

# Prevalence and Risk Factors for Perineal Tears in Women Delivering in Regional Hospitals in Dar-Es-Salaam from May to June 2019

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**Abstract:** **Background:** In African countries, prevalence of perineal tear in Nigeria and South Africa was 53.8% and 16.2% respectively. Perineal tears contribute to Post Partum Hemorrhage which contributes to 39% of maternal deaths in Tanzania. Risk factors for perineal tears found in other studies were ethnicity, birth weight over 4 kg, nulliparity, shoulder dystocia, assisted vaginal delivery, episiotomy, maternal pushing position, longer duration of second stage, younger than 25 years, GA >40wks, prolonged labour, head circumference 34cm < at birth, fundal pressure, previous perineal tear, lack of manual perineal protection, deficient visualization of perineum, perineal oedema and use of oxytocin. Major shifts, in obstetric practice have been adopted, including alternative birth positions and manual perineal protection. However, despite the adoption of those strategies, occurrence of perineal tears remains significant. **Objective:** To determine Prevalence and risk factors for perineal tears in women delivering in regional hospitals in Dar-es-salaam from May to June 2019. **Study Design:** Descriptive cross-sectional study was conducted. **Study area:** Mwananyala, Amana, And Temeke Regional Referral Hospitals in Dar es salaam. **Study Population:** women delivering in the labour wards of the three selected regional hospitals in Dar-es-salaam from May to June 2019. **Data collection and analysis:** all delivering women in the labour wards of selected regional hospitals who met inclusion criteria were recruited in the study, structured questionnaires were filled, perineal examination was done in delivering women before delivery in order to see whether there was presence of scars and oedema. Perineal examination was also done after delivery in order to see whether the post delivery woman had attained perineal tears. Prevalence of perineal tear was obtained. A total of 394 delivering women in these selected regional hospitals were analyzed. **Results:** Prevalence of perineal tear was 53% among women delivering in the selected regional hospitals in Dar es salaam. Women who were carrying fetus with gestation age of over 40 weeks and head circumference 34 cm and above were more likely to develop perineal tears. Not performing examination of perineum also increased the risk of occurrence of perineal tear. Perineal pain occurred 62.2% in women who had perineal tears, and Post Partum Hemorrhage occurred in 4.8% in women who had perineal tears. **Conclusion:** Perineal tear is a significant problem due to its prevalence of 53% found in our study. Risk factors associated with occurrence of perineal tears were gestation age above 40 weeks, head circumference 34cm and above, and lack of examination of perineum. Some of the risk factors found in this study were similar to those found in other countries.

## Abbreviations and Acronyms

PPH - Post Partum Hemorrhage

GA - Gestation age

EAS - External anal sphincter

IAS - Internal anal sphincter

OASIS - Obstetrics Anal Sphincter Injuries

RCOG - Royal College of Obstetricians and Gynecologists

WHO - World Health Organization

HKMU - Hubert Kairuki Memorial University

UK - United Kingdom

USA - United State of America

SPSS - Statistical Package for Social Sciences

## Definition of Terms

**Perineal Tear** is a laceration of the skin and other soft tissues structures which in womenseparate the vagina from the anus which occur during vaginal delivery.

**Parity:** is a state of having given birth to single infant or infants weighing more than 500mg alive or dead.

**Primiparous:** is a female who has given birth for the first time.

**Multiparous:** is a female who had borne more than 1 child but less than 5 children.

**Vertex Presentation:** refers to the fetus in longitudinal lie, and the head is completely flexed so that the chin is in contact with the thorax, and occipital fontanel is the presenting part.

**Breech Presentation:** refers to the fetus in the longitudinal lie with the buttocks or lower extremities enters the pelvis first.

**Brow Presentation:** is the presentation when the fetus is in longitudinal lie and the fetal head is partially extended.

**Episiotomy:** is a surgical incision of the perineum and posterior vaginal wall generally done by midwife or obstetrician during second stage of labour, when the perineum is fully stretched and threatens to tear.

**Post Partum Hemorrhage:** refers to blood loss in excess of 500ml after vaginal delivery or 1000mls after abdominal delivery.

**Fecal Incontinence:** is lack of control over defecation.

**Instrumental Delivery:** is when forceps or ventouse suction cup are used to help deliver the baby.

**Prolonged Second Stage of Labour:** is the condition which occurs during delivery, when primiparous bear down for

more than 45 minutes or multiparous bear down for more than 30 minutes without baby being delivered.

## 1. Introduction

### 1.1 Background

Maternal injuries following childbirth process are quite common and contribute significantly to maternal morbidity and death (1) Perineal tears contribute to occurrence of Post Partum Hemorrhage, in Tanzania Post Partum Hemorrhage contribute 39% of maternal deaths (2).

Prevention, early detection and effective management of perineal tears minimize the morbidity and prevent many gynecological problems from developing later in life (3).

Royal College of Obstetrics and Gynaecology classified Obstetric Anal Sphincter Injury into four degrees. First degree is when there is injury to perineal skin only. Second degree is when there is injury to perineum involving perineal body (muscles) but not involving the anal sphincter. Third degree is when there is injury to perineum, involving either external or internal anal sphincter, or both external and internal anal sphincter, without affecting anal epithelium. Fourth degree is when the injury to perineum involving external anal sphincter, internal anal sphincter and anal epithelium(3).

Minor injury is quite common especially during first birth. Gross injury (third and fourth degree) is invariably a result of mismanaged second stage of labor, Overall risk of third and fourth degree is 1% of all vaginal deliveries (3).

Causes of perineal injury are over stretching and rapid stretching of the perineum especially when the perineum is inelastic in elderly primavida, and in perineal scar (3).

Perineal tears are preventable during the second stage of labour when the perineum is fully stretched and threatens to tear, by doing episiotomy, followed by controlled delivery of the head in between the contractions (3).

Prevalence of perineal tears in studies done in UK, India, Mexico, Brazil, France, and South Africa was 85%, 78.8%,13%, 54%, 35.8%, 16.2% respectively (4, 5, 6, 7, 8, 9, and 10).

WHO implemented Global Survey on Maternal and Perinatal Health, in Seven African countries, nine Asian and eight Latin American countries. The aim was to investigate the prevalence and risk factors of third and fourth-degree perineal lacerations. The prevalence of third- and fourth-degree perineal lacerations ranged widely across countries, from 0.1% (China, Cambodia, India) to 15.0% (Philippines), was 0.1% (Uganda) to 1.4% (Japan) (11).

It was also observed that perineal tears decreased with subsequent births, from 90.4% in women who were nulliparous, to 68.8% in women who are multiparous undergoing vaginal deliveries (12).

### 1.2 PROBLEM STATEMENT.

Prevalence of perineal tears in studies done in Nigeria and South Africa was 53.8% and 16.2% respectively(9,10).

