PREVALENCE OF MATERNAL NEAR-MISS AND ASSOCIATED FACTORS AMONG DELIVERED WOMEN IN PWANI REGION IN TANZANIA

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PREVALENCE OF MATERNAL NEAR-MISS AND ASSOCIATED FACTOR AMONG DELIVERED WOMEN IN PWANI REGION IN TANZANIA

By

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A Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Science (Midwifery and Woman's Health) of

Muhimbili University of Health and Allied Sciences
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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled**; "Prevalence of maternal near-miss and associated factor among delivered women in Pwani Region in Tanzania",** in (partial) fulfillment of the requirements for the degree of Master of Science (Midwifery and Women's Health) of Muhimbili University of Health and Allied Sciences.

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Date

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Co-Supervisor

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Date

DECLARATION AND COPYRIGHT

I, Maryam Yusuph Juma, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award

Signature……. **Date**…….…….

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DEDICATION

This dissertation is dedicated to my lovely parents Mr. Yusuph Juma and Mom Hawa Kasim

ABSTRACT

Background: Maternal Near-Miss (MNM) actions are related to greater healthcare costs, undesired outcomes for the mother and baby, decreased productivity, increased healthcare system, and a higher chance of maternal mortality**.** MNM refer to a woman who presents with life threatening complications during pregnancy, childbirth or within 42 days of termination of pregnancy but survived by chance or due to the standard care she received. It is recognized as valuable indicator to examine the quality of obstetrics care as it follows similar predictors with maternal death. Globally each year, more than 15% of women who turn out to be pregnant experience life-threatening complications. Investigation of Maternal-Near-miss and the associated risk factors is important for the global reduction of Maternal Mortality.

Aim of the study: To determine the prevalence of Maternal Near-miss and the associated factors among delivered woman in Pwani Region, Tanzania

Material and methods: Retrospective study design and quantitative approach was applied, to examine women who gave birth and admitted in Tumbi Regional Referral Hospital, Mkoani Health Centre and Mlandizi Health center in Pwani region from January 2020 to December 2023. The semi-structured questionnaire with closed ended questions were used to collect data from a total of 384 women who gave birth and admitted in those health settings. Data were cleaned, coded, edited and error checked before analyzed by social science software (SPSS) version 21 for analysis. Descriptive statistics like frequency, distribution, and summary statistics such as mean and standard deviation were computed.

Results: Overall Maternal Near-miss of 25% showed a prevalence to Maternal Near-miss. Women who were Para 2-4 (aPR=5.77, 95% CI: 5.771-5.771), a history of abortion of more than once (aPR=0.13, 95% CI: 0.000-1.250), a previous history of C/S (aPR=0.201, 95% CI: 0.07-0.55) were more prevalence to maternal near-miss among delivered women as well as influencing factors of maternal near-miss to women were severe anemia in failure followed by eclampsia, age, education status and occupation of respondents.

Conclusion: The overall prevalence to Maternal Near-miss was 25%. There is significant association of parity, history of abortion and previous history of C/S with prevalence to Maternal Near-miss. Influencing factors of Maternal Near-miss to women were severe anemia followed by eclampsia, age, education status and occupation of respondents.

Recommendation: The study recommends that, Pwani region should designed evidence-based interventions to optimize the intra-partum management of life-threatening obstetric complications and future researches should examine on the cultural malpractice in the study area and its consequence concerning the prevalence to Maternal Near-miss. Moreover, improving the referral systems are crucial to minimizing the Maternal Near-miss

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LIST OF ABBREVIATIONS

ANC:	Ante Natal Clinic
3DM:	Three delays model.
EmTS:	Emergence Transport System
MNM:	Maternal Near Miss
P.P.H:	Postpartum hemorrhage.
WHO:	World Health Organization
C/S:	Cesarean section
HELLP:	Hemolysis elevated liver enzymes, low platelet
SPSS:	Statistical package for social science

DEFINITION OF KEY TERMS

Maternal Near Miss: "Refers to situations where women experience severe life-threatening obstetric complications during pregnancy, delivery or post pregnancy which they survive either by chance or because they receive good care at a facility.(*Maternal Nearmiss*, n.d.)

Maternal death: is the death of the woman while pregnant or within 42 days of termination of pregnancy or its management but not from accident or incidental cause (WHO, 2011)

Obstetric: is the field of study concentrated on pregnancy, childbirth , and the postpartum period. As a medical specialty, obstetrics is combined with gynecology

Eclampsia: generalized fits in a patient without previous history of epilepsy. Includes coma in pre-eclampsia**.**

Preeclampsia: Is the development of high blood pressure, swelling or high levels of albumin in the urine between the 20th week of pregnancy and the end of the first week after delivery.

Diabetes mellitus: Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose or blood sugar, which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves.

Anemia: Is a condition in which the number of red blood cells or the hemoglobin concentration within them is lower than normal.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Maternal near-miss refers to situations where women experience severe life-threatening obstetric complications during pregnancy, delivery or post pregnancy which they survive either by chance or because they receive good care at a facility(*Maternal Nearmiss*, n.d.)**.** Globally, Maternal Near-Miss (MNM) befall in higher numbers than maternal deaths (Gichangi & Mwanda, 2017)

According to 2013 research on maternal near-misses and the mortality in Northern Tanzania, the incidence ratio was 23.6% per 1000 live births(Nelissen et al., 2013). At a different 2012 research, the incidence of Maternal Near-Miss (MNM) was found to be 36 per 1000 live births, and it was concerned with maternal near-miss (MNM) and death and their association with caesarian section complications at one region hospital and university hospital in Dar es Salaam (Omona & Babirye, 2023)

World Health Organization (WHO) describes a Maternal Near-Miss event as “a woman who nearly died but survived a complication that happened during pregnancy, childbirth or within 42 days of termination of pregnancy (*The WHO Near-Miss Approach for Maternal Health*, n.d.). Globally, about 15% of pregnant women face potentially fatal complications every year; most of these cases occur in low-resource environments (Gichangi & Mwanda, 2017). Based on these difficulties may lead to a Maternal Near-miss (MNM) or Maternal death.

In Sub-Saharan Africa, the existence of Maternal Near-Miss ranges from 1.1% to 33.4% of all deliveries (Gichangi & Mwanda, 2017).

Despite the progress made worldwide in reducing maternal near miss, the global MDG targets could not be achieved. Now, the unfinished task has been taken over by sustainable development goals: Goal 3 (Target 3.1) which has set a global target to reduce MMR to < 70/100000 live births by 2030 (Worke et al., 2019).

A review of a wide range of international literatures revealed a number of factors related to Maternal Near-misses that may contribute to unfavorable outcomes. These factors included inadequate antenatal care, maternal age, rural location, history of stillbirths, previous cesarean section, family income (occupation), maternal delay, including delayed diagnosis and hospital arrival, and a lack of supplies, such as delivery kits for C-sections and delivery packs for spontaneous vaginal deliveries.

By knowing the prevalence of maternal near miss and the associated factors will help the government of Tanzania to understand the magnitude of the problem especially in Pwani region this will help to have more intervention in order to decrease number of maternal deaths.

To identify areas for interventions that support the improvement of maternal and perinatal health, current data on the prevalence and the associated factors of Maternal Near-miss is essential. Determining the prevalence and contributing factors of Maternal Near misses is the aim of this study.

1.2 Problem Statement

Maternal Near-miss occurs when there are serious, perhaps fatal obstetric complications that require immediate medical or surgical attention. If care is not received in a timely manner, the mother may die. Maternal Near-Miss (MNM) actions are related to greater healthcare costs, undesired outcomes for the mother and baby, decreased productivity, increased healthcare system, and a higher chance of maternal mortality. (Gichimangi and Mwanda 2017).

