMR)

Results: Poor nursing knowledge on initial assessment and management among nurses working at outpatient department (OPD) in regional referral hospitals (RRH) was an outcome. Majority of the participants (73.64%) were not knowledgeable on the goal of initial management for TBI patients which is the prevention of hypoxia and hypotension. High proportion (76.64%) was not familiar that immediately initial interventions are focus on

establishing clear airway. It was also noted that 72.87% was not aware that jaw trust maneuver is an approach of maintaining airway for patient TBI patients. About (81%) failed to recognize components of circulatory status.46% didn’t know eye response, verbal response and motor response are the specific sections of GCSMajority of participants reported shortage of nursing staff, overcrowding of patients and lack of regular training to be barriers for proper assessment and timely management for TBI patients

Conclusion: The findings of this study show that nurses of RRH lack knowledge of initial assessment and management for TBI patients therefore on job training focusing provision of initial assessment and management for TBI is recommended because understanding initial assessment and timely management of TBI by nurses can maximize patient's survival and prevent neurological complications associated with head injuries.

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ABBREVIATIONS

AANS	American association of neurological surgeons
ABCDE	Airway breathing circulation disability exposure
ACE-	Acute concussion evaluation
APRNs-	Advanced practice registered nurses
AVPU	Alert verbal pain unresponsive
ATLS	Advanced trauma life support
BTF	Brain trauma foundation
CBF	Cerebral blood flow
CDC	Centre for disease control
CPP	Cerebral perfusion pressure
CT	Computerized tomography
DMO	District medical officer
ED	Emergency department
EU	European Union
GCS	Glasgow coma scale
ICP	Intracranial pressure
LMICs	Low and middle income countries
LOC	Loss of consciousness

MNH	Muhimbili national hospital
MOI	Muhimbili orthopedic institute
MVA	Motor vehicle accident
NIMR	National institute for medical research
NMBI	Nursing and midwifery board of Ireland
NS	Normal saline
OPD	department
PECNs’	Pre hospital emergency care nurses’
RN	Registered nurse
RTA	Road traffic accidents
SPSS	Statistical package for social science
TBI	Traumatic brain injury
WHO	world health organization

DEFINITION OF TERMS

Traumatic brain injury (TBI) is an insult to the brain, not of a degenerative or congenital nature, which is caused by an external physical force that may produce a diminished or altered state of consciousness, and which results in an impairment of cognitive abilities or physical functioning(Delucca, 2012)

Glasgow coma scale (GCS) is an instrument designed to assess level of consciousness. The tool involves three determinants eye opening, verbal responses and motor opening to appropriate stimuli (Chou et al., 2017)

Nursing Practice is defined as the range of roles, functions, responsibilities, and activities which registered nurses are educated and authorized to perform(NMBI, 2015)

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Traumatic brain injury is defined as an insult to the brain, which is caused by an external physical force that may produce a diminished or altered state of consciousness (Delucca, 2012).TBI is a leading cause of death and disability in trauma patients worldwide (Vella et al., 2017). TBI severity is commonly estimated using the Glasgow Coma Scale (GCS) and classified as either mild (GCS score 13–15), moderate (GCS score 9–12), or severe (GCS score 3–8) (Bossers et al., 2018).

Globally, 1.25 million people die in relation to road traffic accidents(RTAs) mainly in sub-Saharan Africa (Eshete & Taye, 2018) Road traffic accidents accounts for 60% of TBI cases, ranked as 8th leading cause of death in 2015(Mehmood et al., 2018). European Union (EU; 28 Member States), estimated that at least 2·5 million new cases of TBI occur each year (Maas et al., 2017) Data from Africa estimates death from TBI related to RTA is more prevalent (26.6 per 100,000 population), compared to the European region (9.3 per 100,000) (Bangirana et al., 2019). Studies have shown Tanzania has a significantly high rate of traffic-related deaths and disabilities most of which result from brain injuries(Boniface, Lugazia, Ntungi, & Kiloloma, 2017).

The initial management of traumatic brain injury patients is of critical importance in order to prevent hypoxia and hypotension. Moderate to severe TBI patients are at great risk of secondary brain injury therefore maintaining adequate cerebral perfusion is a key which involves targeting intracranial pressure (ICP) or cerebral perfusion pressure (CPP) as well avoiding cerebral hypoxia(Sheriff & Hinson, 2015).

It’s expected that nurses’ working in critical care setting to understand physiological impacts of increased intracranial pressure injuries (ICP), importance of vital signs and caring needed to TBI patients. Because nurses are the frontline providers of care for most patients, knowledge

of the assessment, treatment, and education of TBI patients should be a fundamental skill of both neurological and non neurological specialty nurses for promoting optimum patient outcomes. Despite of multiple interventions undertaken by nurses in TBI patients the physiological effects of many of these interventions are largely unknown (Tume, Baines, & Lisboa, 2011). Therefore this study aimed to assess nurses' knowledge on initialassessment and for TBI patients at outpatient department in regional referral hospital Dares salaam, Tanzania.

1.2 Problem statement

TBI affect approximately 10 million people worldwide annually. TBI contributes to chronic disability and behavioral problem impairments such as mood, cognition attention and particularly memory (Dang, Chen, He, & Chen, 2017).

It's expected that nurses working in critical care setting to have a strong foundation of knowledge in caring TBI patients however it is evident that in some vital aspects, for example GCS accuracy is still a concern pertaining to nursing knowledge(Kiewiet, 2019)Because nurses are the frontline providers of care for most patients, knowledge of the assessment, treatment, and education of TBI patients should be a fundamental skill of both neurological and nonneurological specialty nurses for promoting optimum patient outcomes.
Despite existence of several published guidelines on TBI management, literatures showed nurses who care TBI patients majority have the highest perceived confidence but the lowest perceived knowledge (Oyesanya, Brown, & Turkstra, 2018). To date, limited studies are available that report nurses' knowledge and clinical practices regarding caring of patients with traumatic brain injuries in Tanzania

1.3 Conceptual framework

The researcher was guided by the following conceptual framework for TBI which describes nursing knowledge on initial assessment and management developed by a researcher (fig 1)

Nurses were assessed on their knowledge about approach used for initial assessment of patient with TBI. The approach was ABCD approach which includes assessment of airway, breathing,

circulation, disability and exposure. But also nurses were assessed to determine whether they know initial intervention for patient TBI which involve C spine immobilization, oxygen therapy, fluid resuscitation, vital signs monitoring, bleeding control, and intracranial pressure monitoring

Fluid resuscitation done to prevent hypotension and maintain cerebral perfusion while oxygen therapy should be given initially in TBI to prevent hypoxia, and hypercarbia(Vella et al., 2017)therefore nurse should administer enough fluid to correct hypotension in moderate and severe TBI patients. The interpretation of the GCS in head injury by a competent nurse can aid the early detection of potential health problems, and prevents serious complications which contribute to improve the quality of nursing care which reflects positively on patient outcome (Mohammad, 2018). Generally proper knowledge on initial assessment and management will enable nurses working as frontline health care providers to provide care initially and hence prevent morbidity and mortality for patient with TBI.