Studies from other countries have shown perineal oedema, poor ocular surveillance, manual perineal protection, protracted final phase of second stage and high infant weight were risk factors for occurrence of perineal tears (13).

Major shifts, in obstetric practice have been adopted, including alternative birth positions and manual perineal protection (14).In the labour wards of regional hospitals of Dar es salaam, episiotomies are performed in order to prevent perineal tears and manual perineal protection is done although not frequent and not on time. Despite the adoption of those strategies, occurrence of perineal tears remains significant (6, 15).

Maternal injuries following childbirth process contribute significantly to maternal morbidity and deaths (1).Perineal tears contribute to Post Partum Hemorrhage which contributes 39% of maternal deaths in Tanzania (2).Perineal pain was observed among post vaginal delivery, revealed in studies conducted in French, Australia, Sweden and UK(13,15,16,17).

### 1.3. OBJECTIVES

#### 1.3.1 Broad Objective

To determine prevalence and risk factors for perineal tears in women delivering in regional hospitals in Dar-es -salaam from May to June 2019.

#### 1.3.2 Specific Objectives

- 1) To determine prevalence of perineal tears in women delivering in regional hospitals in Dar-es -salaam from May to June 2019.
- 2) 2.To determine risk factors for perineal tears during delivery in women delivering in regional hospitals in Dar-es -salaam from May to June 2019.
- 3) To determine presence of PPH, perineal pain, faecal incontinence and involuntary escape of flatus in women who get perineal tears during delivery in regional hospitals in Dar-es -salaam from May to June 2019.

### 1.4 Rationale

Magnitude of perineal tears varied markedly with time and place and hence there was a need to understand the current magnitude of perineal tears and related factors in Tanzania.

Information obtained from this study, help us to know how big the problem is to our delivering women of Dar es Salaam, and it help us to obtain useful strategies for the prevention of occurrence of perineal tears, this will reduce morbidity and mortality in our delivering women.

It was found that assessment of risk factors for perineal tear is essential in order to allow primary prevention (18), therefore it is important to assess risk factors for occurrence of perineal tears, in order to make strategies for primary prevention.

### 1.5 Research Question

What is the prevalence of perineal tears and associated risk factors in regional hospitals in Dar es Salaam, Tanzania?

## 2. Literature Review

Prevalence of perineal tears varied from place to place, In UK, prevalence was 85% (4). In Brazil, it was 54%, observed in a retrospective cohort study of singleton pregnancies during labour (6). It was 13% observed in southern Mexico, in a cross-sectional study in women who gave birth in the previous three years (7). In France, it was 35.8%, revealed in a prospective cohort study, of pregnant women delivering after 37 weeks (8). It was 53.8% observed in South Nigeria, in a retrospective study of vaginal births at the University of Port Harcourt Teaching Hospital (9). In South Africa, it was 16.2%, revealed in a prospective observational study of Black African and Indian women delivering at two regional hospitals in South Africa (10).

The prevalence of third and fourth degree also varied from place to place. It was 15% observed in Philippines during WHO Global Survey on Maternal and Perinatal Health in Seven African, nine Asian and eight Latin American countries (11).

Prevalence of third and fourth degree perineal tear in studies conducted in India and Tanzania was 4.8% and 1.4% respectively (5, 19).

Prevalence of second degree perineal tears was 24% observed by WHO in low and middle income countries including Tanzania from 2004-2016 (19).

In Saudi Arabia, GA above 40 weeks and head circumference above 34cm were risk factors for severe perineal tears, was revealed in a retrospective observational cohort study of 28325 vaginal deliveries from January 2011 to December 2015 (1).

In South Nigeria, in a retrospective study of 5422 vaginal births at the University of Port Harcourt Teaching Hospital, revealed that vaginal breech deliveries were the major risk factors for perineal trauma (9).

In a study conducted in Saudi Arabia, revealed that prolonged labor was risk factor for third and fourth-degree perineal lacerations (14).

Perineal pain was present in women with perineal tear, revealed in studies conducted in French, Australia, Sweden and UK (13, 15, 16, 17).

Deficient perineal protection, perineal oedema, and poor ocular surveillance during delivery, were found as an independent risk factor for occurrence of anal sphincter tear, revealed in prospective observational study, done in Sweden (18).

Young maternal age was a risk factor for third- and fourth-degree perineal lacerations, observed in the studies done in Brazil, Saudi Arabia and Mexico (6, 14, 20).

Studies conducted in Saudi Arabia and UK, revealed that a higher risk of third- or fourth-degree perineal tears was associated with shoulder dystocia and maternal age above 25 years (1, 21). Also, in a study done in Nigeria, maternal age 27 and above was a risk factor for perineal tears (22).

Primiparous had a higher risk of perineal trauma, revealed in studies done in Brazil, Mexico, Netherland, USA and France (1, 6, 7, 23, 24, 25).

Studies conducted in UK and USA, found women with prior anal sphincter laceration were at increased risk for subsequent sphincter laceration (26, 27).

Macrosomia with birth weight >4000gm was associated with occurrence of perineal tears, was revealed in studies conducted in Saudi Arabia, Sweden, UK, Tanzania, and Tunisia (1, 18, 21, 28, 29).

Studies conducted in Saudi Arabia, UK, Netherland, and USA, found that prolonged second stage of labour was associated with third-degree or fourth-degree perineal lacerations (1, 12, 23, 30).

Oxytocin augmentation was associated with a higher occurrence of obstetric anal sphincter injuries during spontaneous deliveries of normal-size infants, was observed in Norway, in case-control study of 15 476 nulliparous women with spontaneous start of labour (31).

Studies conducted in Saudi Arabia, Brazil, South Nigeria, Japan, USA and UK, revealed instrumental delivery was associated with severe perineal tears (1, 8, 9, 11, 32, 33).

Midline episiotomy was the risk factors for deep perineal tears, was found in studies done in Canada, USA and Thailand (34, 35, 36).

In Belgium, in a retrospective study, which included the examination of hospital records from 557 women, revealed that Childbirth in the lateral position resulted in less perineal trauma when compared with childbirth in the lithotomy position (37).

Study conducted in Brazil, revealed white ethnicity presented 3.9 times riskier of presenting perineal tears (6). Also study done in Sweden, found that women from Africa and Asia, had pronounced risks for occurrence of perineal tears (38). Studies conducted in UK and Australia, found that a higher risk of third or fourth degree perineal tears was associated with Asian ethnicity (21, 39).

Perineal tear was independent risk factor for occurrence of Post Partum Hemorrhage, revealed in a study conducted in France (40).