A more thorough evaluation of the standard of care can be obtained by looking into patients who were in life-threatening situations. (Worke et al., 2019). Examining near-miss events can reveal positive as well as negative information about the obstetric care that was given in these circumstances. Despite the low-and middle-income countries, review a maternal near-miss as a tool for monitoring maternal health care, still it is poorly utilized and probably due to the high maternal mortality rates.

Since, maternal near misses share many characteristics with maternal deaths and both may be used as a marker of the health system, however recent data have shown that survival near

misses are more common than deaths, and therefore supplement investigations of maternal mortality (Gichangi & Mwanda, 2017).

Interest in maternal near miss started in the UK, aiming to improve the quality of care because of a falling number of maternal deaths, also the concept of near-miss was also introduced in other specialties to report critical incidents that happened but which did not cause harm (Worke et al., 2019).

Since, maternal near misses share many characteristics with maternal deaths and both may be used as a marker of the health system, however recent data have shown that survival near misses are more common than deaths, and therefore supplement investigations of maternal mortality (Gichangi & Mwanda, 2017).

By knowing the prevalence of maternal near miss aiming to improve the quality of care leading to falling number of maternal deaths from 578/100000 live births 2004/2005 to 104/100000 20222/2023.(TDHIS 2022/2023)

In many developed countries, maternal deaths have become a relatively rare event compared to developing countries, and thus maternal deaths might not reflect maternal quality of care, that is why the audit of maternal near miss was introduced as an adjunct to maternal review. Maternal morbidity and mortality remain challenging problems in a rural referral hospital in Tanzania.

Key evidence-based interventions are not implemented in women with severe maternal morbidity and mortality. Progress can be made through up scaling the use of evidence-based interventions, such as the use of oxytocin for prevention and treatment of postpartum haemorrhage. The proper use magnesium severe pre-eclampsia and eclampsia also the use of ant hypertensive drugs.

Maternal mortality can result from a high number of Maternal Near misses caused by socioeconomic and cultural factors, poor quality and accessibility of healthcare, a shortage of health practitioners, and geographic factors specific to the Pwani region.

Tanzania has recently undertaken initiatives to improve the health system's capacity to recognize problems that result in maternal deaths. The government of Tanzania in cooperation with Vodacom foundation initiates the program of “m-mama” which is an Emergency Transportation system (EmTS). In 2014 started as pilot in Sengerema DC, Buchosa DC, and followed by Shinyanga DC in 2016 and then National scale up to all region of Tanzania Mainland and Zanzibar as an intervention to reduce the obstetric incidents that leads to Maternal Near miss by addressing the delay in reaching the healthcare service (Foundation & Usaid, n.d.) (Serbanescu et al., 2019).

In additional, the government of Tanzania attempt to initiate the free of charges for the maternal services to all health facilities for the aim of reducing the number of maternal near miss thus can lead to maternal deaths. But these efforts have many challenges in implementation due to scarcity of health care providers especially midwives, inadequate medical supplies and emergency drugs, poor infrastructure and ambulances etc.

Due to the limited studies that focus on determining the prevalence of the problem and its associated factors, we need to identify the vital information particularly in Pwani region and therefore, I decided to conduct this research study.

1.3 Conceptual Framework

The three delays model (3DM) was guiding this study. Thaddeus and Maine developed this model in 1994. The three-delays model has been utilized to improve monitoring of obstetric care gaps and the efficiency of the health system (Pacagnella et al., 2012).This model composed of three delays models.

Delay in deciding to seek care by woman/family is the major factors responsible for maternal morbidity (MNM) and the major obstacles are limited capacity to recognize the danger signs such as vagina bleeding or discharges, severe swelling etc, and when recognize these danger signs some women either neglect them or fail to recognize the severity of the complication so seek care on time. The limitation of the usage of health care services is also due to economic factors. The sociocultural context that determines their attitudes, values, and beliefs. Additionally, the financial environment affects the cost and quality of care in the way medical services are organized. Also, the distance from home to the health facility plays a significance role in care seeking decision and the longer distance can act as disincentive especially in rural areas same as Pwani region in Tanzania. This is worsened by lack of transport and poor road condition also beliefs and the use of traditional medicine could delay the decision to access care(Actis Danna et al., 2020).

Delays in seeking care contribute to the high percentage of women who arrive at facilities in poor clinical condition. This determined by geographical distribution of the facilities, distance from home to the facility, weak road infrastructure, and availability of means of transportation and cost, poor network to call ambulance, cost exceed expectation.
The barriers contributing to this delay are economic status, education level especially those with low or no education at all. Women's autonomy, severity of the symptoms also knowledge and altitude about the use of the health systems. Additionally, the unfriendly setting and anxiety of medical procedures deter women from attending their future checkups.

Even when women choose to seek care at the right time, the challenges they face getting to the institution might serve as a deterrent. Furthermore, location of the referral facilities, influences the time taken to reach the facility.(Actis Danna et al., 2020)

Delay receiving inadequate care at the health facility is the collective effect of delay in seeking care and delay in reaching in health care facility contributes to the number women reaching in a health facility in a serious condition. Many will go to a hospital, but even then, their care might not be effective. This is because there is a persistent scarcity of skilled personnel, inadequate incentives and salary packages; poor motivation; inadequate performance assessment and rewarding systems, poor retention of staff especially in remote and underserved areas and inadequate supportive supervision**,** limited or reduced competences of providers especially doctors delayed women from receiving appropriate care these is due to inability to diagnose obstetric complications or having made a wrong assessment which in both cases could lead to inappropriate treatment, and necessary equipment, such as emergence drugs, blood and blood products, emergence delivery kits for caesarean sections, etc.

Maternal Near-miss is a complex condition that can be brought on by a number of factors, including pre-existing medical conditions including hypertension and diabetes mellitus, social and economic factors, health events, healthcare practitioners' abilities, and inadequate care.

The three delays are also the main cause of Maternal near-miss in developing countries including Tanzania, that is to say in one way or another this model as it leads to conceptual framework, then it fits the study objectives, since the broad objective was to determine the prevalence and factors associated with maternal near miss among the delivered women.