Figure 1: Conceptual Framework

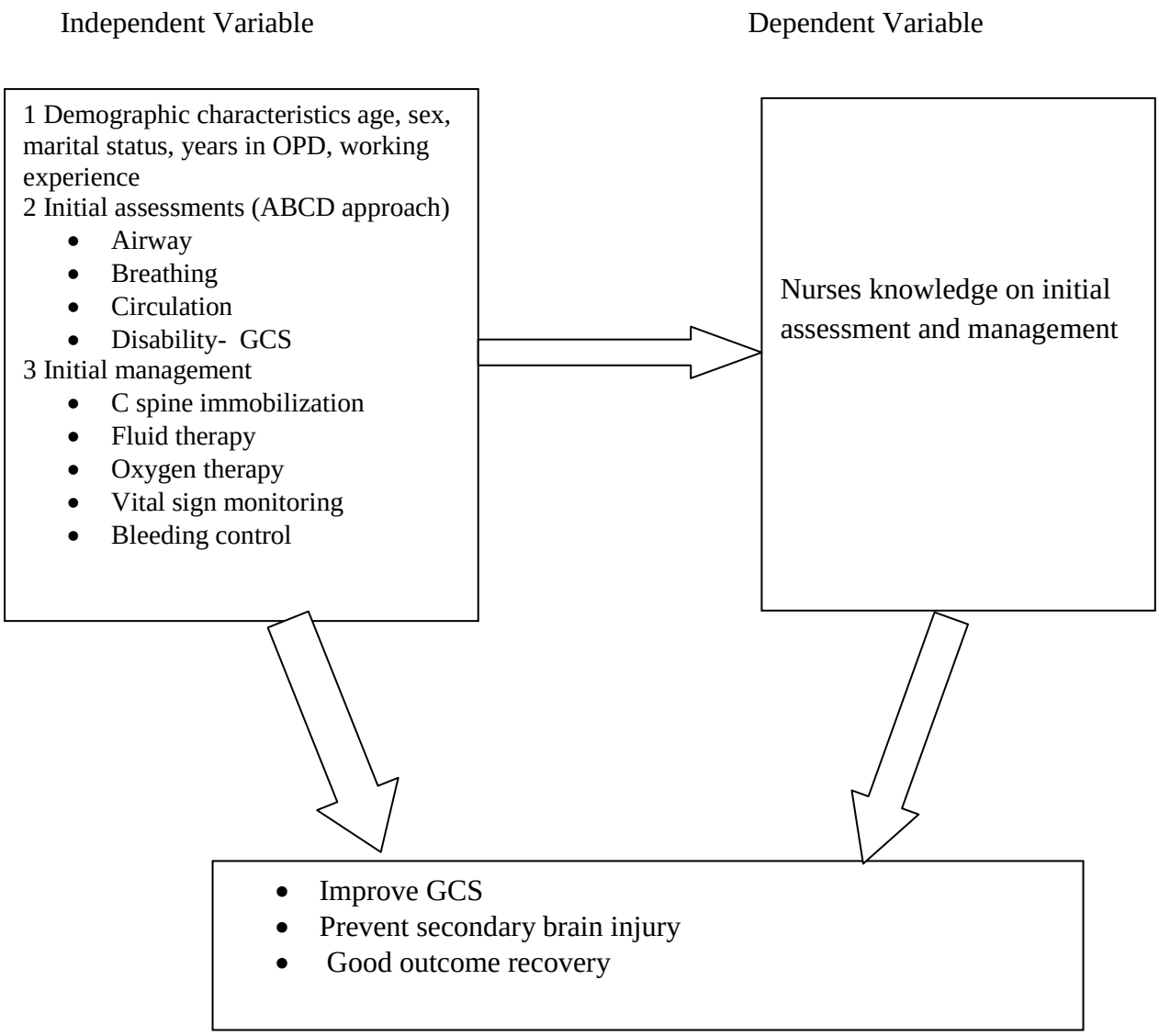

Fig 1: Developed conceptual framework for initial assessment and management of TBI

1.4 Rationale of the study

The initial management of TBI patients is of critical importance in order to prevent secondary brain injury which is associated with hypoxia and hypotension. Knowledge of the initial assessment and timely management of the TBI can significantly improve the outcome and decrease the mortality. This study aimed to determine the extent of nursing knowledge on initial assessment and management for TBI patient. Provision of such knowledge would be beneficial for nurses in different ways. It could have a direct positive reflection upon the quality of patient care, and could support the important role of the nurse related to head trauma nursing management

1.5 Research questions

To what extent do nurses have knowledge on initial assessment for TBI patients in regional referrals hospital Dares Salaam?

To what extent do nurses' have knowledge on initial management for TBI patients in regional referrals hospitals Dares Salaam?

1.6 Objective of the study

1.6.1 Broad objective

The overall objective of the study was to assess nurse's knowledge on initial assessment and management for traumatic brain injury patients in regional referral hospital Dares Salaam, Tanzania.

1.5.2 Specific objectives

The specific objective of this study were

1. To determine nurses knowledge on initial assessment for TBI at outpatient department in regional referral hospitals Dares Salaam, Tanzania
2. To determine nurses knowledge on initial management for TBI at outpatient department in regional referral hospitals Dares Salaam, Tanzania

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

In this chapter, an overview focuses on existing literature based on nursing knowledge on initial assessment and management for TBI. The chapter includes past research conducted with emphasis on TBI and what is currently known, and how nursing knowledge have an impact on caring for TBI patients. The literature findings are presented in the following order: general overview of traumatic brain injury, nursing knowledge on initial assessment and nursing knowledge on initial management for TBI patients

2.2General overview of TBI

Traumatic brain injury (TBI) is a worldwide social, economic, and health problem related to premature death and long-term disabilities (Areas et al., 2019) The incidence of TBI varies between nations, but the rate is higher in lower- and middle-income countries (Bangirana et al., 2019). The initial management of traumatic brain injury patients is of critical importance in order to prevent hypoxia and hypotension. Survival after traumatic brain injury is dependent on prompt emergency treatment and focused management of primary and secondary injuries (Shehab, Ibrahim, & Abd-Elkader, 2018). With an increase in global incidence and prevalence of TBI, the number of patients with TBI who seek care from nurses on a regular basis are going to increase and it is important that nurses have adequate knowledge and information to provide care and education to patient, family and community (James et al., 2019)

2.3 Nurses knowledge on initial assessment for TBI patients

Knowledge about TBI and its effects among nurses are very crucial in order to provide proper care to the patients and their family. Nurses are often the frontline providers of care for most patients as a result, they must be able to competently assess, treat, and educate patients with TBI. Assessment of the head injury patient should include airway, cervical spine protection, breathing, circulation, and hemorrhage control followed by the GCS(Liew, Zainab, Cecilia, Zarina, & Clement, 2017)

In emergency setting assessment of TBI patients begins with primary assessment in order to identify life threaten conditions and institute treatment and usually follow airway, breathing, circulation, disability and exposure approach (ABCDE). This approach is applicable in all clinical emergencies for immediate assessment and treatment of critically ill or injured patients (Thim, Krarup, Grove, Rohde, & Lofgren, 2012). Literature shows frequent assessment leads to good interventions such as IV fluids administration, oxygen and airway management hence contribute to optimal level of care (Falk, Alm, & Lindström, 2014).

Nurses and other healthcare workers use Glasgow Coma Scale (GCS) toassess level of consciousness in TBI patients and detecting early deterioration. This tool is used worldwide for neurological assessment of level of consciousness in nursing practice and is further enhanced with the support of best practice guidelines (Basauhra Singh et al., 2016). Kimboka (2017) conducted a study in Tanzania to evaluate nurses' knowledge and practice on the use of GCSand reported low knowledge among nurses working at Muhimbili national hospital (MNH) and Muhimbili orthopedic institute (MOI).

There is some evidence from the brain injury literature that education is effective in improving knowledge for instance, the study done at Egypt to evaluate impact of an educational program on nurses' knowledge and practice regarding care of TBI patients level of knowledge and practice was un satisfactory before the program and satisfied post program implementation in all items (Shehab, Ibrahim, & Abd-Elkader, 2018) The study recommended continuous educational programs on regular basis for enhancing nurses' knowledge and practice to achieve high quality of care.

Another study done to evaluate knowledge of advanced practice registered nurse (APRN) on the assessment of mild TBI revealed knowledge and practice deficit, many APRN were not familiar with standardized tools used for assessment of mild TBI(Garey & Garey, 2014)

The standard of care for any patient with TBI includes serial neurologic examinations. These examinations include a pupil assessment. The pupillary examination is a minimally invasive assessment, which provides valuable information about the severity and progression of the

brain injury, as well as brainstem function(&NA;, 2007)Careful pupil examination is crucial for identifying the underlying etiology of the traumatic third nerve palsy, and in turn directing clinical management (Chen, Vakil-Gilani, Williamson, & Cecil, 2014) According to experts, critical care and neurosurgical nurses, majority of nurses underestimated pupil sizes in clinical practice and incorrectly assessed pupil reactivity (Kiewiet, 2019).