In a study conducted in India, found that patients who had more than 50% of External Anal Sphincter torn, none of them complained of incontinence during their follow up (5). However other studies had different findings, Studies conducted in Sweden, Canada, UK and Netherland, revealed that women with a sphincter tear had fecal incontinence and gas incontinence (16, 34, 41 and 42).

### **3. Methodology**

#### **3.1 Study Area**

The proposed study was conducted at Mwananyamala, Amana, and Temeke Regional Referral Hospitals in Dar Es Salaam.

Dar es Salaam had population of 4,364,541 as official 2012 census, with population increase rate of 4.39% annually overall total fertility rate in Tanzania is about 5.7% (TDHS 04/05, Census 2002).

It consists of five regions, Ilala at the centre of the Dar es salaam city, Kinondoni to the north of the Dar es salaam city, Temeke to the south of the Dar es salaam city, Ubungo to the west of the Dar es salaam city, and Kigamboni to the East of the Dar es salaam city.

The administrative system of each region in Dar-es-salaam comprises of regional commissioner who is the uppermost administrator, manages all the activities in the respective region. Under him there is Regional medical officer who manages all health activities. Also, there is District medical officer and Medical Officer In charges of respective districts and hospitals.

Currently the Regional Referral Hospitals are under ministry of health, community development, Gender, Elderly and Children.

The health system in each region, there is regional referral hospital which is the uppermost hospital in the particular region, under it there are district hospitals and health centers, under health centers there are dispensaries in each particular region.

Delivery care are performed from the level of dispensaries, if there is a problem patients are referred to health centers in the particular region, if the health centre cannot manage the patients, patients are referred to regional referral hospital of the particular region.

In Dar es Salaam city, there are three regional referral hospitals which serves the patients of Dar es salaam. These hospitals are Mwananyamala, Amana, and Temeke Regional Referral Hospitals.

Mwananyamala regional referral hospital was selected as study area, because it serves all inhabitants from kinondoni region and from Ubungo region through referral system, it gets patients from Sinza hospital and other health centres. It has daily deliveries ranges from 40-50.

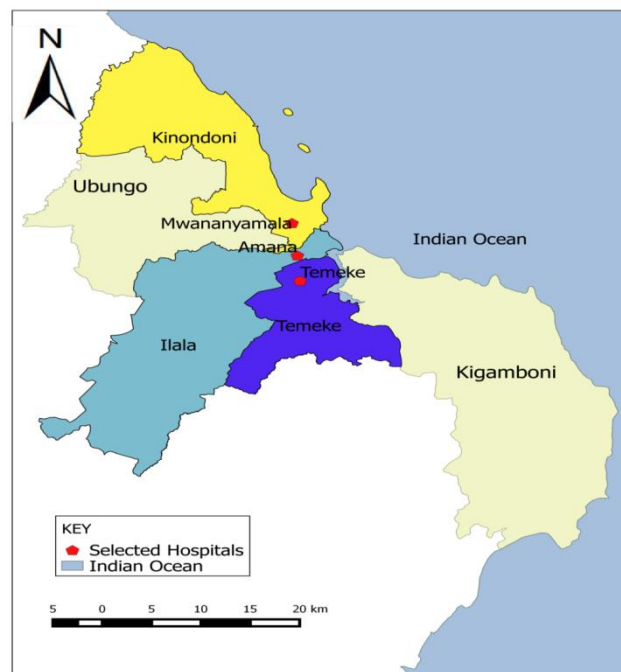
Temeke regional referral hospital was selected as a study area because it serves all inhabitants from Temeke region and from kigamboni region through referral system. Daily deliveries ranges from 50-60.

Amana regional referral hospital was selected as study area because it serves all the inhabitants form Ilala region through referral system. The maternity block of the Hospital provides obstetrics and gynaecology services, and it has a neonatal unit. The daily deliveries range from 60-80.

Therefore, these three regional referral hospitals serve all the inhabitants of Dar es Salaam through referral system and all

selected regional referral hospitals have facilities for operative delivery.

### A Map Showing Three Selected Regional Hospitals in Dar Es Salaam



### 3.2 Target Population

All women delivered in the labour wards of regional hospitals.

### 3.3 Study Population

All women delivered in the labour wards of the selected regional hospitals in Dar-es -salaam from May to June 2019.

### 3.4 Study Design

Descriptive Cross-sectional study

#### 3.4.1 Sampling Method

Random sampling technique was used to select three large regional hospitals in Dar es salaam, which were included in the study.

A non probability sampling was done in each hospital to obtain sample size of women delivered in these hospitals, which were included in the study.

All women delivered in the labour wards of selected hospitals were included, a consecutive pregnant woman in the labour wards of selected hospitals was picked, those who agreed and consented to participate in the study were included, among these women, those with exclusion criteria were excluded.

#### 3.4.2 Sample Size Calculation

A minimum sample size from Amana, Mwananyamala, Temeke Regional Referral hospitals was obtained using



sample size estimation formula of single proportion. This was given by;  $n = z^2 p (1-p) / e^2$

$n$  = expected minimum sample size

$Z$  = the standard normal deviate value/deviate of normal distribution = 1.96 at 95% CI

$P$  = estimated proportion of post delivery women with perineal tear, was 16.2% found in a study done in South Africa (10).

$e$  = margin of error on probability value/maximum allowable error (usually 5%)

From the given formula, using  $p=16.2%$ ,  $n=209$

Therefore, sample size is 209.

For the purpose of this study, sample size will be 394.

A sample size of 394 participants was obtained from three regional hospitals.

Total monthly deliveries from three regional hospitals;  $1500+1200+1200=3900$

Number of delivery of Amana regional hospital per month is 1500, sample size from Amana regional hospital was  $1500/3900 \times 394 = 152$

Number of delivery of Mwananyamala regional hospital per month is 1200, expected sample size from Mwananyamala regional hospital was  $1200/3900 \times 394 = 121$

Number of delivery of Temeke hospital per month is 1200, expected sample size from Temeke hospital per month is  $1200/3900 \times 394 = 121$

Therefore, from Amana regional hospital, 152 delivering women were selected to participate in the study, from Mwananyamala regional hospital 121 delivering women were selected and included in the study, and from Temeke regional hospital 121 delivering women were selected and included in the study.

### 3.4.3 Procedure for Data Collection

Data collection was done for two months. Data collection was done by principal investigator and research assistants in the selected regional hospitals. Data were collected every day for a period of two months.

Delivering women in the selected regional hospitals who qualified were asked for written consent and were included in the study, they were asked questions from the questionnaires. Questionnaires were designed in English and translated in Swahili for easy and correctly understanding of the questionnaires. Questionnaires included social demographic characteristics of study population, risk factors and complications of perineal tears.