Conceptual Framework

Independent Variables

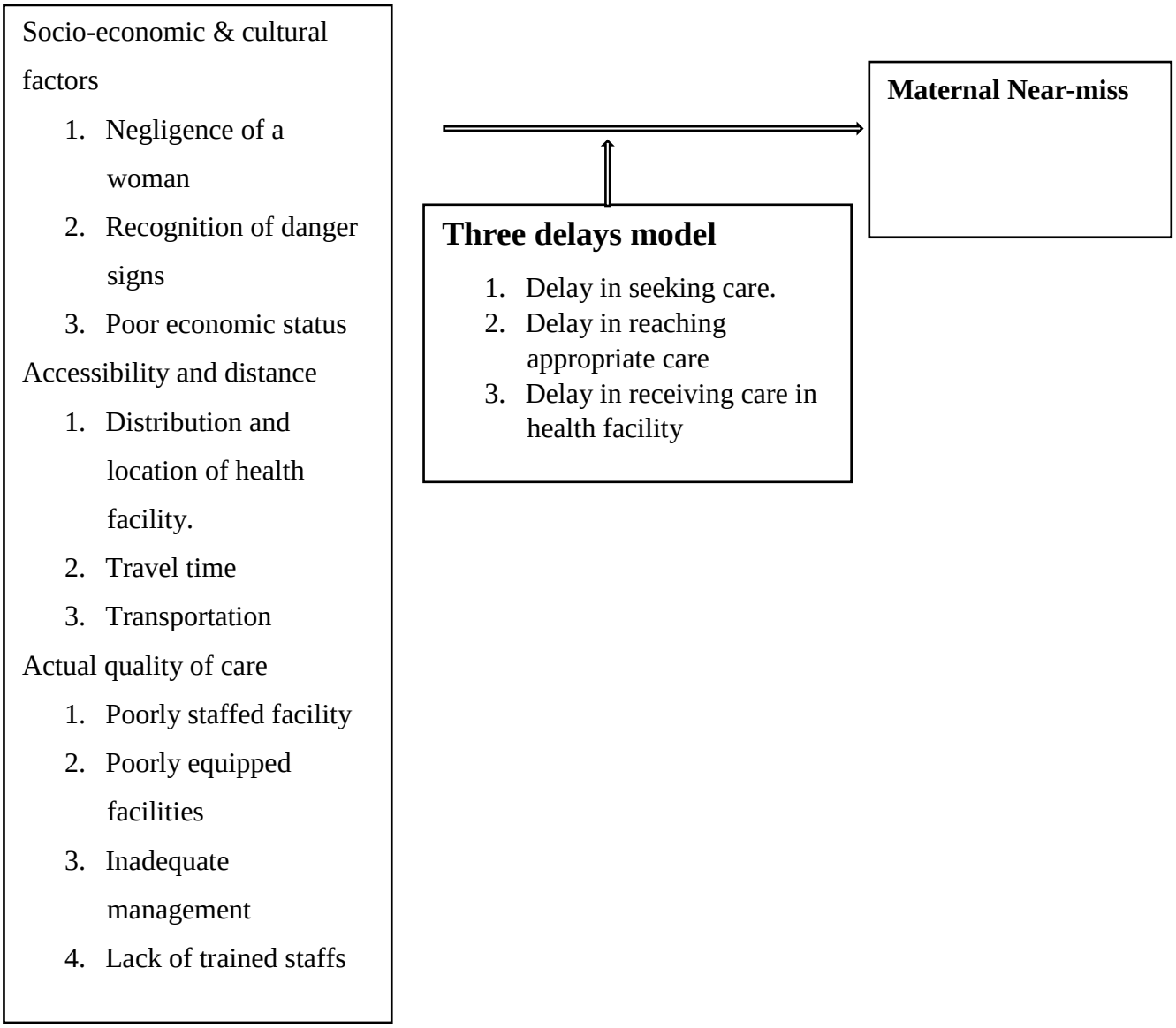


Figure 1: conceptual frame work

1.4 Rationale of the study

The aim of the study is assessing the prevalence of the maternal near miss and the associated factors. Therefore, the generated information, education, and communication will help health care workers especially in maternity units to provide quality care. as well as the Ministry of Health, policy makers, researchers and community that reflect the prevalence to maternal near misses.

Also, findings from this research study provides scientific indication on prevalence of maternal near misses that aid to formulate strategies to improve the quality-of-service delivery among women giving birth from lower facility to higher facility levels. In addition, to fill the gap and increase the understanding of individuals, communities and facilities to enable the development of effective interventions to reduce maternal near misses, which lead to bad outcomes of maternal deaths.

Similarly, the study serves as baseline information in the context of maternal near-misses within the region and within the health system. Having knowing the factors associated with maternal near misses opens a door for improving current standards care and bring changes closer to the health facility.

In addition, to fill the gap and increasing the understanding to individual, community and facilities to enable the development of effective intervention to reduce maternal near miss which leads to bad outcome of Maternal deaths.

1.5 Research Questions

1.5.1 Broad research question

What is the prevalence of maternal near miss and the associated factors among delivered women in Pwani region?

1.5.2 Specific research questions

1. What is the prevalence of maternal near miss among delivered women in Pwani region?
2. What are the social-demographic factors influencing the maternal near miss among delivered woman in Pwani Region, Tanzania?
3. What are the obstetric and gynecological factors influencing maternal near miss among delivered women in Pwani Region, Tanzania

1.6 Objectives

1.6.1 Broad Objective

To determine the prevalence and factors associated with maternal near miss among the delivered woman in Pwani Region, Tanzania.

1.6.2 Specific Objectives

1. To determine the prevalence of maternal near Miss among delivered woman in Pwani region, Tanzania.
2. To determine the socio-demographic factors influencing the Maternal Near-Miss among delivered women in Pwani Region, Tanzania.
3. To determine the obstetrical and gynecological factors influencing maternal near miss in Pwani region, Tanzania.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

Maternal Near-miss refers to situations where women experience severe life-threatening obstetric complications during pregnancy, delivery or post pregnancy which they survive either by chance or because they receive good care at a facilit**y** (*Maternal Nearmiss*, n.d.)**.**The World Health Organization (WHO) formed a technical working group in 2007 with the goal of developing a standard definition and standardized identification criteria for cases of Maternal Near-misses worldwide. The group included obstetricians, midwives, epidemiologists, and public health specialists. (Tura and others, 2019)

Furthermore, study done about Maternal Near-Miss in Ethiopia was 29% (Mekonnen et al., 2021a). Research using various criteria found 8.23% of maternal near misses, according to a systematic review. Research conducted in Brazil (15.8%), Nigeria (12%), and Uganda (10.61%)

According to a 2013 research on maternal near-misses and the mortality in Northern Tanzania, the incidence ratio was 23.6% per 1000 live births..(Nelissen et al., 2013). At a different 2012 research, the incidence of MNM was found to be 36% per 1000 live births, and it was concerned with MNM and death and their association with caesarian section complications at one region hospital and university hospital in Dar es Salaam (Litorp et al., 2014).

2.2 Prevalence of Maternal Near-Miss incidents among delivered women

The Maternal near-miss concept in maternal health was developed as a result of the similarities between women who survive life-threatening situations resulting from pregnancy and delivery problems and those who die from such complications. Although many more are going to survive, they will frequently experience chronic disabilities. Maternal Near-Miss occurs in up to 33.4% of births in Sub-Saharan Africa (Gichangi & Mwanda, 2017).

Moreover, research on maternal near-miss rates in Ethiopia reaches 29%. (Mekonnen et al., 2021). According to a comprehensive study, the rate of maternal near misses in studies using varying criteria is 8.23%. Research conducted in Brazil (15.8%), Nigeria (12%), and Uganda (10.61%) (Worke and others, 2019) The primary measure to prevent more maternal deaths is the standard of care provided to women. Additionally, research conducted in Tanzania on the prevalence and the associated factors of maternal near misses and maternal deaths revealed a 23.6% rate (Nelissen et al., 2013).

The WHO definition provides a common platform for international judgments and the execution of maternal near-miss evaluations throughout countries (Tura et al., 2019).

2.3 Factors associated with Maternal near -miss incidents

Pregnant women who experience significant critical problems have several clinical and contextual elements in common. While some of these women pass away, others come dangerously close to it. However, by analyzing these events with bad consequences for mothers (including "near-miss" incidents and "maternal deaths")

Cases of maternal near misses are divided into two categories based on criteria: clinical factors pertaining to care quality and factors associated with care access. However, it was shown that elements pertaining to healthcare providers and treatment quality are more easily avoided; these elements also have a connection to medical delays and affect the health of expectant mothers and newborns at all care demand levels (Worke et al., 2019).

Several studies on maternal near-misses worldwide have identified a variety of risk factors, including advanced maternal age, low socioeconomic status, living in a rural area, fewer or no A.N.C. follow-up, multiple pregnancies, multiparous delivery, previous cesarean section delivery, preexisting medical conditions like diabetes mellitus and hypertension, and being overweight or underweight. (José et al. 2014)

Research conducted in Brazil, Ethiopia, and Lao, for instance, have all revealed that young age is a significant predictor of maternal near misses. Other research has also identified social demographic, obstetric, and health care characteristics linked with maternal near misses

(Gichangi & Mwanda, 2017). This clarified why premature labor, abortion, septicemia, pregnancy-induced hypertension (PIH), anemia during pregnancy, and other reproductive difficulties are more common in young women.

A Nigerian study found that women with a history of chronic hypertension had a seven-fold higher risk of maternal near-misses. This finding was consistent with other research that found that women with pre-existing hypertension had a higher risk of maternal near-misses (Gichangi & Mwanda, 2017).