Frequent assessment of vital signs is among nursing role which allows early detection and treatment of secondary brain injury. A key reason for evaluating the impact of blood pressure measured is because the injured brain is so highly sensitive to changes in perfusion and neuronal damage begins immediately(Spaite et al., 2018) Despite of all assessment undertaken by nurses research show that lack of nursing knowledge as a barrier to appropriate assessment and care of patients with acute and moderate TBI and their families(Traumatic & Injury, 2019)

2.4 Nurses knowledge on initial management for TBI patients

It is expected that nurses should have competent level, knowledge and confidence in areas such as assessment and treatment procedures on TBI patients. This might influence the education nurses provide to patients and their families (Olesanya et al., 2017). Knowledge and skill in the early management of TBI and its proper implementation are vital to improve the quality of careNurses are responsible for the continuous monitoring and maintenance of physiological values associated with TBI. Therefore, nurses as health care team members are the best positioned to detect and prevent secondary brain injury. However literature shows low levels of knowledge specific to assessment, treatment, and evaluation of adult patients with mild TBI (Watts et al., 2011).

Airway management must come first in an emergency situation and must not be attempted until the airway is patent. In the event that a patient's airway is closed, the most effective method to open it is the head tilt, chin lift approach (Higginson, Jones, & Davies, 2010). Nurses are often the first personnel to come across with patients of airway obstruction however literature shows insufficient knowledge level on the adult airway management and basic life support BLS skills among nurses(Kilicaslan, Topal, & Yosunkaya, 2014)

The goal of fluid management is to optimize the circulatory system to ensure the sufficient delivery of oxygen to organs. Ischemia is one of the major risk factors contributing to death and disability in TBI patients(Honda et al., 2016a). To prevent secondary brain injuries that associated with hypotension nurses need to be familiar with hypertonic fluid in order restore CPP. A study done in 2015 on effect of implementing intravenous infusion therapy protocol on nurses' knowledge and performance at specialized medical hospital shows inadequate knowledge and recommend continued nursing education which will be reflected on better outcome and service for the inpatients and the regular reading of up-to-date references (periodicals, textbooks) furthermore encouraged nurses to attend scientific meetings and conferences to keep pace with the rapidly growing wealth of knowledge and performance necessary for proper nursing service (Silipo, Planinsic, Wittwer, Sprung, & Nicholson, 2015)

CHAPTER THREE

3.0 Material and method

3.1 Study design

Cross sectional study is a type of research design in which data are collected from many individual at a single point in time(Thiese, 2014). It's relatively quick and easy to perform. This study adopted a cross sectional descriptive study design aiming on assessing nurse's knowledge on initial assessment and management for traumatic brain injury patients attending at outpatient department in regional referral hospital Dares salaam, Tanzania.A quantitative approach was used to collect and analyze data from the study participants. Data was quantified in numerical values and percentages to enable statistical inferences

3.2 Study setting

This study was conducted in three regional referral hospitals (Amana, Temeke and Mwananyamala) that found in Dar-es-salaam. This hospital based study specifically was carried at outpatient departments of the mentioned hospitals. These three regional hospitals Amana, Mwananyamala and Temeke hospitals were selected because majority of TBI cases were brought and receive initial management before referred to Muhimbili nation hospital for further management. Dar-es-salaam is located on a natural harbour on the Eastern Indian Ocean coast of Africa, about 45 km south of the island of Zanzibar, it is the largest city in Tanzania and home to a wide range of people and cultures. Dares Salaam city, has reported high prevalence of road traffic accidents due to high population (Boniface, Lugazia, Ntungi, & Kiloloma, 2017)

Mwananyamala Regional Referral hospital is a public health facility located in Kinondoni District in Dar es Salaam. The hospital has the capacity of 340 beds. It provides medical, preventive, curative and rehabilitation services. The hospital is made up of 8 operational Department namely Internal medicine, surgical, pediatric, Obstetrics and Gynecology, OPD, IPD, Administration, Emergency and other specialized sections. The OPD attend around 1500 to 2000 patients per day. The department is run by medical officers, assistant medical officers,

nurses, pharmacists and health attendants. The hospital receives TBI patients from Sinza hospital and all areas around Mwananyamala. Mild TBI patients received treatment then discharged home. Moderate to severe TBI patients are given tetanus toxoid vaccine, diclofenac injection, IV fluids, ceftriaxone injection and transferred to Muhimbili for CT scan and definitive care

Temeke hospital is the largest referral hospital in Temeke district. In November 2010 was upgraded to regional referral hospital. Temeke hospital provides services to Temeke population and neighboring district of Rufiji, Mkuranga and Ilala. Outpatient attendance ranges from 1,500 to 1,700 daily. Trauma patients approximated range from 15 to 20 everyday making an average of 450 per month. All TBI patients with a history of loss of consciousness are transferred to Muhimbili for neurological care and CT scan. Mild TBI patients receives first aids and discharged home while moderate TBI with a GSC of 13 to 15 receives first aid includes antibiotics, ant pain, tetanus toxoid and dressing thereafter admitted in the ward for observation

Amana regional referral hospital serves the population of Ilala municipal has an authorized bed capacity of 362, the outpatient attendance ranges between 800-1200 daily. Amana receive an average of 20-25 trauma patients per day, majority sustained mild injury treated then discharge home. Few patients approximate 3-6 sustained multiple injury. Traumatic brain injury patient are resuscitated with fluids, given tetanus vaccine and ant pain medication mostly diclofenac injection thereafter transferred to Muhimbili for CT scan and further treatment

3.3 Study population

The target population was nurses working in outpatient department at Amana, Mwananyamala and TemekeHospitals.

3.4Sample size

The sample size was obtained using the formula for estimating sample size with finite population by Kothar CR, 2008 (Kothari, 2008). This formula was given as follows:-

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

Whereby

n = size of sample

N = size of the population= 119 (is a total number of nurses in both 3 regional hospitals).

e = acceptable error (the precision) = 0.08

σ= standard deviation of population = 8.7, estimated from the distribution of number of nurses present in the selected three hospitals (38, 33 and 48).

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

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

$n = \frac{1.96^2.119.8.7^2}{(119-1)0.08^2+1.96^2 8.7^2} \cong 118$

Therefore, 118 nurses was the desired sample size in this study.

I added 10% non-response rate (118*0.1) = 11 nurses

So the minimum sample size of my study was 129

3.5 Sampling procedure

Convenient sampling technique was applied. This refers to availability sampling which is a type of non-probability sampling where the samples are selected because they are accessible to the researcher. The sample is chosen on the basis of the convenience of the investigator (Acharya, Prakash, Saxena, & Nigam, 2013). Convenience Sampling is affordable, easy and the subjects are readily available. The key advantages of convenience sampling are that it is cheap, efficient, and simple to implement. Expected sample size for this study was 129 nurses working in outpatient department. The selected participants was requested for their participation in the study

3.6 Eligibility criteria

3.6.1 Inclusion criteria

Registered and enrolled nurses working at outpatient department more than 3 months

3.6.2 Exclusion criteria

Registered and enrolled nurses who were not at their workplace during the time of data collection such as those on annual leave, maternity leave and full time study leave

3.7. Study variables

3.7.1. Dependent variable

The primary outcome variable of this study was nurses knowledge on initial assessment and management

3.7.2. Independent variables

The independent variable of this study were social demographic characteristics, initial assessment which include airway, breathing circulation disability and exposure together with initial management includes C spine immobilization, oxygen therapy, bleeding control, fluid therapy and vital signs monitoring (Kiewiet, 2019) and(Mohammad, 2018)

3.8 Data collection tools

A structured questionnaire was used for data collection that adopted from (Kiewiet, 2019)(Mohammad, 2018) and (Kimboka, 2017) then modified based on the topic. All questions was inform of multiple choice and subdivided into three sections, nurses knowledge on initial assessment, nurses knowledge on initial management and social demographic characteristics of nurses such as age, educational level, marital status and years of working in outpatient department. Other validated questions from the previous validated tools adopted to assess nurses knowledge. Thequestionnaire was written in English then translated to Kiswahili.