Examination of perineum was done by principle investigator and research assistants before delivery to see presence of perineal scars or oedema as these were found to be associated with the occurrence of perineal tears in studies done in other countries, and examination of perineum was done after delivery to see occurrence of perineal tear. Perineal tear was classified according to the Royal College

of Obstetricians and Gynecologists (RCOG). Royal College of Obstetrics and Gynaecology classified Obstetric Anal Sphincter Injury into four degrees. First degree is when there is injury to perineal skin only. Second degree is when there is injury to perineum involving perineal body (muscles) but not involving the anal sphincter. Third degree is when there is injury to perineum, involving either external or internal anal sphincter, or both external and internal anal sphincter, without affecting anal epithelium. Fourth degree is when the injury to perineum involving external anal sphincter, internal anal sphincter and anal epithelium (3).

### 3.4.4 Data Collection Tools

Questionnaire papers were used, they were translated from English to Kiswahili for easy understanding.

### 3.4.5 Inclusion Criteria

-All women delivered in the labour wards of selected regional hospitals in Dar-es-salaam from May to June 2019.

### 3.4.6 Exclusion Criteria

- Those women with emergency conditions such as Eclampsia, PPH, shock etc those who needed immediate resuscitation.
- Those women who had pre-eclampsia with severe features, severe anaemia with heart failure and other disease conditions, who were not in stable condition to participate in the study.
- Multiple gestation and preterm pregnancies.

### 3.4.7 Limitation of the Study

There was no time to make follow up in order to obtain late complications which occur in women who got perineal tears. The study was done in three regional hospitals serving urban based population of Tanzania, the rural population might have other different risk factors for occurrence of perineal tears.

### 3.4.6 Ethical Consideration

Ethical clearance was obtained from Institutional Research Ethical Committee of HKMU and from regional referral hospital authorities, that is from Assistant Executive Director from Amana Regional Referral Hospital, from Medical Officer In charge of Mwananyamala Regional Referral Hospital and from Medical Officer In charge of Temeke Regional Referral Hospital.

Purpose of the study was well explained to the study participants, description of how study was conducted was done, benefits of being in the study was well explained, risks and discomforts of being in the study was well explained, however there was no health risk from participating in this study, Confidentiality of study subjects was ensured through the use of ID codes to conceal their Identity. All the responses were kept confidential and were used for research purposes. Participation in this study was voluntary, study participant were free to refuse to take part in the study or to withdraw at anytime without affecting or jeopardizing medical care. Participants gave consent by signing consent form.

### 3.5 Plan of Data Management

### 3.5.1 Data Collection

Data were collected and filled in questionnaires. Questionnaires were checked daily for completeness. Completed questionnaires were numbered and coded before entering in a computer. Filled questionnaires were stored in a safe place.

Data from Questionnaires were then entered in computer. Data were sorted, entered in excel sheet, data were then verified for consistency, accuracy, readability and completeness before analysis. Data were stored in flash and hard disk.

Data was then analyzed using SPSS version 20, descriptive statistics such as frequencies, percentages was done in order to provide information on age, education level, marital status, residence, occupation, Birth weight, duration of second stage of labour, gestation age, duration of labour, and head circumference at birth.

Cross tabulation and chi square test was used to compare categorical variables and to test for relationship between independent variables (parity, ethnicity, feta presentation, shoulder dystocia, manual perineal protection, episiotomy, use of oxytocin, assisted delivery, parturition position, and perineal oedema) and outcome variables that is perineal tear, p value of less than 0.05 was considered to be statistically significant. Presentation of collected data was done through tables and figures.

### 3.5.2 Univariate Analysis

Means were calculated for continuous variables such as age. Frequencies and percentages was calculated for categorical variables such as education level, marital status, occupation, parity, ethnicity, fetal presentation, shoulder dystocia, manual perineal protection, episiotomy, use of oxytocin, assisted vaginal delivery, parturition position, perineal oedema, Gestation age at delivery, duration of labour, and duration of second stage of labour.

### 3.5.3 Multivariate Analysis:

Logistic regression was done to determine the significant risk factors for perineal tear. The p value of less or equal to 0.05 was considered statistically significant. Presentation of data was done through tables and figures.

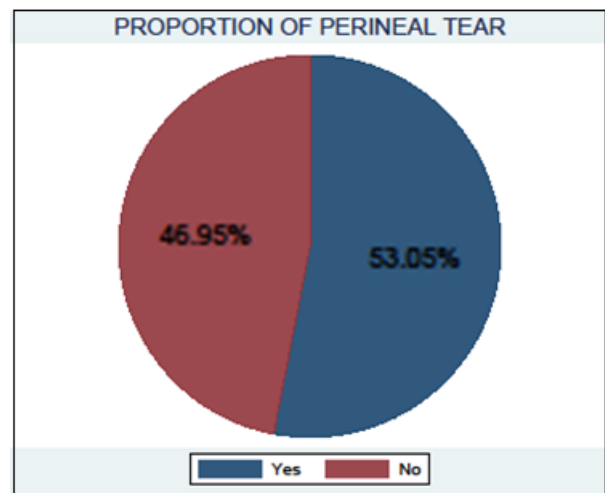
### 3.5.4 Data Quality and Control

a) To increase the validity and reliability of the data collection, research instruments was pretested. Questionnaire was administered, risk factors and complications were assessed in each study participant, examination of perineum was done before and after delivery, grading of perineal tear was done according to

classification of RCOG 2007(3) and checking of questionnaires for their completeness was done daily.

b) Translation of questionnaires from English to Swahili language was done.

## 4. Results



**Figure 1:** Prevalence of perineal tears at Amana, Temeke and Mwananyamala regional hospitals

In this figure it is observed, among 394 delivering women in the selected regional hospitals in Dar es salaam, 53% had attained perineal tears.

**Table 1:** Degree and complication of perineal tear among delivering women in Amana, Temeke and Mwananyamalaregional hospitals, 2019.

Characteristics	Number	Percent
<b>Degree of Perineal Tear (n=209)</b>		
1 <sup>st</sup> Degree	154	73.7
Second Degree	40	19.1
Third Degree and Above	15	7.2
<b>Complications of Perineal Tear (209)</b>		
Post-delivery perineal pain	130	62.2
Post-Partum Haemorrhage	10	4.8
Faecal Incontinency and Involuntary Escape of Flatus	0	0

Of the 209 delivering women who had perineal tear, One hundred and fifty-four (73.7%) presented with 1<sup>st</sup> degree, while 40 (19.1%) and 15 (7.2%) presented with second and third degree respectively. Women presented with different complication due to perineal tears: Post-delivery perineal pain was seen in 62.2% (130) of the women, while post-partum hemorrhage was 4.8%, and fecal incontinency or involuntary escape of flatus was not observed in women who had perineal tears.