According to the Somalia 2021 research, severe anemia, severe pre-eclampsia, eclampsia, severe antepartum hemorrhage, and complications from abortion accounted for over 80% of maternal near misses. These findings are almost consistent with many Harare investigations (Mekonnen et al., 2021b). According to Tanzanian research, there were 27.1% maternal deaths and 23.6 maternal near-misses for every 1,000 live births (Nelissen et al., 2013).

Research conducted in countries in sub-Saharan Africa has demonstrated that when health workers use audit to identify and analyze deficiencies and apply the findings to improve their obstetric care practices, maternal near-miss and mortality can be significantly reduced (Gichangi & Mwanda, 2017).

2.4 Intervention associated with Maternal Near-Miss

While interventions like intrapartum hysterectomy, blood transfusion, or cesarean section have been used to identify near-misses, admission to an intensive care unit or the need for critical care has been used to identify near-misses (Mekonnen et al., 2021b)

Studies on near-misses conducted recently worldwide have highlighted the negative psychological consequences of maternal morbidities; although women suffer from anxiety and flashbacks in the aftermath, they also experience fear and birth trauma during the emergency, which ultimately lowers their quality of life (Gichangi & Mwanda, 2017).

However, a specific supporting program suggestions was needed in a major systematic review research to assess the requirements of mothers who were near misses in order to lessen the burden of difficulties and help them resume their normal life. (Mwanda & Gichangiri, 2017).

In Tanzania many efforts done to reduce number of maternal deaths by initiating different program in different region like support to maternal reduction project to accelerate the reduction of maternal and new born death Mara, Mtwara, Tabora and Zanzibar by strengthening health infrastructure and training heath personnel for the provision of maternal and newborn health services.

Additionally, from 2006 to 2019, Bloomberg Philanthropies (BP) funded the initiative "Reducing Maternal Mortality in Tanzania," which sought to lower maternal mortality by enhancing comprehensive obstetric care in Kigoma, Morogoro, and Pwani.

Moreover, the availability and utilization of life-saving care at birth in a remote, primarily rural region of Tanzania significantly improved as a result of decentralizing high-quality comprehensive emergency obstetric and newborn care (EmONC) to lower-level facilities, primarily provided by associate clinicians and nurses.

The goal of all those initiatives and interventions is to reduce the incidence of maternal near-misses among delivered mothers, which ultimately results in maternal death and raises the total number of maternal mortalities.

Regarding the Tanzania health policy of free of charge in treatment for pregnancy women and children under five but due to lack of enough skilled personnel, emergency drugs and medical supplies increasing the prevalence of maternal near miss with bad outcome of maternal deaths.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

A retrospective study design was employed, to study the prevalence and the associated factors of Maternal Near-miss among delivered women in selected health facilities in Pwani region, this study gave a researcher the ability to explore new experience and innovative results, and this study design based on an outcome that has already happened, and it is typically carried out by reviewing medical records, or existing data. Retrospective study designs have the advantage of being more easily accessible in situations when there is a lengthy time lag between exposure and illness, as well as facilitating the investigation of uncommon events such as Maternal Near-miss incidents.(Ranganathan & Aggarwal, 2018)

3.2 Study Area and study setting

The study was taken place in Kibaha Town council at Tumbi regional referral Hospital and Mkoani Health Center and Kibaha district council at Mlandizi Health Center in Pwani region, Tanzania. Pwani Region is one of Tanzania's 31 administrative regions. The Region borders are north, Morogoro Region to the west, Lindi Region to the south, and surrounds Dar es Salaam Region to the east. According to the 2022 national census, the region had a population of 2,024,947. Pwani region has total number of 455 health facilities as follows: 48 health centers, 373 dispensaries, 16 clinics, 6 maternity homes and 12 hospitals including Tumbi referral regional hospital. This is the facility-based study was conducted in three selected facilities in Pwani region. There was no study done concerned prevalence and the associated factors of Maternal Near -miss in Pwani region, Tanzania.

3.3 Study population

Delivered women who were admitted in maternity units of Tumbi Referral Region hospital, Mlandizi Health Center, and Mkoani Health center from January 2020 to December 2023 and full filled the validated WHO maternal near miss criteria, grouped in to clinical, laboratory, and management-based approach.

3.4 Inclusion criteria

Delivered women who were admitted in maternity units of Tumbi Referral Region hospital, Mlandizi Health Center, and Mkoani Health center during pregnancy, childbirth or within 42 days of termination of pregnancy from January 2020 to December 2023 who were fulfilled the validated WHO criteria of a Maternal Near-miss as study population were included.

3.5 Exclusion criteria

Every woman whose medical records omitted significant information were not be included in the research. In addition, women who were admitted to the maternity units of the chosen facilities due to unintentional or incidental problems throughout their pregnancies, deliveries, or postpartum periods were excluded.

3.6 Sample Size

The minimum sample size was calculated. The calculation of the study's sample size guaranteed maximal power, which was necessary for retrospective research. (Vassar and Holzmann, 2013). Considering that the population-based was unknown, then the sample was delivered by calculating the minimum sample size required for accuracy in estimating proportions by considering the standard normal deviation set at a 90% confidence level of 95% (Z=1.96). A sample proportion of 50% (p=0. 5) and margin of error 5% (e= 0.05) (Scott, 2013)

Sample size = Z^2 X P (1-P) / e^2

Sample size = 1.96^2 X 0.5 (1-0.5) / 0.05^2

Sample size= 3.8416 X 0.5 (0.5)/0.0025

Sample size = 3.8416 X 0.5(200)

Sample size = 3.8416 X 100 =384.16

Sample size = 384.

3.7 Data Collection Tool

The data collection was involved checklist, with two parts which were socio demographic characteristics of women, obstetric history, and preexisting medical condition, Maternal Near-miss events underlying complications and treatments received respectively. Though, a checklist were used to answer the study objectives and sections of checklists were grouped according to study specific objectives.

Study variables

Independent variable

Socio demographic characteristics including age, (categorized by 15-20, 21-30,31-40 and >40)

Religion;(categorized as Muslim, Christian or none), Education: (categorized by no formal education, primary or secondary education) marital status;(categorized by single, married and divorced) occupation:(categorized by farmer, house wife, business or peasant)

Obstetrics characteristics including A.N.C follow-up: (categorized by >8contcts &<8 contacts)

History of abortion: (categorized by once, more than once or none) previous history of C/s:(categorized by YES/NO) history of obstetrics morbidity:(categorized by severe anemia in failure, severe P.P.H, eclampsia, ruptured uterus, HELLP syndrome) Parity: (categorized by para 1. Para 2-4, para >4)

Dependent variables

The main outcome variable of the study was “Maternal Near-miss” which “Refers to situations where women experience severe life-threatening obstetric complications during pregnancy, delivery or post pregnancy which they survive either by chance or because they receive good care at a facility.

3.8 Data Collection Procedure

Data were collected using primary and secondary methods through the reviewed of all medical records using a standard questionnaire prepared for this study. The primary outcome variable

was Maternal Near Miss (MNM) this was measured using WHO Maternal Near-miss criteria. A woman was classified as a near miss if she fulfilled at least one of those criteria

To assist with data collection two research assistances (RAs) were recruited. The person with the knowledge of Health Information management system (HIMS) background were considered. Data were obtained from the patient's records/ files, general information and obstetric details were collected.

3.9 Data management and analysis Plan

The data coded was checked and cleaned by entering the statistical package for social science (SPSS) software version 27. Frequencies, percentages, and mean scores were computed to describe socio demographic data, obstetric and gynecological characteristics of the participants. Tables, pie chart and bar chart were used to show the findings' descriptive section.

Frequencies, mean, standard deviation and text. Descriptive statistics like frequency, distribution, and summary statistics such as mean and standard deviation were computed.

3.10 Validity and Reliability

According to (Trochim, 2005), he stresses that reliability denotes the quality of measurement for research study in its everyday sense, reliability shows the "consistency" of your research measures.