3.9 Data collection procedure

The researcher mate the respondents in their respective service unit early in the morning before the morning patient handover (between 7-8) then introduced to them and explained what the researcher is all about. The participant asked to select one choice from the choices that were provided meanwhile the researcher assisted them in answering the questions that raised by respondents and also ensured every participant understand every question, the participant took 30-60 min to complete the test. Once they completed the questionnaire, they put them in the box provided and then the completed questionnaires collected. Data collection was carried out in outpatient department at Amana, Temeke and Mwananyamala

3.10 Validity

Validity is a determination of how well the instrument reflects the abstract concept being examined. This was ensured by the pilot study done at sinza municipal hospital and the input of two nursing expertise, one professor from Agakhan international university and one Doctor from Muhimbili university of health and allied science clinical nursing department, both of them was requested to revise the tool for clarity, relevance and comprehensiveness, tool was modified based on their opinion

3.11 Reliability

Is the extent to which measurements are repeatable, when different persons perform the measurements, on different occasions, under different conditions, with supposedly alternative instruments which measure the same thing(Golfashni, 2011). Internal consistency of the instrument calculated in conjunction with the Cronbach's alpha coefficient during data analysis. The reliability coefficient was 0.50

3.12 Pre- testing of the tools

Structured questionnaires were pre-tested at Sinza municipal referral hospital to test clarity, feasibility and consistency of the tools and to detect ambiguity in the study tools. A participant that was included in pre-testing of the tool was not included in the study.

3.13 Recruitment and training of research assistants.

Three research assistants were recruited who was registered nurses, each from the mentioned hospitals. The assistants had a two days orientation to research concept, protocol, and data collection tools.

3. 14 Data analysis

Data from the questionnaire responses were coded and entered into the database and analyzed using the Statistical Package for Social Sciences, Version 23. All demographic data were analyzed using frequencies and percentages that described the sample.The questions were coded 1 if is correct and 0 if is incorrect. Both assessment and treatment questions were involved in the coding. The total of each question was calculated and then the number of correct answers was converted into percentage. The percentage we obtain we calculated the mean, median, categorization of high knowledge, moderate and poor knowledge for both questions of treatment and assessment questions. The measure of association using chi square test was used to test the score outcomes and other independent variables. The p value less than 0.2 were able to be entered into bivariate and multivariate analysis in order to control confounders. The logistic regression model was used to assess the associated factors where by average and good given 1 and poor was given 0. Any p value less than 0.05 in multivariate analysis was considered to be statistically significant associated

Since the objectives were descriptive, analysis was done with the aid of statistician from national institute for medical research (NIMR) using descriptive and inferential statistics. Standard deviation, frequency and percentage were calculated to describe nurse's knowledge. Frequency tables and relative frequency were used to report data

3.15 Ethical consideration

Ethical approval was obtained from MUHAS University ethical review committee and permission to conduct research from the DMO of Mwananyamala, Temeke and Amana hospitals. Welfare and rights of participants was protected through principles of beneficence,

human dignity, and justice by making sure that all participants was equally treated, and protected from any harm that can be caused by the research.

On additional each participant was informed that their participation in the study was voluntary and they can withdraw at any stage without any responsibility. Privacy and confidentiality of the collected data was assured.

3.16 Dissemination of the research findings

The findings was disseminated and made available in the MUHAS library for use, Mwananyamala, Temeke and Amana hospital for improving nurse's knowledge on initial assessment and management for traumatic brain injury at outpatient department. Also the findings will be published to peer review journal for wide range of scholar to read and advance their knowledge.

CHAPTER FOUR

4.0 RESULTS

This chapter summarizes the results according to the objectives of the study and has been divided into three sections which are socio-demographic characteristics, nurses knowledge on initial assessment for TBI patients and nurses knowledge on initial management for TBI

4.1. Demographic characteristics

This study included a total of 129 participants. Majority 80 (62.02) were female, 62 (48.06) has Diploma qualification. More than half of participants 68 (52.71) was 30 years and below. Most of the participants 97 (75.19) had a working experience of 1 to 5 years (table 1)

Table1: Demographic characteristics of study participants

Demographic variables (N=100)	**Frequency (N)**	**Percent (%)**
Gender		
Female	80	62.02
Male	49	37.98
Age (years)		
30 or less	68	52.71
More than 30	61	47.29
Professional qualification		
Bachelor	22	17.05
Diploma	62	48.06
Certificate	45	34.88
Years of experience as a Nurse		
1-5 years	79	75.19
6-10 years	36	13.18
More than 10 years	4	3.1
Years in OPD		
Less than one year	11	8.53
1-5	97	75.19
6-10	17	13.18
More than 10 years	4	3.1

Marital Status		
Married	62	48.06
Unmarried	67	51.94

4.1.2 Nurses knowledge on initial assessment for TBI patients

The first objective of this study was to assess nurses' knowledge on initial assessment for TBI patients. Participants were asked to respond to ten knowledge items regarding initial assessment for TBI patients. Knowledge questions with several options were given and participant was asked to choose one correct option. Those who got right answer coded as correctresponse while those who got wrong option wereregarded as incorrect response. Table two below summarizes findings of the first objective.

Table 2: Nurses knowledge on initial assessment for TBI patients

Assessment item	**Correct N (%)**	**Incorrect N (%)**
ABCD is an Approach used for initial assessment for TBI	83(64.34)	46(35.66)
Jaw thrust maneuver is a technique used to open airway in TBI patients	35(27.13)	94(72.87)
Blood pressure, extremities and capillary refill are components of circulation to be assessed	24(18.6)	105(81.4)
Blood sugar, pupil reaction and level of consciousness are parameters used to assess disability during initial assessment	16(12.4)	113(87.6)
During initial assessment all 4 limbs ae used to test the best motor response	62(48.06)	67(51.94)
Eye opening, verbal response and motor response are specific sections of the Glasgow Coma Scale which assess level of consciousness	69(53.49)	60(46.51)
In assessing patients level of consciousness using Glasgow coma scale, 3 is the lowest score, indicative of coma	56(43.41)	73(56.59)
In assessing abnormal flexion a patient pulls his arm	11(8.53)	118(91.47)

away after inflicting a pain stimulus		
During initial assessment a decreased level of consciousness is the MOST reliable sign of a head injury	84(65.12)	45(34.88)
When inspecting the back, four person log roll procedure should be used in TBI patients	48(37.21)	81(62.79)

Majority of nurses (64%) were familiar with (ABCDE) approach used in initial assessment. High proportions in this study (72.87) didn't know a proper approach of maintaining airway for patient with TBI which is jaw thrust maneuver. Moreover, high proportion of participants (81) doesn't know parameter for initial assessment of circulatory status of patient with TBI which is Blood Pressure, temperature of extremities and capillary refill. Furthermore, most participants (87.6%) don't know parameter used to assess disability during initial assessment which includes blood sugar, pupil reaction and level of consciousness. About half of the participants (53.49) know the tool that is used to assess level of consciousness and its main section which are eye opening, verbal response and motor response. More than half of participants (56.59%) did not know that 3 is the lowest score that indicate coma in patient with TBI, 46% did not know specific sections of GCS which is eye response, verbal response and motor response. Meanwhile 65.12% were knowledgeable that during initial assessment, decreased level of consciousness is the most reliable sign of a head injury

4.1.3: Nurses knowledge on initial management for TBI patients

The second objective of this study was to assess nurses' knowledge on initial management for TBI patients. Participants were asked to respond to twelve knowledge items regarding initial management for TBI patients. Knowledge questions with several options were given and participant was asked to choice one correct option. Those who chose the correct option was regarded to be knowledgeable about the item and those who chose the wrong option was regarded to be not knowledgeable about the item. Table 3 below summarizes findings of the second objective.