**Table 2:** Socio-demographic risk factors associated with perineal tear

Characteristics	Perineal tears		Odds ratio (95% CI)	P value
	Yes n (%)	No n (%)		
<b>Occupation</b>				
Small business	95(50.53)	93(49.47)	Ref	
Big business	3(42.85)	4(57.15)	4(0.15-3.42)	0.67
Casual labour	8(72.77)	11(27.23)	0.88(0.32-2.44)	0.80
Student	2(66.67)	3(33.33)	0.68(0.10-4.37)	0.69
House wife	74(59.68)	50(40.32)	1.44(0.90-2.31)	0.13
Employed	15(55.56)	12(44.44)	1.27(0.55-2.95)	0.58
Farmer	5(45.45)	6(54.55)	0.79(0.23-2.74)	0.71
Other	7(53.84)	6(46.16)	1.28(0.38-4.29)	0.69
<b>Marital status</b>				
Married	156(56.73)	119(43.27)	Ref	
Single	39(48.15)	42(51.85)	0.66(0.38-1.18)	0.162
Cohabiting	14(36.84)	24(63.16)	0.46(0.22-0.97)	0.042
<b>Level of education</b>				
no formal education	6(42.86)	8(57.14)	Ref	
primary education	116(51.56)	109(48.44)	1.42(0.48-4.22)	0.37
secondary education	81(55.48)	65(44.52)	1.66(0.55-5.03)	0.27
University education	6(66.67)	3(33.33)	2.67(0.46-15.25)	0.59
<b>Hospital</b>				
Temeke	73(60.33)	48(39.67)	1.82(1.89-3.85)	0.022
Mwanayamala	63(52.07)	58(47.93)	1.2(0.71-2.09)	0.5
Amana	73(48.03)	79(51.97)	Ref	
<b>Age (years)</b>				
below 25	118(63.78)	67(36.22)	1.10(0.74-1.65)	0.62
above 25	91(43.54)	118(56.46)	Ref	

Those women cohabiting had a reduced odd of developing perineal tear compared to those who were married [ OR 0.46, 95% CI 0.22-0.97], while the odds of perineal tear was 1.8 times higher among those women who delivered in Temeke hospital compare to Amana hospital [OR 1.82, 95% CI 1.89-3.85].

**Table 3:** Maternal and fetal risk factors for perineal tears among delivering women in Amana, Temeke and Mwananyamala regional hospitals, 2019

Characteristics	Perineal tears		Odds ratio (95% CI)	P value
	Yes n(%)	No n(%)		
<b>Parity</b>				
0	107(54.87)	88(45.13)	1.44(0.61-3.37)	0.4
1-4	91(52.00)	84(48.00)	1.28(0.54-3.01)	0.57
5+	11(45.83)	13(54.17)	Ref	
<b>Perineal scar</b>				
Yes	60(59.41)	41(40.59)	1.51(0.87-2.61)	0.14
No	149(50.85)	144(49.15)	Ref	
<b>Gestation age in weeks</b>				
below 40	166(50.15)	165(49.85)	Ref	
40+	43(68.25)	20(31.75)	3.1(1.45-6.66)	0.00
<b>Head circumference cm</b>				
≥34	41(65.08)	22(34.92)	1.81(1.03-3.17)	0.04
<34	168(50.76)	163(49.24)	Ref	
<b>Infant weight in kg</b>				
<2.5	20(44.44)	25(55.56)	Ref	
2.5-4	182(53.69)	157(46.31)	1.67(0.87-3.21)	0.12
>4	7(70.00)	3(30.00)	3.46(0.76-15.66)	0.76
<b>Fetal presentation</b>				
Vertex	198(52.66)	178(47.34)	Ref	
Breech	11(61.11)	7(38.89)	1.18(0.44-3.18)	0.74
<b>Shoulder dystocia</b>				
Yes	14(60.86)	9(39.14)	1.03(0.45-2.41)	0.93
No	195(52.56)	176(47.44)	Ref	

Several Maternal and fetal risk factors were assessed. The odds of developing perineal tear was 3.1 time higher [OR 3.1, 95% CI 1.45-6.66] among women who had gestation age of over 40 weeks. Those women were carrying fetus with head circumference 34 cm and above were 1.8 [OR

1.81, 95% CI 1.03-3.17] time more likely to develop perineal tear. Other factors including primiparous and infant weight of above 4 kg were associated with perineal tear, however the associations were not statistically significant.

**Table 4:** Intrapartum risk factors for perineal tears among delivering women in Amana, Temeke and Mwananyamala regional hospitals, 2019

Characteristics	Perineal tears		Odds ratio (95% CI)	P value
	Yes n(%)	No n(%)		
<b>Duration of labour hours</b>				
<3	15(60.00)	10(40.00)	Ref	
3-6	101(58.38)	72(41.62)	0.93(0.39-2.1)	0.88
6-14	72(45.86)	85(54.14)	0.56(0.02-2.63)	0.193
14-20	18(51.43)	17(48.57)	0.70(0.044-5.93)	0.51
above 20	3(75.00)	1(25.00)	2.00(0.67-3.3)	0.57
<b>Prolonged second stage of labour</b>				
No	179(52.96)	159(47.04)	Ref	
Yes	30(53.57)	26(46.43)	1.36(0.77-2.40)	0.29
<b>Perineal protection</b>				
No	88(58.28)	63(41.72)	1.4(0.93 - 2.12)	0.1
Yes	121(49.79)	122(50.21)	Ref	
<b>Examination of perineum</b>				
Yes	132(45.21)	160(54.79)	Ref	
No	77(75.49)	25(24.51)	3.73(2.25-6.20)	0.00
<b>Assisted delivery</b>				
Yes	31(50.82)	30(49.18)	1.11(0.64-1.91)	0.705
No	178(53.45)	155(46.55)	Ref	
<b>What was done in assisted delivery</b>				
Fundal pressure	18(52.94)	16(47.06)	0.98(0.49-2.0)	0.96
Fundal pressure and vacuum	5(55.56)	4(44.44)	1.09(0.29-4.15)	0.89
Interv shoulder dystocia	7(53.85)	6(46.15)	1.75(0.24-2.28)	0.24
Breech extraction	3(60.00)	2(40.00)	Ref	
<b>Parturient position</b>				
Lateral recumbent	1(20.00)	4(80.00)	Ref	
Lithotomy	208(53.47)	181(46.53)	4.622(0.51-41.73)	0.17
<b>Perineal oedema</b>				
Yes	4(67.67)	2(33.33)	1.3(0.22-5.6)	0.88
No	205(52.84)	183(47.16)	Ref	
<b>Number of birth attend/patient</b>				
0 to 3	185(56.23)	144(43.77)	2.195(1.26 - 3.79)	0.01
Above 3	24(36.92)	41(63.08)	Ref	
<b>Oxytocin used</b>				
Yes	46(51.11)	44(48.89)	0.96(0.58-1.60)	0.88
No	163(53.62)	141(46.38)	Ref	
<b>Oxytocin use</b>				
Used for induction	7(77.78)	2(22.22)	3.06(0.63-15.00)	0.17
Used for augmentation	39(40.85)	42(59.15)	Ref	

Several intra partum risk factors were assessed during the study period. Not performing examination of perineum [OR 3.73, 95% CI 2.25-6.20], and number of birth attendant 3 or less than three per patient [OR 2.19, 95% CI 1.26 - 3.79] increased the odds of perineal tear.