Validity is the quality of the research as to whether it has measured what it was intended to be measured. This research study ensured validity and reliability for the methods used and techniques by following the guidelines below.

To ensure the Validity and reliability of the results, the following was done

- The Researcher used suggestions made from past studies on past researches on key definitions and instruments used for data collection. Also, the researcher selected the instrument of data collection in reflection to the suggestions and recommendations of other seniors in the maternal near miss field and previous researchers.

3.11 Ethical consideration

The ethical approval for this study was obtained from Muhimbili University of Health and allied sciences (MUHAS) by the Senate of Research and Ethical committee prior to the commencement of the study. Permission to conduct the study was obtained from Pwani Regional Administrative Secretary (RAS), before data collection began, written consent was obtained to the health information management system (HMIS) office in Pwani region. Tumbi Regional Referral Hospital, Medical Officer In charges of Mlandizi Health center and Mkoani health center granted an additional permission and consent. Data were collected and extracted from patient records/files without, identification of the subjects. Data abstraction forms were filled in after discharge and therefore study inclusion was not having effect on the treatment. Privacy and confidentiality of data collected were considered registration numbers were used rather than personal names and data were stored in the computer. Because its retrospective study the individually informed consent was not required.

3.12 Dissemination Plan

Study findings were disseminated to MUHAS Research and publication committee**,** Muhimbili National Hospital and MUHAS library for students review, in addition, the results will be published in National and international journals for a wide range of scholars for broadening body of knowledge.

3.13 Study limitation and mitigation

Most of the gathered information were from the hospital files therefore the data quality and record keeping were not good no proper management of patient's files. Therefore, in order to obtain more information, the use of appropriate tools and techniques for analyzed data were used. Variables with a large number of missing values were removed, people for whom their data were incomplete were eliminated.

CHAPTER FOUR

4.0 RESULTS

4.1 Characteristics of the respondents

4.1.1 Social demographic characteristics of the respondents

A total of 384(100) delivered women who were admitted in maternity units were recruited in this study. Their age ranged from 15 to 40+ years with a median of 27 years. With the majority 48.4%(n=186) aged 21-30 years. More than half of the respondents 85.7% (n=329) were married women. Majority of the respondents were a house wife 74.0% (n=284). However, most of the respondents were primary education level 68.5%(n=263).

Table 1: Socio-demographic characteristics of the study participants N=384

Variables	Frequency (n)	Percent (%)
Age group (years)		
15-20	75	19.5
21-30	186	48.4
31-40	112	29.2
>40	11	2.9
Median age in years	27	
Marital status		
Single (never married)	49	12.8
Married	329	85.7
Divorced	6	1.6
Education status		
No formal education	26	6.8
Primary school	263	68.5
Secondary school	95	24.7
Occupation		
Farmer	46	12.0
House wife	284	74.0
Business	39	10.2
Peasant	15	3.8

4.1.2 Obstetric characteristics

About 83.1%(n=319) had no history of abortion, while 9. 3%(n=36) and 7.6% (n=29) had the history of abortion once and more than once respectively. Furthermore 78.6%(n=302) of the women were not had the history of previous C/S, moreover half of the respondents had history of obstetric morbidity with the majority 36.2%(n=139) had severe anemia, as portrayed in figure below:

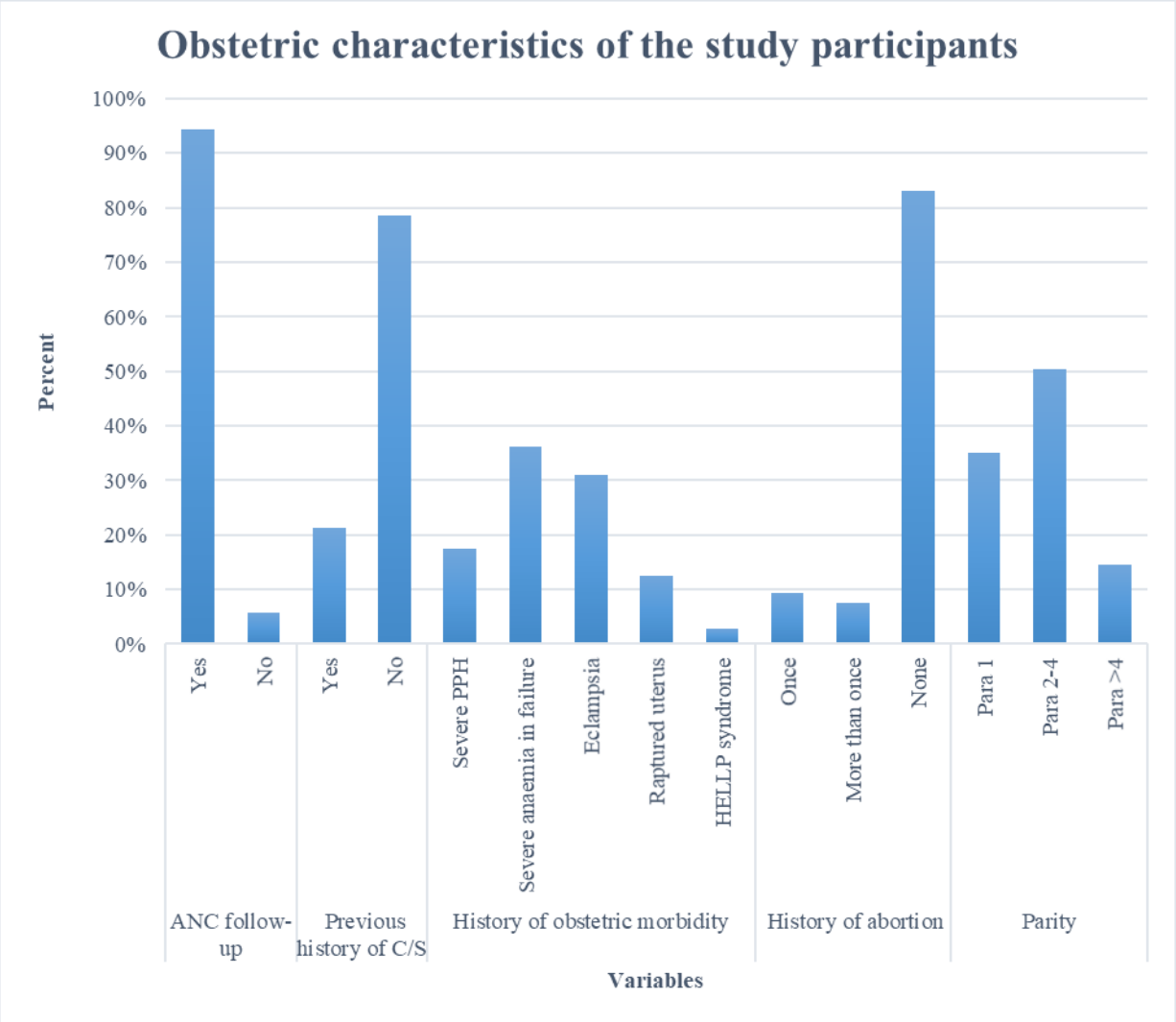


Figure 2: Obstetric characteristics of the participant

4.2 Associated factors and prevalence of Maternal near-miss among delivered women

In multivariable, parity, history of abortion and previous history of C/S were associated with women's prevalence to Maternal Near-miss, as it portrayed in table 3.

Women who were Para 2-4, 5.77 times were more prevalence to Maternal Near-miss (aPR=5.77, 95% CI: 5.771-5.771) than those who were Para 1 through. Women who had a history of abortion of more than once were 0.13 times were more prevalence to Maternal Near-miss (aPR=0.13, 95% CI: 0.000-1.250) than those women who had a history of abortion of once. Moreover, women who had a previous history of C/S were 0.201 times were less prevalence to Maternal Near- miss (aPR=0.201, 95% CI: 0.07-0.55) compared to those who had no previous history of C/S.