Table 4: Nurses knowledge on initial management for TBI patients

Assessment Item	Correct N (%)	Incorrect N (%)
The goal of initial intervention in TBI patients is prevention of hypoxia and hypotension	34(26.36)	95(73.64)
Immediately after traumatic brain injury, initial resuscitation focus on establishing clear airway	40(31.01)	89(68.99)
Airway management is the first recommended intervention after receiving a patient with TBI	30(23.26)	99(76.74)
Non rebreather mask should be used for severe TBI patients who require oxygen supplement	38(29.46)	91(70.54)
Crystalloids is an initial fluid intervention for a patient with TBI	18(13.95)	111(86.05)
In a moderate TBI Glasgow coma score is (GSC) 11	52(40.31)	77(59.69)
When GCS of 12 changed to 8, a nurse should prepare a patient for intubation	45(34.88)	84(65.12)
Nurse should avoid using excessive pressure when applying the bandage for	37(28.68)	92(71.32)

controlling bleeding from a scalp laceration with a suspected underlying skull fracture,		
Immediately reassessment following intervention is the effectiveness positive-pressure ventilations when treating a head-injured patient	35(27.13)	94(72.87)
An ABG should be done initially and an intervention should be done to ensure that PCO2 ranges between 35 to 45mm for patient with severe TBI	41(31.78)	88(68.22)
Patient with suspected spinal cord injury a cervical collar should be applied and not removed unless cause ABCs problems	72(55.81)	57(44.19)
During initial intervention a nurse should perform suction of oropharynx for severe TBI patients who presents with bloody secretion draining from his mouth and nose	63(48.84)	66(51.16)
TBI patient who present with a shallow breathing and a slow bounding pulse, a nurse should assist ventilation	28(21.71)	101(78.29)

The results reveal that majority of the participants were not knowledgeable (73.64%) on the goal of initial management of TBI patients which is the prevention of hypoxia and hypotension. Furthermore high proportion (76.64%) was not familiar that immediately initial interventions are focus on establishing clear airway. More than half of participants were knowledgeable on the C spine immobilization. Majority of nurses 62% was not aware on the recommended range of PCO2 which is the component of arterial blood gases. Moreover

several participants (71.32%) did not know that during bleeding control excessive pressure should be avoided in a scalp laceration. About half of the participants 51 percent were knowledgeable on the suction duration and techniques in TBI patients. Lastly most of participants were not aware on the indication of intubation when GCS changed.

4.2 INFERENTIAL STATISTICS RESULTS

4.2.1 Total knowledge scores of nurses for traumatic brain injury patients in initial assessment

Table 4 illustrates knowledge score (n=129), a standard deviation (SD) 17.22 with a mean (M) Score of 36.26

Variable	n	Mean	Std.Dev	Minimum	Maximum
Knowledge	**129**	**36.26**	**17.22**	**7.14**	**78.57**

The minimum SD 7.14 and the maximum SD 78.57 which a low SD indicating confidence in the statistical conclusion.

Table5: The bivariate and multivariate analysis using logistic regression model of factors associated withassessment score of nurses in regional referral hospitals in 2020

ASSESSMENT				
Variables	**BIVARIATE**		**MULTIVARIATE**	
Experience years in nursing	**COR (95% C.I)**	**P-Value**	**AOR (95% C.I)**	**P-Value**
1 to 5	Reference	Reference	Reference	Reference
6 to 10	0.81(0.33 -1.99)	0.648	1.28(0.34 - 4.82)	0.72
More 10	1.83(0.57 - 5.85)	0.311	2.06(0.37 - 11.39)	0.41
Age group				
30 or less	Reference	Reference	Reference	Reference
more than 30	1.36(0.63 - 2.89)	0.433	1.94(0.64 - 5.89)	0.243
Gender				
Female	Reference	Reference	Reference	Reference
Male	2.78(1.28 - 6.06)	0.01	3.64(1.49 - 8.85)	0.004
Qualification				
Diploma in nursing	Reference	Reference	Reference	Refer

				ence
Certificate in nursing	0.76(0.31 - 1.86)	0.542	0.81(0.29 - 2.22)	0.678
Degree in nursing	2.65(0.97 - 7.23)	0.058	5.00(1.41 - 17.71)	0.013
Marital status				
Unmarried	Reference	Reference	Reference	Refer ence
Married	0.96(0.45 - 2.05)	0.919	0.76(0.31 - 1.91)	0.563
Years in OPD				
1-5 years	Reference	Reference	Reference	Refer ence
Less than 1 year	1.41(0.38 - 5.19)	0.607	0.47(0.09 - 2.33)	0.357
6-10 years	0.76(0.23 - 2.53)	0.652	0.35(0.07 - 1.89)	0.224
More than 10 years	2.46(0.33 - 18.37)	0.379	1.53(0.11 - 19.88)	0.744

Regarding gender, male participants score high knowledge compared to female and was statistically significance associated with score of assessment P = 0.004. Participants with degree shows a higher knowledge score than others and were statistically significance P= 0.013

4.2.1 Total knowledge scores of nurses for traumatic brain injury patients in initial management

Table 6 illustrates knowledge score (n=129), a standard deviation (SD) 15.45 with a mean (M) Score of 27.63

Variable	n	Mean	Std. Dev	Minimum	Maximum
Knowledge	**129**	**27.63**	**15.45**	**0**	**64.29**

The minimum SD 0 and the maximum SD 64.29 which a low SD indicating confidence in the statistical conclusion.

Table7: The bivariate and multivariate analysis using logistic regression model of factors associated with treatment score of nurses of regional referral hospitals in 2020

TREATMENT				
Variables	**Bivariate**		**Multivariate**	
Experience years in nursing	COR (95% C.I)	P-Value	AOR (95% C.I)	P-Value
1 to 5	Reference	Reference	Reference	Reference
6 to 10	2.94(0.97 - 8.87)	0.056	3.05(0.59 - 15.85)	0.185
More 10	4.11(1.02 - 16.60)	0.047	2.31(0.26 - 20.44)	0.453
Age group				
30 or less	Reference	Reference	Reference	Reference
more than 30	2.79(0.99 - 7.90)	0.052	1.46(0.35 - 6.01)	0.603
Gender				
Female	Reference	Reference	Reference	Reference
Male	1.22(0.45 - 3.29)	0.689	1.20(0.64 -	0.234

			6.22)	
Qualification				
Diploma in nursing	Reference	Reference	Reference	Reference
Certificate in nursing	1.44(0.43 - 4.78)	0.556	1.69(0.41 - 7.05)	0.466
Degree in nursing	4.36(1.27 - 14.91)	0.019	8.24(1.66 - 40.83)	0.01
Marital status				
Unmarried	Reference	Reference	Reference	Reference
Married	3.62(1.22 - 10.74)	0.021	2.5(0.72 - 8.77)	0.151
Years in OPD				
1-5 years	Reference	Reference	Reference	Reference
Less than 1 year	1.73(0.33 - 9.1)	0.513	0.65(0.10 - 4.37)	0.657
6-10 years	2.41(0.67 - 8.69)	0.18	0.44(0.07 - 2.77)	0.383
More than 10 years	7.82(0.99 - 61.22)	0.05	5.03(0.3 - 84.16)	0.261

With regard to nursing qualifications, the participants with a degree in nursing have the highest mean score amongst the nursing qualification group shows significant association, P = 0.01

CHAPTER FIVE

5.0 DISCUSSION

In this chapter, the discussion, conclusions and recommendations are discussed. Recommendations given was based on the study results

5.1 Nurses knowledge on initial assessment

Regarding to socio-demographic characteristics, majority were females, more than half were having less than 30 years, almost half of participants were diploma holders finally more than two third of them had 1 to 5 years of experience. Participants with a degree in nursing were more knowledgeable than nurses with a diploma and certificate (table 5**)**. Similar findings also observed in a study done at South Africa in a tertiary hospital to determine professional nurses knowledge and clinical practice caring for patients with TBI patients (Kiewiet, 2019)

Overall mean knowledge score of nurse's knowledge on initial assessment was 38.26% with a standard deviation of 17.22. Findings from this study indicate that majority of the nurses lack knowledge on initial assessment for TBI patients. This finding correspond with the study done at Sweden to explore pre-hospital emergency care nurses' (PECNs') on assessment and care of patients with head trauma in a large Scandinavian city reveals low degree of assessment parameters related to head trauma (Rubenson, Lindström, Ponzer, & Vicente, 2017)

Advance trauma life support principles (ATLS) emphasize airway, breathing, circulation disability and exposure (ABCDE) approach to be used during initial assessment for trauma patients. This approach is used for initial assessment and treatment of patients and determining the seriousness of a condition and to prioritize initial clinical interventions (Thim et al., 2012). The study found that high proportion of nurses 64% wereaware of this approach.