**Table 5:** Adjusted Odds ratio for perineal tears by significant associated factors

Characteristics	Adjusted Odds Ratio	P Value
<b>Hospital</b>		
Amana	Ref	
Temeke	1.50(0.88-2.55)	0.14
Mwananyamala	1.11(0.65-1.88)	0.71
<b>Head circumference in cm</b>		
<34	Ref	
≥34	1.86(1.03-3.38)	0.04
<b>Gestation age in weeks</b>		
Below 40	Ref	
40+	2.29(1.25-4.19)	0.01
<b>Examination of perineum</b>		
Yes		
No	3.22(1.89-5.50)	0.00

Number of birth attend/patient		
0 to 3	1.10(0.49-2.48)	0.82
Above 3	Ref	

After multivariate analysis significant risk factors for occurrence of perineal tears were head circumference above 34 cm, gestation age above 40 weeks and not performing examination of perineum.

## 5. Discussion

Prevalence of perineal tears was moderately high (53%) among delivering women in selected regional hospitals in Dar es Salaam. The prevalence of 53% obtained from this study was almost similar to that observed in a study done in Brazil and Nigeria which was 54% and 53.8% respectively (9,10). The similarities that we got were contributed due to the fact that Brazil and Nigeria are also developing countries with low hospital resource settings which could lead to high prevalence of perineal tears. In South Africa prevalence of perineal tear was 16.2% which



was lower than prevalence we found in our study. The difference of the prevalence was contributed due to the fact that South Africa is the developed country with high resource hospital settings which contribute to low occurrence of perineal tears. Therefore preventive measures should be taken in our labour wards so as to lower the prevalence of perineal tears in our delivering women.

Gestation age above 40 weeks and head circumference 34cm and above were associated with occurrence of perineal tears among delivering women in selected regional hospitals in Dar es Salaam. But in a study done in Saudi Arabia, had different findings that GA above 40 weeks and head circumference 34cm and above, were not significant risk factors for occurrence of perineal tears(1). The differences in our findings were contributed due to different study designs, Saudi Arabia did retrospective observational cohort study, also Saudi Arabia had large sample size N= 28325 and longer study period(3years) .all these have contributed to different results which we have obtained. Therefore in order to prevent the occurrence of perineal tear in our delivering women, Perineum should be well supported during delivery, more caution in women with gestation age above 40 weeks, and in suspected fetus with head circumference 34cm and above.

Occurrence of perineal tears were associated with lack of examination of perineum among delivering women in selected regional hospital in Dar es salaam. Also in a study done in Sweden, found poor ocular surveillance of perineum, constitute independent risk factors for anal sphincter tear (18). The similarities of our findings were contributed due to the fact that we both evaluated intrapartum risk factors for occurrence of perineal tears. Therefore routine perineum examination to every delivering woman in the labour ward should be done in order to prevent the occurrence of perineal tears.

In selected regional hospitals in Dar es Salaam, among post delivery women who had perineal tears, 62.2% experienced perineal pain. In a study done in Sweden, Perineal pain were observed in 18-23% among women with perineal tears. Differences in our results were contributed due to different study designs. In Sweden they did retrospective study 4-8 years post delivery while in this study it was cross section study done during delivery.

Post Partum Hemorrhage occurred in 4.8% among delivering women who attained perineal tear in selected regional hospitals in Dar es salaam. Also in a study conducted in France, revealed perineal tear was independent risk factor for PPH(40).

Among delivering women who attained third and fourth degree perineal tears in selected regional hospitals in Dar es Salaam, none of them experienced fecal incontinence and none of them had involuntary escape of flatus. Different findings were observed in a study done in Sweden where Fecal incontinence and Gas incontinence were observed among women who had perineal tears(16). The Difference in our findings were contributed due to the fact that, we had different study designs. In Sweden they conducted retrospective study, 4-8 years after vagina delivery while in this study it was cross section study done during delivery.

## 6. Conclusion

Perineal tear is a significant problem due to its prevalence of 53% found in our study.

After multivariate analysis risk factors for occurrence of perineal tears were gestation age above 40 weeks, head circumference 34cm and above, and lack of examination of perineum.

Some of the risk factors observed in this study were similar to those observed in other countries.

## 7. Recommendation

Routine perineum examination to every delivering woman in the labour ward should be done.

Perineum should be well supported in every delivering woman, more caution in women with gestation age above 40 weeks, and in suspected fetus with head circumference 34cm and above.

The study calls for another study to be carried out in rural areas in Tanzania

## 8. Strength

It was a cross-sectional study which was done across three major regional hospitals in the most populated city in Tanzania.

This would ensure a diverse group of women which would hopefully be representative of the general population.

Many factors were studied to look for possible associations.

## 9. Limitations

There was no time to make follow up in order to obtain late complications which occur in women who got perineal tears.

The study was done in three regional hospitals serving urban based population of Tanzania, the rural population might have other different risk factors for occurrence of perineal tears.

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**Dedication**

This work is dedicated to my dear father who has been very supportive all the time during my Masters study period, this work is also dedicated to my daughter Emmanuella and the rest of my family for being supportive throughout my study period.

**Declaration**

I Neema L Ntamanwa declare that this dissertation is my original work and is the products of my own effort that it has not been presented and it will not be presented in any other university for a similar or any other award.

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## Appendices

### 7.1. Appendix 1: Questionnaire in English

#### Magnitude and risk factors for perineal tears in women delivering in regional hospitals in dar-es -salaam from May to June 2019.

##### Questionnaire.

Questionnaire number \_\_\_\_\_

Date \_\_\_\_\_

Name of Hospital.....

##### **Socio-Demographic Characteristic**

- 1) District \_\_\_\_\_
- 2) Age \_\_\_\_\_
- 3) Level of education
  - a) No formal education.
  - b) Primary school education.
  - c) Secondary school education
  - d) University level.
- 4) Marital status
  - a) Married.
  - b) Single.
  - c) Cohabiting.
  - d) Divorced.
  - e) Separated.
  - f) Widow
- 5) Occupation
  - a) Small business.
  - b) Big business.
  - c) Casual labors.
  - d) Student.
  - e) Housewife.
  - f) Employed
  - g) Farmer.
  - h) Others.....