The prevalence of Maternal Near-miss

In this study the overall prevalence of maternal near-miss revealed was 25%(n=96), while 75%(n=288) registered as a non-Maternal Near-miss, as portrayed in figure below

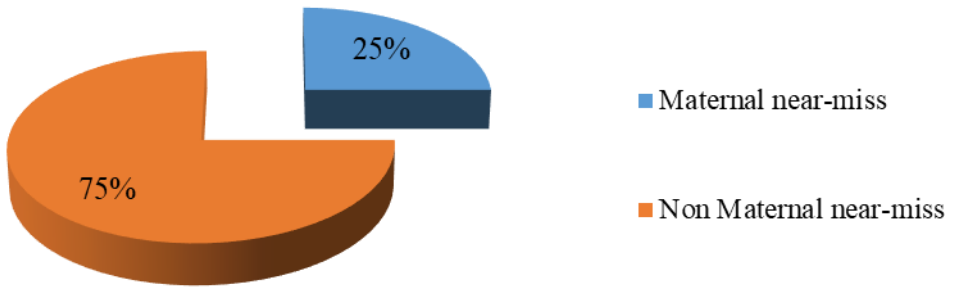


Figure 3: The prevalence of Maternal Near-miss

Table 2: Multivariable analysis of the prevalence and associated factors of Maternal Near miss among delivered women.

Variable	Frequency (%)	aPR	95% Confidence Interval	P-Value
Parity				
Para 1	135 (35.2)	3.699	1.411-9.694	
Para 2-4	193 (50.3)	5.771	5.771-5.771	0.000
Para >4	56 (14.6)	Ref		
History of abortion				
Once	36 (9.4)	0.101	0.035-0.293	
More than once	29 (7.6)	0.13	0.000-1.25	0.000
None	319 (83.1)	Ref		
Previous history of C/S				
Yes	82 (21.4)	0.201	0.072-0.557	
No	302 (78.6)	Ref		0.002

Key: aPR: adjusted Prevalence Ratio, Ref: Reference group

4.3 Social-demographic factors influencing the Maternal Near miss among delivered women

From the five variables used to measure the influencing factors of Maternal Near-miss, the factors reveals to have a relationship with prevalence to Maternal Near-miss, women who lived at urban areas had more influence to Maternal Near-miss due to the highest referral cases recoded 51.5%184(n=184) this is due to long distance about more than 10 km from facility to referral hospital, Moreover women who had a primary education had more influence to Maternal Near -miss due to the highest referral cases recorded 68.3% (n=244) as portrayed in table 4.

Table 3: Relationship between socio-demographic factors and referral case towards influencing maternal miss

Variables		Referral case		P-value
		Yes (%)	**No (%)**	
Age of respondent	15-20	7(2.4)	0(0)	
	21-30	165 (57)	21(77.8)	
	31-40	106 (36.7)	6(22.2)	0.07
	>40	11(3.9)	0(0)	
Place of residence				
	Rural	173(48.5)	13(48.1)	0.05
	Urban	184(51.5)	14(51.9)	
Marital status				
	Single (never married)	45(12.6)	4(14.8)	
	Married	306(85.7)	23(85.2)	0.05
	Divorced	6(1.7)	0(0)	
Education status				
	No formal education	26(7.3)	0(0)	
	Primary school	244(68.3)	19(70.4)	0.04
	Secondary school	87(24.4)	8(29.6)	
Occupation				
	Farmer	42(11.8)	4(14.8)	0.19
	House wife	261(73.1)	23(85.2)	
	Business	39(10.9)	0(0)	
	Peasant	15(4.2)	0(0)	

4.4 Obstetrical and gynecological factors influencing the Maternal Near miss among delivered women

From the four variables used to measure the influencing factors of Maternal Near-miss, the factors reveals to have a relationship with prevalence to Maternal Near miss, women who had a para 2-4 had more influence to Maternal Near-miss due to the higher referral cases recorded 49.0% (n=175) women who had no history of abortion had more influence to Maternal Near- miss due to the higher referral cases recorded 84.6% (n=302), women who had a history of obstetric morbidity (severe anaemia in failure) had more influence to Maternal Near- miss due to the highest referral cases recorded 38.9% (n=139), women who had no history of C/S had less influence to Maternal Near- miss due to the lowest referral cases recorded 81.0% (n=289).

Table 4: Obstetrical and gynecological factors influencing the Maternal Near miss among delivered women

Variables		**Referral case**		**P-value**
		Yes (%)	**No (%)**	
Parity	Para 1	126(35.3)	9(33.3)	
	Para 2-4	175(49.0)	18(66.7)	0.05
	Para >4	56(15.7)	0(0)	
History of abortion				
	Once	26(7.3)	10(37.0)	
	More than once	29(8.1)	0(0)	0.00
	None	302(84.6)	17(63.0)	
History of obstetric morbidity				
	Severe PPH	54(15.1)	13(48.1)	
	Severe anaemia	139(38.9)	0(0)	
	Eclampsia	113(31.7)	6(22.3)	0.00
	Raptured uterus	40(11.2)	8(29.6)	
	HELLP syndrome	11(3.1)	0(0)	
Previous history of C/S				
	Yes	68(19.0)	14(51.9)	0.00
	No	289(81.0)	13(48.1)	

CHAPTER FIVE

5.0 DISCUSSION

The prevalence of Maternal Near-Miss (MNM) in our study area is 25%, which is higher than the study done in developed countries ranging from 0.14% to 0.75%. Also, this finding is higher than the finding in middle-income countries ranging from 1.5%–7.7%. This variation could be attributed to socio- demographic factors, tools used to assess MNM, and the presence of advanced technologies used to detect the occurrence of MNM early and intervention provided. In Sub-Saharan African countries ranges from 2.21% to 12% which is lower than the current finding. The majority of our study participants are from rural areas where transportation access is difficult. This could be attributed to the low healthcare- seeking behavior of our study participants.(Mekonnen et al., 2021b)

The obtained results of the present study revealed 384 cases that represented the delivered women with associated factors to Maternal Near-miss. However, the overall prevalence of Maternal Near-miss was 25% with 95% CI (0.093-0.823). This study was almost in line with finding from global reported 15% and Sub-Sahara countries 12.2% respectively (Survey & Indicators, 2022).

A study conducted in central Uganda found that the rate of maternal near misses is 27%, which is comparable with the current findings. This resemblance could be explained by the countries' similar socioeconomic statuses.

5.1 Associated factors among delivered women with prevalence to maternal near miss

The prevalence of Maternal Near-miss revealed by this study was 5.77 with 95% CI (5.771-5.771). This study was almost higher than the report in India at 1.6%, Bangladesh 2%, Brazil 0.5%, Ghana 3%, and South-western Nigeria at 1.8% (Survey & Indicators, 2022). In addition, in this study, the prevalence of maternal near-miss was reduced when compared to the studies done in the Amhara area hospital (23.3%) and Mizan-Tepi Hospital (24.85%).

The possible reason might be the difference in a health facility and socio-demographic difference.

Furthermore, this finding is similar with previous research conducted in Ethiopia, Nigeria, Pakistan, Bangladesh, and Bolivia (Survey & Indicators, 2022).

5.2 Social-demographic factors influencing the maternal near miss among delivered women

This finding showed that women who were from urban areas were 51.5% more likely prevalence to Maternal Near-miss complications than those women who lived in urban areas. This result might be due to the fact that women from urban areas may have adequate health information, but there might have a habit of delay in seeking care may be due to negligence of the family or unable to recognize danger signs which leading to three delays.

Furthermore, the study's findings indicate that demographic variables (marriage status, occupation, place of residence, education status, and age) of Maternal Near-miss are significantly different.

This is consistent with (Survey & Indicators, 2022) who found that married women had greater chances of having a Maternal Near-miss compared to a unmarried women. This may be partly attributed to chances of getting a pregnant which is potentially disadvantages to unmarried women. Furthermore, may be due to the socioeconomic factors and culture.