The study further found lack of nurse's knowledge on airway assessment. Airway emergencies are characterized by hypoxia or anoxia that can produce irreversible brain damage in a matter of minutes (El-Sayed, Ryan, Schell, Rappazini, & Wang, 2010). Airway assessment is a vital and important skill that all nurses should possess. Based on the assessment, nurses should be able to implement appropriate airway management strategies. Airway assessment and management skills are vital in an emergency department (ED), as any patient can present with a varied range of problems associated with an inadequate airway or diminished respiratory function(Higginson, Jones, & Davies, 2011).

Most participants (81%) from this study were not knowledgeable on circulation components The primary goal of nursing management in severe head trauma is to maintain adequate cerebral perfusion and improve cerebral blood flow in order to prevent cerebral ischaemia and secondary injury to the brain(Chamberlain, 1998). Secondary brain injury is associated with a reduction in cerebral blood flow, oxygenation and perfusion related to hypotension, hypoxemia and raised intracranial pressure Therefore, understanding circulatory disturbance might be helpful for determining its pathogenesis, developing appropriate treatment plans, evaluating treatment results, and predicting outcomes (Honda et al., 2016b). Despite of nurses contribution to its suboptimal care there is little evidence from the literature which explain this knowledge gap

Glasgow Coma Scale (GCS) is used in immediate, pre hospital and hospital assessment and is used to assess and monitor people in the acute phase, with a suspected brain injury. The GCS provides an indication of level of consciousness at a given point in time and allows for serial measurement. Finding of this study shows that 56% of study participants did not know that 3 is the lowest score of GCS indicating coma and 46 percent was not familiar with specific

sections of GCS. This finding is similar with the study done by Kimboka, (2017) revealed that more than half (56.3%) of the participants did not know the lowest score for the scale and 62.0% of study participants were unable to identify the range of GCS. Patients with severe head trauma, and especially, when combined with other injuries, are more time critical and therefore need immediate attention and would have been GCS assessed to a greater extent

Garey&Garey, (2014) pointed that many of the nurses were not familiar with the Centre for disease control (CDC) and acute concussion evaluation (ACE) standards in assessing mildly TBI patient, also did not follow a consistent assessment tool during assessment

5.2 Nurses knowledge on initial management

The overall mean score was 27.63% with a standard deviation of 15.45. Findings from this study indicate that there is poor knowledge of study participants on initial management for TBI patients at RRH. Similar findings were observed in the study done by Watts and his colleague (2011) to evaluate bedside nurses' knowledge related to the assessment and care of patients with mild TBI which found that less than 15% of participants have treatment knowledge on management for TBI. Because nurses are the frontline providers of care for most patients, knowledge of the assessment and treatment should be a fundamental skill of both neurological and non neurological for promoting optimum patient outcomes.

The primary goal of nursing management in severe head trauma is to maintain adequate cerebral perfusion in order to prevent secondary brain injury (Chamberlain, 1998) Early detection and timely management of TBI prevent secondary brain injury and further neurological complication.

According to national institute for health and clinical excellence (NICE) airway management skill is the core critical care skill that all nurses should possess, based on this skill patient will receive appropriate respiratory care quickly, efficiently and effectively (Higginson, Jones, & Davies, 2010) . Surprisingly in the present study 68.99% fail to recognize that immediately initial interventions are focus on establishing clear airway. In an emergency situation airway

management might be difficult and a patient can die quickly (Higginson, Jones, & Davies, 2011).

TBI severity is commonly estimated using GCS and classified as either mild (GCS score 13–15), moderate (GCS score 9–12), or severe (GCS score 3–8). This tool is used worldwide for neurological assessment of level of consciousness in nursing practice and is further enhanced with the support of best practice guidelines (Basauhra Singh et al., 2016) GCS accuracy is still a concern to nursing knowledge. The present study revealed 59.69% of participants were not knowledgeable on GCS. The same responses were also identified in the results of research done by Kimboka (2017) the study found that almost half (47.6%) of the respondents didn't have proper knowledge on use of GCS. The study recommends a continuous professional education program on GCS assessment. This percentage is higher than that reported in Brazil in a similar study whereby more than 80 % of nurses reported to have a good level of knowledge of the GCS (Santos et al., 2016)

Several studies have documented positive nurses' knowledge and practices following education program for TBI patients (Mahomed et al., 2013, Shehab et al., 2018; Oyesanya & Snedden, 2018**,**). Variation in education and training among nurses is another challenge that cause inconsistencies of care to TBI patients. Worf and colleaques suggest a creation of framework for educational development(Mahomed et al., 2013). Apart from education, Lack of knowledge, limited staffing and inadequate resources has been reported as nursing related barriers to provide adequate care to patients with TBI (Traumatic & Injury, 2019, Wynveen et al., 2018)

Majority of nurses 62% was not aware on the recommended range of PCO2 which is the component of arterial blood gases (ABG). Low knowledge in ABG among nurses is due to the limited ABG machine at OPD in such reason nurses are not frequent performing the test even interpretation became a hard task to them. Another reason behind this might be due to majority of participants were having certificate and diploma while ABG analysis and interpretation in Tanzania are taught in degree and master level. This study is disagree with study done in India whereby the study revealed that most of study participants had adequate

knowledge regarding ABG analysis (Dash, 2019). Arterial blood gas interpretation provides information regarding adequacy of ventilation, oxygenation and acid–base balance. In order to treat patients safely and effectively, nurses must be aware of when ABG analysis is indicated and the significance of the results they yield (Simpson, 2004)

5.3 Limitation and mitigation of the study

Small sample size was the first limitation of this study the result cannot be generalized. To minimize the effect researcher conduct a study in three regional hospitals in order to include many nurses with different experience. Nurses from other tertiary institution could have been included in order to make a wider generalized conclusion of findings

Second limitation was response bias. Participants viewed TBI to be complicated topic. To mitigate this researcher use simple and clear language in questionnaire and was available during data collection in order to clear uncertainties

5.4 Recommendation

This study indicates that nurses working in RRH were not knowledgeable on initial assessment and initial management. The following recommendations has been addressed to different sections

Hospital

1. Management of the hospital need to develop protocol and guidelines that will be used by nurses as tool to guide assessment and management of TBI patients
2. The hospital can adopt Trauma Foundation guidelines of TBI

Researcher

1. An explorative study can be designed to determine nurse perception on caring TBI at OPD
2. A study employing mixed methods involving private and tertiary government hospitals in order to gain more insight into the knowledge of nurses on TBI patients.

Nurses

1. Formulate group of clinical nurse instructor that will provide ongoing training for TBI
2. Periodic evaluation and validation of the training given and training programs should be included both theoretical and practical
3. Attend national and international conference in order to broad their knowledge

5.5 Conclusion

The findings of this study show that nurses of RRH lack knowledge of initial assessment and management for TBI patients therefore on job training focusing provision of initial assessment and management for TBI is recommended because understanding initial assessment and timely management of TBI by nurses can maximize patient's survival and prevent neurological complications associated with head injuries.

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APPENDICES

Appendix i: Consent to Participate in Research-English Version

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)

DIRECTORATE OF RESEARCH AND PUBLICATIONS MUHAS INFORMED CONSERT

A Research of Nurses Knowledge on Initial Assessment and Management for Traumatic Brain Injury Patients at Regional Referral Hospitals in Dar Es Salaam

You are hereby invited to participate in a study conducted by Shida Michael Mossy for a master dissertation at Muhimbili University of Heath and Allied Sciences. Your participation in this study is entirely voluntary. You should read the information below before deciding whether or not to participate in the study. Your participation in this study will involve assessment of nurse's knowledge on initial assessment and management for traumatic brain injury patients attending outpatient department

Purpose of the Study

The study is conducted as partial fulfillment of the requirement for the degree of masters of critical care and trauma at MUHAS. The purpose of this study is to assess nurse's knowledge on initial assessment and management for traumatic brain injury patients at regional referral hospitals in Dar es salaam, Tanzania

Voluntary Participation

Participation in this study is voluntary and you have a right to refuse to consent. If you consent to participate, you have the right to withdraw from the study at any time if you wish to do so

Benefits

There are no direct benefits for participating in this study. However this study will provide information of nurse's knowledge on initial management for traumatic brain injury patients. This information will be useful to nurses to improve assessment and management.