##### **A. To Determine Magnitude of Perineal Tears**

- 1) Is there presence of perineal tear attained during delivery?
  - a) Yes
  - b) No
- 2) If yes, which degree of perineal tear attained after vaginal delivery?
  - a) First degree
  - b) Second degree
  - c) Third degree
  - d) Fourth degree

##### **B. To Determine Risk Factors of Perineal Tears Maternal Risk Factors;**

- 1) What is the Parity of the vagially delivering woman?
  - a) 0
  - b) 1 and more but less than 5
  - c) 5 and more

- 2) What is her ethnicity?
  - a) African
  - b) Asian
  - c) European
  - d) American
- 3) Is there presence of perineal scars before current delivery?
  - a) Yes
  - b) No

**C. Fetal Risk Factors;**

- 1) What was the Gestation age of the fetus at delivery?.....
- 2) What is the infant head circumference?
  - Less than 34cm
  - b) 34cm and more
- 3) What is the Infant weight (kg) at delivery?
  - a) Less than 2.5kg
  - b) 2.5kg up to 3.99kg
  - c) 4kg and above
- 4) What is the Fetal presentation during delivery?
  - a) vertex
  - b) Breech
  - c) Face
  - d) brow
  - e) Other presentation.....
- 5) Did the fetus had Shoulder dystocia at delivery?
  - a) Yes
  - b) No

**D. Intrapartum Risk Factors;**

- 1) What was the Duration of labour?
  - a) 3hrs and less
  - b) 6hrs and less
  - c) above 6hrs and less than 14:00hrs
  - d) 14hrs and less than 20hrs
  - e) 20hrs and more
- 2) Was there prolonged second stage of labour?
  - a) Yes
  - b) No
- 3) How was Manual perineal protection done during delivery?
  - a) All the time
  - b) Not all the time
  - c) Not done
- 4) Did examination of perineum done before and after delivery?
  - a) Yes
  - b) No
- 5) Was Episiotomy done?
  - a) Yes
  - b) No
- 6) Was oxytocin used?
  - a) Yes
  - b) No
- 7) If yes, when was it used during delivery?
  - a) Oxytocin was used for induction
  - b) Oxytocin was used for augmentation
- 8) Was assisted delivery done?
  - a) Yes
  - b) No
- 9) If yes, what was done?
  - a) Fundal pressure
  - b) Fundal pressure And vacuum extraction

- c) Vacuum extraction
- d) Intervention for shoulder dystocia
- e) Breech extraction done
- f) forceps delivery
- 10) What was parturient position?
  - a) Semi-recumbent
  - b) Lateral
  - c) upright sitting
  - d) lithotomy
  - e) squatting Other...
- 11) Had the delivering mother had Perineal oedema before delivery?
  - a) Yes
  - b) No

**E. Hospital Risk Factors**

Number of birth attendants per patient.....

**F. To Determine Presence of Complications of Perineal Tears in the Study Population**

- 1) Did the post delivery woman who had perineal tear experience Post Partum Hemorrhage?
  - a) Yes
  - b) No
- 2) Did the post delivery woman who had perineal tear experienced post partum perineal pain?
  - a) Yes
  - b) No
- 3) Did the post delivery woman who had perineal tear experienced fecal incontinence?
  - a) Yes
  - b) No
- 4) Did the post delivery woman who had perineal tear experienced involuntary escape of flatus?
  - a) Yes
  - b) No

**7.2 Appendix 2: DODOSO YA KISWAHILI.**

Dodoso namba \_\_\_\_\_

Tarehe \_\_\_\_\_

Jina la hospitali.....

**TAARIFA ZA MGONJWA;**

- 1) Wilaya .....
- 2) Umri.....
3. Kiwango cha elimu
  - a) Sina elimu rasmi
  - b) Elimu ya shule ya msingi
  - d) Elimu ya sekondari
  - c) Elimu ya chuo
4. Hali ya ndoa
  - a) Sina ndoa
  - b) Tunaishi pamoja bila ndoa rasmi.
  - c) Tumeachana.
  - d) Nina ndoa rasmi.
  - e) Mjane
5. Ajira
  - a) Biashara ndogo ndogo
  - b) Biashara kubwa
  - c) Kibarua
  - d) Mwanafunzi
  - e) Mama wa nyumbani
  - f) Muajiriwa
  - g) Mkulima



h)kazi nyingine.....

### 1.KUANGALIA KUTOKEA KWA KUCHANIKA MSAMBA

1. Je, msamba umechanika?

a) Ndio b) Hapana

2. Kamandio, kipi kiwangocha kuchanika msamba kilichotokea?

a) Digrii ya kwanza b) Digrii ya pili c) Digrii ya tatu  
c) Digrii ya nne

### 2.KUANGALIA VIASHILIO VYA KUCHANIKA MSAMBA

#### VIASHILIO VYA MAMA ANAYEJIFUNGUA;

1. Je, mama anayejifungua, ni mara ngapi alizowahi kuzaa?

a) 0 b) Amezaa mara moja na zaidi lakini chini ya mara tano c) Amezaa mara 5 na zaidi.

2.Asili ya mama anayejifungua?

a) Mwafrika b) Muasia c) Mzungu d) Muamerika

3.Je,mama anayejifungua anamakovu kwenye msamba?

a) Ndio b) Hapana

#### VIASHILIO VYA MTOTO;

1. Mtoto aliyezaliwa, alikuwa na umri gani kwa wiki akiwa tumboni?.....

2. Mtoto aliyezaliwaana ukubwa wa kichwa kiasi gani?

a) Chini ya sentimita 34 b) Sentimita 34 na zaidi

3. Mtoto aliyezaliwa ana uzito wa kiasi gani?

a) chini ya kilo 2.5 b) Kilo 2.5kg-3.99kg c) kilo 4 na zaidi

4.Mtoto ametanguliza nini wakati wa kuzaliwa?

a) Kisogo b) Matak/miguuc) Uso d) Utosi

5.Je,bega la mtoto lilikwama wakati wa kuzaliwa?

a) Ndio b) Hapana

#### VIASHILIO WAKATI WA KUJIFUNGUA;

1. Mudakiasi gani ulitumika kuanzia kuanza kwa uchungu mapaka kuzaa mtoto?

a) Masaa 3 na chini ya masaa 3 b) Masaa 6 na chini ya masaa 6 c) Zaidi ya masaa 6 na chini ya masaa14 d) Masaa 14 na chini ya masaa 20e) Masaa 20 na zaidi

2. Mudawa kusukuma mtoto wakati wa kujifungua ulikuwa mrefu kuliko kawaida?

a) Ndio b)Hapana

3. Msamba ulishikwa wakati wa kuzalishwa?

a) Wakati woteb) Sio wakati wote c) Haukushikwa

4.Msamba ulichunguzwa kabla na baada ya kujifungua?