Furthermore, a primary education status was associated with maternal near miss. Primary education was the only significant level of education that could explain maternal outcome when compared to secondary school, women who had a primary education had more influence to maternal near miss due to the highest referral cases recorded 244(68.3). This finding is in line with the studies done in Ethiopia (Kumela, et al., 2020). In the same fashion, the evidence from the studies done in Brazil, Bolivia, and Morocco also reported that mothers with lower-level educational status are at increased risk for maternal near-miss (Roost, et al. 2010, Assarag, et al., 2015). Studies indicated that general health outcome and literacy have a positive relationship which could be extended to this study explaining the higher odds of maternal near-miss among mothers with lower educational status (Kumela, et al. 2020). it is possible that more advanced education may only provide incremental protective effect. Secondary level of education was not significantly related to Maternal Near miss. Therefore, this results are in line with the WHO's finding that

lower levels of education are a leading cause of Maternal Near miss (Survey & Indicators, 2022).

Moreover, this finding is in line with the studies done in Ethiopia (Survey & Indicators, 2022). In the same manner, the evidence from the studies done in Brazil, Bolivia, and Morocco also reported that mothers with lower-level educational status are at increased risk for Maternal Near-miss (Survey & Indicators, 2022). Studies indicated that general health outcome and literacy have a positive relationship which could be extended to this study explaining the higher odds of Maternal Near-miss among mothers with lower educational status (Survey & Indicators, 2022).

5.3 Obstetrical and gynecological factors influencing the maternal near miss among delivered women

The leading underlying influencing factors of Maternal Near-miss in our study were severe anemia followed by obstetric hypertensive disorder (eclampsia). This finding is compatible with most studies from high and middle-income countries (Survey & Indicators, 2022). The study findings were also in line with studies conducted in other African countries. (Survey & Indicators, 2022). A previous study in Ethiopia also reported severe anaemia as the primary influencing factor, and obstetric hypertensive disorder (eclampsia) as the second leading influencing factors of Maternal Near-miss. (Survey & Indicators, 2022).

A similar finding was obtained in the study done in Nepal by (Survey and Indicators, 2022).

However, in research done in North India, few incidences of eclampsia were found in a tertiary care hospital, although cases of severe postpartum hemorrhage were more than 33% among women with potentially life-threatening near miss circumstances (Survey & Indicators, 2022).

This finding was also supported by research from some African countries, including Ghana (Survey & Indicators, 2022). This finding was also supported by research from some African countries, including Ghana (Survey & Indicators, 2022). This finding is also consistent with research from other middle-income nations, including Iraq, India, and

Pakistan (Survey & Indicators, 2022). This finding was also consistent with studies from other African countries, including Ghana (Survey & Indicators, 2022).

Moreover, the present study revealed that women with prior bad obstetric history were more likely to become Maternal Near miss case than their counter parts. This is in accordance with similar studies (Imam, et al.2012). Though every pregnancy entails risk to mothers, those mothers with known risks could have higher risk than those with no known risk factors.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

With respect to the aim of this study, that was to determine the prevalence and factors associated with Maternal Near-miss among the delivered woman in Pwani Region, Tanzania.

It was found that women prevalence to Maternal Near-miss was 25% with 95% CI (0.093-0.823).

The study demonstrated a lower prevalence to Maternal Near-miss incidence percentage compared to previous country-percentage level studies. Underlying and contributory influencing factors of Maternal Near-miss are still prevalent.

However, this study recognized a strong relationship between women's related characteristics (parity, history of abortion, history of C/S) and the prevalence of Maternal Near-miss.

The study further recognized that, the underlying influencing factors of Maternal Near-miss in our study was a severe anaemia followed by obstetric hypertensive disorder (eclampsia), together with age, education status and occupation of respondents.

6.2 Recommendations

- Evidence-based medical treatments aimed at managing life-threatening obstetric complications, such as severe anaemia and hypertensive disorders (eclampsia), can reduce maternal near-misses during hospitalization.
- To reduce the prevalence of maternal near misses, the Pwani region should prioritize interprofessional communication, comprehensive obstetric care, and timely management of complications. Permanent education is also essential.
- Future researches should examine on the cultural malpractice in the study area and its consequence concerning the prevalence to Maternal Near-miss.
- Regular clinical audit and feedback about maternal near-miss and severe maternal outcomes should be made

- Engagement of opinion leaders and early adopters should be initiated at the facility
- Prospective case identification of severe maternal outcomes should be made
- Reminders and educational activities about maternal near-misses should be done periodically, probable quarterly
- Use of evidence-based checklists should be use to assess maternal near-misses and severe maternal outcomes in the health facility

Implication of the study in nursing

The outcome of this study will be important to raise the conscious to women on the importance of attending clinics, giving birth in a health facility so as to be attended by a skilled midwife.

On the other hand, evidence-based interventions might be planned to improve the intra-partum management of life-threatening obstetric complications, specifically severe anaemia and hypertensive disorders (eclampsia), that could decrease the incidence of maternal near-miss complications during hospitalization.

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APPENDICES

Appendix 1: Informed consent form (English version)



MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

Directorate of Research and Publications

Study Title: Prevalence of maternal near miss and the associated factors among delivered women in Pwani Region, Tanzania

Introduction:

My name is MARYAM YUSUPH a postgraduate student undertaking a Master of Science in Midwifery and woman's health at Muhimbili University of Health and Allied Sciences. The main goal of this consent is to ask the permission of doing my study in Mlandizi health center, Mkoani health center and Tumbi Regional Referral hospital all these facilities are found in Pwani Region. This study is retrospective study designs so data will be collected through review of patient's records using a standard checklist prepared for this study without, identification of the subjects.

Aims of the study

The aim of the study is to assess the prevalence of the maternal near miss and the associated factors among delivered women in Pwani Region, Tanzania.

The procedure followed by the study

After the agreement from the health information management system (HIMS) of selected facilities then standard check list prepared for this study were used to extract data from the patient's records/files.

Benefits of the study

The generated information, education, and communication will help health care workers especially in maternity units to provide quality care. In addition, increasing the

understanding to individual, community and facilities to enable the development of effective intervention to reduce maternal near miss which leads to bad outcome of maternal deaths in Pwani Region, Tanzania,

Confidentiality:

Privacy and confidentiality of data collected will be considered, code numbers will be used rather than personal names and by keeping the data locked. Because it is retrospective study the individually informed consent will not require.

Question about the research

If there is any question concerning about this study, my contact is: phone number, 0629527792, and email address is mariamyusufujuma@gmail.com

Checklist- English version

Section A: study information:

Date of data collection. ------, -------, ------ (day, month, and year)

Patient's file number: ……...

Socio-demographic characteristics

Age	Category	Number (%)
	15-20 yrs	
	21-30yrs	
	31-40yrs	
	>40yrs	
Place of residence	Rural	
	Urban	
Current marital status	Single	
	Married	
	Divorced	
Education status	No formal education	
	Primary school	
	Secondary school	

	College and above	
Occupation	Farmer	
	Government	
	House wife	
	Other	
Religion	Muslim	
	Christian	
	Others	

Section B: obstetric and gynecological characteristics

Category	**Total**	
Gravidity	Gravida 1	
	Gravid 2-4	
	Gravid >4	
Parity	Para 1	
	Para 2-4	
	Para >4	
History of still births	Yes	
	No	
Number of still birth	Once	
	More than once	
History of abortion	Once	
	More than once	
ANC follow-up	Yes	
	No	
Referral case	Yes	
Distance from health facility	<10km	
	>10km	
	No	
Source of referral	Health center	

	Dispensary	
Previous history of C/S	Yes	
History of obstetric morbidity* (eg, PPH, abortion, dystocia, eclampsia)	Yes No	
	No	
Type of pregnancy	Single	
	Multiple	
Preexisting condition	Yes	
	No	

Appendix 2: Questionnaire - English Version

Section A: study information:

Date of data collection. ------, -------, ------ (day, month, and year)

Patient's file number: …….