Risks and Discomfort

I don't expect any risk or discomfort while participating in this study

Compensation

You will not receive any payment or other compensation for participation in this study. There is also no cost to you to participate in the study except your time

Confidentiality

Your participation in this study will remain confidential and your identity will be disclosed. There will be no any link between your identity and response

Rights to Withdraw and Alternatives

Taking part 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.

Consent form: I confirm that i have read carefully, understood the information provided and consent to participate in the study

Contact

If you ever have questions about this study, you should contact the Principal Investigator Shida Michael Mossy from University of Health and Allied Sciences School of Nursing P.O. Box.65004, Dares Salaam, through Mobile 0767504846

If you ever have questions about your rights as a participant, you may call Chairman of the Senate Research and Publications Committee Dr. Bruno Sunguya P.O. Box 65001, Dar es Salaam. Tel 2150302-6 2152489

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_____ Date……...2020

Signature of principal investigator_____ Date…….2020

Kiambatanisho ii: RidhaayaKushirikiKwnyeUtafiti - Kiswahili Version

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

KURUGENZI YA TAFITI NA UCHAPISHAJI

FOMU YA RIDHAA

Utafitikuhusunamnawauguziwanavyotathmininakutoamatibabuyaawalikwawagonjwawanaopataajaliyakichwanaubongokatikahospitalizarufaaza Dar es salaam Tanzania, Amana Mwananyamalana Amana

MpendwaMshiriki

NakukaribishakushirikikatikautafitiunaofanywanaShida Michael Mossy, mwanafunziwashahadayapilikutokakatikachuokikuu cha afyanasayansishirikishimuhimbili. Kushirikikwakokatikautafitihuuniwahiariunatakiwakusomataarifazotekatikafomuhiinakuamua kushiriki au kutoshirikikatikautafitihuu

MadhumuniyaUtafiti

Dhumuni la utafitihuunikutathminijinsiwauguziwanavyowapimanakuwapatiamatibabuyaawaliwagonjwawanaopataajaliyakichwanaubongokatikaidarayamapokezi

Ushiriki

Ushirikikatikautafitihuuniwahiarinaunahakiyakukataakushirikikatikautafiti. Kama umekubalikushirikiutatakiwakuwekasahihiyakokatikafomuhiinakujibumaswaliutakayokuwaun aulizwanamsahili

Faida

Hamnafaidayamojakwamojakwawewekushirikikatikautafitihuu. Ilamatokeoyatafitihuuyatasaidiakuboreshahudumazawauguzikwawagonjwawanaopataajaliyaki chwanaubongokatikahospitalizarufaaza Dar es salaam

Hasara

Sitegemeihasarazamojakwamojazitakazotokananautafitihuu

Fidia

Hakutakuwanamalipoyoyotekutokananaushirikiwautafitihuunapiakamamshirikihutakuwanagh aramazozotezawewekushirikikatikautafitihuuisipokuwamudawakotu

Usiri

Ushirikiwakokatikatafitihiiutabakikuwasirinataarifazotezitakazokusanywazitashughulikiwakw ausirimkubwa. Jinalakohalitatumikakatikataarifazozote

FomuyaUtafiti

Nakirikwambanimesomamaelezoyotekwaumakininanimeelewakilakilichoandikwakatikafomu hii. Ninaelewakwambaninawezakujitoamudawowotenitakaotakakujitoakatikatafitihii

MawasilianoKuhusiananaUtafitiHuu

Kama unamaswalikuhusiananautafitihuuunawezakuwasiliananamtafitimkuu, Shida Michael Mossy kutokachuokikuu cha afyanasayansishirikishimuhimbili, S, L, P 65001, Dar es Salaam Mimi …….. nimesomamaelezoyotekatikafomuhiinamaswaliyanguyamewezakujibiwa. Nakubalikushirikinanatoaridhaakwakushirikikwenyeutafitihuu.

Naniwakuwasiliananaye

Kama utakuwanaswalilooteKuhusuutafitihuuunawezakuwasiliananamkuuwautafitihuuShida Michael waShuleyaUuguzi Chuo Kikuu cha AfyanaSayansiShirikishi Muhimbili, S.L.P. 65004, Dar es Salaam. Na ukiwanaswalilooteKuhusuhakizakokamamshiriki,

wasilianamimikwanamba 0767 504 846 au **Dr.Bruno Sagala**ambayeniMwenyekitiwaKamatiyaUtafitiya Chuo, S.L.P. 65001, Dar es Salaam. Tel +255 222152489

Je unakubali?

Mshirikikakubali……Mshirikihajakubali…….

Mimi, _____ nimesomananimeelewamaelezoyafomuhii. Maswaliyanguyoteyamejibiwananakubalikushirikikatikautafitihuu.

Sahihiyamshiriki _____

Sahihiyamtafiti_____

Tarehe_____

Appendix iii: Investigation tool

QUESTIONNAIRE FOR NURSES

Structured questionnaire for assessment of the nurses knowledge on initial assessment and initial management for TBI patients

Questionnaire number ……Date …….

Dear sir/ madam

I would like to thank you for participating in this study. I am Shida Michael investigating on nurse's knowledge on initial assessment and initial management for traumatic brain injury patients at regional referral hospitals in Dar esSalaam

The findings of this study are for academic purposes but also will help us in developing guidelines for initial management of traumatic brain injury patients. Please complete the questions below as best as you can.

SECTION A: DEMOGRAPHICAL DATA

Please put tick when answering applicable

1. Gender

1.1 Male

1.2 Female

2. Age _____

3. Qualification

3.1Certificate in Nursing

3.2 Diploma in Nursing

3.3 Degree in Nursing

3.4 Master's degree in Nursing

4. Total number of years of experience in nursing -------- Years

5. Clinical discipline

5.1 Surgical

5.2 Medical

5.3 Outpatient department

5.4 Pediatric

5.5 Maternity

5.6 Other

6. Length of time in current discipline

6.1 Less than 1 year

6.2 1-5 years

6.3 6-10 years

6.4 More than 10 years

7. Marital status

7.1 Married

7.2 Unmarried

SECTION B:

NURSING KNOWLEDGE OF TRAUMATIC BRAIN INJURY ON INITIAL ASSESSMENT

Select the most appropriate answer by indicating (X). Only choose one option per statement.

MULTIPLE CHOICES

7. Which approach is used to conduct initial assessment to patient with TBI

a) Quick assess of the body system
b) Head to toe assessment
c) ABCDE approach
d) Palpation, percussion and auscultation

8. During airway assessment in TBI patients which technique is used to open airway?

a) Head tilt chin lift maneuver
b) Oropharyngeal and nasopharyngeal maneuver
c) Jaw thrust maneuver
d) Suction maneuver

9. On primary assessment which components of circulation should be assessed

a) Respiration, blood pressure, temperature and capillary refill
b) Extremities, random blood sugar, vital signs and capillary refill
c) Blood pressure, extremities and capillary refill
d) Oxygen saturation, capillary refill and blood pressure

10. Nurse should assess the following in disability

a) Airway, breathing, circulation, disability and exposure (ABCDE)
b) Level of consciousness, pupil reaction and circulation
c) Level of consciousness, pupil's reaction and airway
d) Level of consciousness, pupil's reaction and blood sugar

11. When testing the best motor response, you

a) Record the response in the best arm.
b) Record the response in the worst arm.
c) Record the best response from the legs.
d) Record the response in all four limbs.