a) Ndio b) Hapana

5. Njia iliongezwa wakati wa kuzalisha?

a) Ndio b) Hapana

6. Maji ya uchungu yalitumika?

a) Ndio b) Hapana

7. Kama ndio, yalitumika wakati gani?

a) Yalitumika kuanzaisha uchungu

b) Yalitumika kuongeza uchungu

8. Mama alisaidiwa kujifungua?

a) Ndio b) Hapana

9. Kama ndio,alisaidiwa kwa njia gani kujifungua?

a) Tumbo lilikandamizwa b) Tumbo lilikandamizwa na vakyumu ilitumika c) Vakyumu peke yake ilitumika d) Alisaidiwa kuzalishwa bega lililokwama e) Alisaidiwa kuzalishwa matak/miguu f) vyuma vidogo vya kuzalishia vilitumika

10. Mkaoupi ulitumiwa na mama wakati wa kujifungua?

a) Kujikunja ubavu b) Kulala ubavu c) Kukaa d) kulalia mgongo na kukunja miguu e)kuchuchumaa

11. Mama alikuwa amevimba msamba wakati wa kujifungua?

a) Ndio b. Hapana

### VIASHILIO VYA HOSPITALI WAKATI WA KUJIFUNGUA

Idadi ya wazalishaji kwa mgonjwa.....

### 3. KUANGALIA MADHARA YATOKANAYO NA KUCHANIKA KWA MSAMBA

1. Mama aliyejifungua na kuchanika msamba,je alitokwa na damu nyingi?

a) Ndio b) Hapana

2. Mama aliyejifungua na kuchanika msamba,je alipatamaumivu ya msamba baada ya kujifungua?

a) Ndio b) Hapana

3. Mama aliyejifungua na kuchanika msamba,je alitokwa na kinyesi bila kujua?

a) Ndio b) Hapana

4.Mama aliyejifungua na kuchanika msamba, je alitokwa na hewa kupitia njia ya kutolea kinyesi bila kujua?

a) Ndio b) Hapana

### 7.3 Appendix 3:consent form: English-Version

#### CONSENT FORM

#### TITLE: MAGNITUDE AND RISK FACTORS FOR PERINEAL TEARS IN WOMEN DELIVERING IN REGIONAL HOSPITALS IN DAR-ES -SALAAM FROM MAY TO JUNE 2019

I am Dr Neema Laurean Ntamanwa, a resident in department of Obstetrics and Gynaecology,at Hubert Kairuki Memorial University, i would like to conduct the study as fulfillment of my postgraduate degree.

#### PURPOSE OF THE STUDY

The purpose of this study is to determine magnitude and risk factors for perineal tears in women delivering in regional hospitals in Dar es salaam, that the information obtained from this study will recommend implementation on performance of perineal protection during delivery so as to prevent them from tears.

#### DESCRIPTION OF STUDY PROCEDURE

Patients who meet inclusion criteria will be recruited in this study. They will be interviewed by using questionnaire, which will include social demographic characteristics and risk factors for perineal tears and examination of perineum will be performed.

#### BENEFITS OF BEING IN THE STUDY

Results of this study will benefit the community in making strategies of preventing perineal tears from occurring in delivering women.

#### RISKS AND DISCOMFORTS OF BEING IN THIS STUDY

There is no health risk from participating in this study.

**CONFIDENTIALITY**

All the responses will be kept confidential and will be used for research purposes.

**RIGHT TO REFUSE OR WITHDRAW**

Participation in this study is voluntary, study participant is free to refuse to take part in the study or to withdraw at anytime without affecting or jeopardizing medical care.

**CONSENT**

I.....have read/been told of the contents of this study which is about getting the information on the magnitude and risk factors for perineal tears in women delivering in regional hospitals in Dar-Es –Salaam. I have understood all the information given by the investigator. I have been ensured that my information that i give will be kept confidential, hence i consent to participate in this study.

Signature of participant(patient).....Date.....  
Signature of investigator.....Date.....

**7.4 Appendix4 :fomu ya makubaliano**

**FOMU YA MAKUBALIANO YA KUSHIRIKI KATIKA UTAFITI, KATI YA MTAFIGI NA MSHIRIKI KATIKA UTAFITI**

Mimi naitwa daktari Neema Laurean Ntamanwa, mwanafunzi wa stashahada ya udamili wa magonjwa ya kinamama,kutoka idara ya kina mama,katika chuo cha Hubert Kairuki Memorial University.Napenda kufanya tafiti hii,ili kukamilisha mafunzo ya stashahada yangu.

**MADHUMUNI**

Tafiti hii inalenga kupata taarifa za ukubwa wa tatizo la kuchanika msamba wakati wa kijifungua na visababishi vya kupelekea kuchanika msamba wakati wa kujifungua kwa wanawake wanaojifungua kwenye hospitali za mikoa za rufaa zilizopo Dar es salaam.

**UTARATIBU UTAKAOTUMIKA KUKUSANYA TAARIFA**

Wale wote watakao kidhi vigezo wataingizwa kushiriki katika utafiti,wataulizwa maswali kutoka kwenye dodoso,uchunguzi wa msamba utafanyika kabla ya kujifungua na baada ya kujifungua.

**FAIDA**

Taarifa itakayopatikana katika tafiti hii itasaidia kupanga mkakati wa kuzuia kutokea kuchanika msamba wakati wa kujifungua.

**MADHARA KWA MSHIRIKI**

Hakuna kihatarishi cha afya kwenye hii tafiti kinachoweza kumpata mshiriki.

**USIRI**

Taarifa zote kutoka kwa washiriki zitachukuliwa na kuhifadhiwa kwa usiri.

**HAKI YA KUKATAA AU KUJITOA KATIKA TAFITI**

Mshiriki ana ridhaa ya kukataa kushiriki au kujitoa wakati wowote katika tafiti bila kuathirimatibabu yake.

**MAKUBALIANO**

Mimi.....nimesoma /nimeelezwa kuhusu tafiti hii, inayohusu kupata taarifa za ukubwa wa tatizo la kuchanika msamba wakati wa kijifungua na visababishi vya kupelekea kuchanika msamba wakati wa kujifungua kwa wanawake wanaojifungua kwenye hospitali za mikoa za rufaa zilizopo Dar Es Salaam.

Nimeelewa maelezo yote yaliyoelezwa na mtafiti husika.

Nimehakikishiwa usiri wa taarifa zangu.

Nimekubali kwa hiari yangu kushiriki kwenye tafiti hii.

Sahihi ya mshiriki wa tafiti(mgonjwa),.....Tarehe.....

Sahihi ya mtafiti,.....Tarehe.....

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