Interview No. ☐

Introduction

I am Maryam Yusuph a postgraduate student at Muhimbili University of Health and Allied Sciences; I would like to thank you for your approval and acceptance to be among the interviewee in this research**.** The interview will consist of four major questions with their enquiries**,** which will be held for 50 minutes.

The purpose of the study: To determine the prevalence and the associated factors of maternal near miss among delivered women.

SECTION A: SOCIO – DEMOGRAPHIC DATA

1. How old are you (years)? .....
2. Place of resident
    a) urban
    b) rural
3. What is your marital status?
    a) Single (never married)
    b) Married
    c) Divorced
    d) Widowed
4. What is the highest level of education that you have attained?
    a) No formal education
    b) Primary school
    c) Secondary school
    d) College and above

5. What is your occupation?
    a) formers
    b) government
    c) house wife
    d) other
6. What is your religion?
    a) Christian
    b) Muslim
    c) None
    d) Other (specify)

Section B: obstetric and gynecological characteristics

1. Parity
    a) Para 1
    b) Para 2-4
    c) and above
2. Gravidity
    a) Gravida 1
    b) Gravida 2-4
    c) Gravida 4
3. History of still birth
    a) Yes
    b) No
4. Number of stillbirth
    a) Once
    b) More than once
5. History of abortion
    a) Once
    b) More than once
6. ANC Follow-up
    a) Yes
    b) No

7. Referral case
    a) Yes
    b) No
8. Distance from health facility
    a) <10
    b) >10
9. Source of referral
    a) Dispensary
    b) Health center
10. Previous history of C/S
    a) Yes
    b) No
11. History of obstetric morbidity (eg PPH,Distocia,eclampsia)
    a) Yes
    b) No
12. Type of pregnancy
    a) Single
    b) Multiple
13. Preexisting condition (eg diabetes mellitus. Hypertensive ,sickle cell disease)
    a) Yes
    b) No

Appendix 3: A semi-structured questionnaire (Swahili version)

Nambari ya mshiriki: _____

Utangulizi

Mimi ni Maryam Yusuph mwanafunzi wa shahada ya uzamili katika Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili; Ningependa kukushukuru kwa idhini yako na kukubalika kuwa miongoni mwa waliohojiwa katika utafiti huu. Mahojiano hayo yatakuwa na maswali manne makuu na maswali yao, ambayo yatafanyika kwa dakika 50.

Madhumuni ya utafiti: Kutambua kuenea na sababu zinazohusiana manusura wanaotokana na uzazi miongoni mwa wanawake waliojifungua.

SEHEMU A: TAARIFA BINAFSI

1. Una umri gani (miaka)?
    a) 15-20
    b) 21-30
    c) 31-40
    d) >41
2. Mahali anapoishi
    a) mjini
    b) kijijini

3. Hali yako ya ndoa ni nini?
    a) Mtu Mmoja (hajawahi kuolewa)
    b) Ameolewa
    c) Talaka
    d) Mjane
4. Ni kiwango gani cha juu zaidi cha elimu ambacho umepata?
    a) Hakuna elimu rasmi
    b) Shule ya msingi
    c) Shule ya Sekondar

3. Hali yako ya ndoa ni nini?
    a) Mtu Mmoja (hajawahi kuolewa)
    b) Ameolewa
    c) Talaka
    d) Mjane
4. Ni kiwango gani cha juu zaidi cha elimu ambacho umepata?
    a) Hakuna elimu rasmi
    b) Shule ya msingi
    c) Shule ya Sekondari
    d) Chuo au zaidi
5. Anafanya Kazi ?
    a) Mkulima?
    b) Mtumishi wa serikali?
    c) Mama wa nyumbani
    d) nyingine
6. Dini gani?
    a) Mkristo
    b) Muislamu
    c) Hana dini yoyote
    d) Nyingine (taja)

Section B: obstetric and gynecological characteristics

1. Uzazi wa ngapi?
    a) 1
    b) 2-4
    c) 4 au zaidi
2. Mimba ya ngapi
    a) 1
    b) 2-4
    c) 4 au Zaidi

3. Amewahi kujifungua mtoto mfu?

a) Ndiyo

b) Hapana

4. Amejifungua mtoto mfu

a) Mara moja

b) Zaidi ya mara moja

5. Amewahi kuharibu mimba

a) Mara moja

b) Zaidi ya mara moja

6. Ufuatiliaji wa ANC

a) Ndiyo

b) Hapana

7. Kesi ya rufaa

a) Ndiyo

b) Hapana

8. Umbali kutoka kituo cha afya/Zahanati

a) <10

b) >10

9. Chanzo cha rufaa

a) Zahanati

b) Kituo cha afya

10. Historia ya kujifungua kwa upasuaji? (C/S)

a) Ndiyo

b) Hapana

11. Historia ya magonjwa ya uzazi (mfano PPH, Distocia,eclampsia)

a) Ndiyo

b) Hapana

12. Aina ya ujauzito

a) Mmoja?

b) Zaidi ya mmoja?

13. magonjwa ya kudumu (kwa mfano kisukari mellitus. Shinikizo la damu , ugonjwa wa seli mundu)

a) Ndiyo

b) Hapana

Appendix 4: 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

In reply quote:
Ref. No. HD/MUH/T.451/2022

03rd June, 2024

The Regional Medical Officer,
Pwani Region,
P.O. Box 30080,
KIBAHA

Re: INTRODUCTION LETTER MARYAM YUSUPH JUMA

We would like to inform you that the bearer of this letter is **Maryam Yusuph Juma** with Reg. No. **HD/MUH/T.451/2022** is a student at Muhimbili University of Health and Allied Sciences (MUHAS) "pursuing **MSc. Midwifery and Women's Health.**

As part of her studies, she will be doing an elective research titled: **"Prevalence of Maternal near-Miss and Associated Factors Among Delivered Women in Pwani Region in Tanzania."**

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

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

We thank you for your cooperation.

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

c.c **Maryam Yusuph Juma**

9 United Nations Road, Upanga West, P.O. Box 65001, Dar Es Salaam. Tel. Off.line: +255-22-2150302/8, Ext. 1015, Direct Line: +255-22-2151378, Telefax +255-22-2150465,E-mail:dpgs@muhas.ac.tz,Web:https://www.muhas.ac.tz

THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

Telegrams: "REGCOM COAST"
Tel. No. 023-2402287/2402066
Fax Na. 023-2402358/2402151
Email: barua@pwani.go.tz
rhmt@pwani.go.tz

Regional Commissioner's Office,
2 Ishengoma Street
P.O Box 30080,
61180 KIBAHA, PWANI

In reply please quote:
Ref. No. HA.270/325/02/42

18th June, 2024

Disitrict Administrative Secretary,
KIBAHA

RE: **REQUEST FOR RESEARCH CLEARANCE.**

Please kindly refer to the subject above.

2. I would like to introduce Ms Maryam Yusuph Juma who is a bonafide student of Muhimbili University.

3 Permission has been granted to her to conduct a research titled **"Prevalence of Maternal near-Miss and Associated Factors Among Delivered Women in Pwani Region in Tanzania".**

4 The research period is from **01st June** to **30th June, 2024.**

5 You are requested to provide all necessary assistance to enable her complete the research study successfully.

I Submit.

Dr. Benedicto Ngalza
For: REGIONAL ADMINISTRATIVE SECRETARY

Copy to: Director,
Muhimbili University,
P.O Box 65001,
DAR ES SALAAM.

Maryam Yusuph Juma
Researcher.

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PREVALENCE OF MATERNAL NEAR-MISS AND ASSOCIATED FACTORS AMONG DELIVERED WOMEN IN PWANI REGION IN TANZANIA

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