12. What are the specific sections that comprise the Glasgow Coma Scale?

a) Eye opening, verbal response, pupil response
b) Eye opening, verbal response, limb movement
c) Eye opening, verbal response, motor response
d) Eye opening, respiratory pattern, motor response

13. The lowest score of the GlasgowComa Scale is

a) 1
b) 3
c) 4
d) 10

14. On assessing a patient's motor response, he is unable to comply. You inflict a pain stimulus, and he pulls his arm away. He

a) Is obeying commands.
b) Is localizing pain.
c) Has abnormal flexion.
d) Has abnormal extension.

15. The MOST reliable sign of a head injury is:

a) A pulse that is rapid and thread.

b) A decreased level of consciousness.
c) An abnormally low blood pressure.
d) Decreased sensation in the extremities.

16 The ideal procedure for moving an head injured patient from the ground to a backboard is:

a) The clothes drag.
b) The four-person log roll.
c) To use a scoop stretcher.

d) The direct patient carries.

SECTION C: NURSING KNOWLEDGE OF TRAUMATIC BRAIN INJURY PATIENTS ON INITIAL MANAGEMENT

17. The goal of initial intervention in patient sustained traumatic brain injury (TBI) is

a) Prevent hypoxia and hypotension
b) Minimize impact from injury
c) Prevent patient from dying from head injury
d) Prevent skull fracture

18. Immediately after traumatic brain injury:

a) A single episode of hypotension (systolic pressure <90 mm Hg) is associated with a doubling of mortality.
b) Patients with a deteriorating conscious level, such as a reduction in motor score of >2 points, should be intubated before transfer to a neurosurgical unit.
c) An immediate computed tomography (CT) scan is indicated if the patient's Glasgow Coma Scale (GCS) score is <13 on arrival in the emergency room.
d) The initial resuscitation process should focus on establishing a clear airway before treating the brain injury.

19. After receiving the patient who has TBI , the first recommended intervention is

a) Position the patient to ensure the airway is patient using head tilt and jaw thrust maneuver
b) Tetanus toxoid 0.5 mls
c) Give antibiotics to prevent further infection
d) Airway management

20. Severe TBI patients who require oxygen supplement brought at Outpatient department. A nurse should use which oxygen device?

a) A bag valve mask (BVM) is the delivery of choice in critical illness
b) Oxygen therapy should always be prescribed by a doctor
c) Non rebreather mask is the delivery of choice in critical illness
d) Nasal cannula is the delivery of choice in critical illness

21. Initial fluid intervention for patient with TBI is given using

a) Dextrose to improve circulating blood volume and blood sugar
b) Linger lactate to improve circulating blood volume
c) Colloidal fluids
d) Crystalloids

22. A client sustained a closed head injury in a fall from a tree that happened 2 hours ago. There is MRI evidence of a contusion. The client has just begun to regain consciousness and has a current Glasgow Coma Scale (GCS) score of 11. The nurse should plan care for a client with which level of injury from this contusion?

a) Mild
b) Severe
c) Moderate
d) Extreme

23. A client presents to the Emergency Department with a head injury received in a fall at home. On admission, the client's Glasgow Coma Scale (GCS) score is 12. Within 20 minutes of arrival, the GCS is 8. What should the nurse do?

a) Prepare the client for intubation
b) turn up the client iv
c) repeat the client blood pressure reading
d) lower the head of the bed 30 degrees

24. When controlling bleeding from a scalp laceration with a suspected underlying skull fracture, nurse should:
a) Elevate the patient's head and apply an ice pack.
b) Avoid excessive pressure when applying the bandage.

c) Apply firm compression for no longer than 5 minutes.

d) Apply manual pressure and avoid applying a bandage.

26. The effectiveness of positive-pressure ventilations when treating a head-injured patient can ONLY be determined by:

a) Immediate reassessment following the intervention.

b) A neurosurgeon or emergency department physician.

c). Reassessing the patient's blood pressure after at least 10 minutes.

d) .Noting a decrease in the heart rate during ventilations.

27. The recommended range for PCO2 in a patient with a severe traumatic brain injury is:

a) 10-15mmHg
b) 30-40 mmHg
c) 25-35mmHg
d) 35-45mmHg

28 .Once a cervical collar has been applied to a patient with a possible spinal injury, it should not be removed unless:

A. the patient adamantly denies neck pain.

B. lateral immobilization has been applied.

C. it causes a problem managing the ABCs.

D. sensory and motor functions remain intact.

Appendix iv: Letter for ethical clearance

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

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E-mail: dpgs@muhas.ac.tz

Ref. No. HD/MUH/T.384/2018/02 **30th June 2020**
IRB#: MUHAS-REC-06-2020-284

Shida Michael Mossy,
MSc Critical Care and Trauma,
School of Nursing,
MUHAS.

RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED "NURSES KNOWLEDGE ON INITIAL ASSESMENT AND INITIAL MANAGEMENT FOR TRAUMATIC BRAIN INJURY PATIENTS ATTENDING AT OUTPATIENT DEPARTMENT IN REGIONAL REFFERAL HOSPITAL 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 Senate, approved ethical clearance for the above-mentioned study. Hence you may proceed with the planned study.

The ethical clearance is valid for one year only, from **30th June, 2020 to 29th June, 2021.** In case you do not complete data analysis and dissertation report writing by **29th June, 2021,** you will have to apply for renewal of ethical clearance prior to the expiry date.

Dr. Emmanuel Balandya
ACTING: DIRECTOR OF POSTGRADUATE STUDIES

cc: Director of Research and Publications
cc: Dean, School of Nursing **MUHAS**

Appendix v: Permission letter to Mwananyamala Hospital

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

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Telefax: +255-22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. HD/MUH/T.384/2018

30th June, 2020

RECEIVED
02 JUL 2020

Medical Officer In charge,
Mwananyamala Hospital,
P.O. Box 61665,
DSM.

Re: INTRODUCTION LETTER

The bearer of this letter is Shida Michael Mossy, 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: **"NURSES KNOWLEDGE ON INITIAL ASSESSMENT AND INITIAL MANAGEMENT FOR TRAUMATIC BRAIN INJURY PATIENTS ATTENDING AT OUTPATIENT DEPARTMENT IN REGIONAL REFFERAL HOSPITAL DAR ES SALAAM, TANZANIA.".**

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

Kindly provide her the necessary assistanc e to facilitate the conduct of her research.

We thank you for your cooperation.

Specify Time for Data collection at MRRH.
02/07/2020

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Dean, School of Nursing, **MUHAS**
cc: Shida Michael Mossy

08/07/2020 Alipie Tsh. 50,000/=
kisha aendelee na Ukusanyaji wa Taarifa
Dr [illegible]

Appendix vi: Permission letter to Sinza Hospital

UBUNGO MUNICIPAL COUNCIL

ALL CORRESPONDENCES TO BE ADDRESSED TO THE MUNICIPAL DIRECTOR

Tel: 0222 - 926341
Fax: 0222 - 926342
Email: info@ubungomc.go.tz
Website: www.ubungomc.go.tz

P.O. BOX 55068
DAR ES SALAAM

In reply please quote:

Ref. No. UMC/R.18/01A/39

TAREHE: 08/07/2020

Facility In Charge,
Sinza Hospital,
UBUNGO MUNICIPAL COUNCIL

REF: RESEARCH PERMIT

Refer to the above heading.

DMO's office is pleased to inform your health facility that **SHIDA MICHAEL MOSSY** which is/from Muhimbili University of Health and Allied Sciences (**MUHAS**). Has been given a permit to perform the Research work in your facility stating from **09/07/2020** to **16/07/2020.** The Research is titled **"NURSE KNOWLEDGE ON INITIAL ASSESSMENT AND INITIAL MANAGEMENT FOR TRAUMATIC BRAIN INJURY PATIENTS ATTENDING AT OUTPATIENT DEPARTMENT IN REGION REFERRAL HOSPITAL DAR ES SALAAM"**

Kindly receive and provide the necessary assistance in order to enable the student to fulfill the activities comfortably.

Best Wishes,

Dr. Peter J. Nsanya
MUNICIPAL MEDICAL OFFICER
UBUNGO MUNICIPAL COUNCIL

NB: Please share research report with MMOH Office at the end of your study.