

**SEQUELA OF FEMALE GENITAL MUTILATION ON BIRTH OUTCOMES IN  
JIJIGA, SOMALI REGION, EASTERN ETHIOPIA: A PROSPECTIVE COHORT  
STUDY.**



BY

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A RESEARCH THESIS TO BE SUBMITTED TO JIMMA UNIVERSITY COLLAGE OF PUBLIC HEALTH & MEDICAL SCIENCES, DEPARTMENT OF EPIDEMIOLOGY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH (MPH) IN EPIDEMIOLOGY.

JUNE, 2014  
JIMMA, ETHIOPIA

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## ABSTRACT

**Background:** in Ethiopia female genital mutilation (FGM) remains a serious concern and has affected 23.8 million women and girls, with the highest prevalence in somali regional state. Even though fgm is reported to be associated with a range of obstetric complication, however in the region particularly in jijiga little is known about its effects on childbirth.

**Objective:** the objective of this study was to test the hypothesis that female genital mutilation is a contributing factor to the increased risk of complication during childbirth.

**Methods:** Facility based cohort study was employed on 142 exposed and 139 unexposed parturients from March 10-May 12, 2014. The study participants were recruited by convenience sampling technique. Data were collected using a structured interviewer administered questionnaire and observational checklists. After the data had been carefully checked, cleaned and edited, they were analyzed using SPSS (version 16) and STATA (version 11).

**Result:** - The existence of FGM was significantly associated with Perineal tear [RR=2.52 (95% CI 1.26-5.02)], Postpartum blood loss [RR=3.14 (95% CI 1.27-7.78)], Outlet obstruction [RR=1.83 (95% CI 1.19-2.79)] and Emergency caesarean section [RR=1.52 (95%CI 1.04-2.22)]. FGM type I and FGM type II did not demonstrate any association with prolonged 2<sup>nd</sup> stage of labor, Emergency caesarean section, postpartum blood loss, and APGAR score < 7. FGM type III however was significantly associated with prolonged 2<sup>nd</sup> stage of labor [RR=2.47(95% CI 1.06-5.76)], Emergency caesarean section [RR=3.60 (95% CI 1.65-7.86)], Postpartum blood loss [RR=6.37 (95% CI 2.11-19.20)] and APGAR score < 7[RR=4.41(95% CI, 1.84-10.60)]. FGM type II and type III were significantly associated with Perineal tear [RR=2.45(95%CI 1.03-5.83)], [RR=4.91(95% CI 2.46-9.77)] and Outlet obstruction [RR=2.38(95%CI 1.39-4.08)], [RR=2.94(95% CI 1.84-4.71)] respectively.

**Conclusion & Recommendation:** Women with FGM are significantly more likely than those without FGM to have adverse obstetric outcomes. Risks seem to be greater with more extensive form of FGM. This means that FGM is likely to be responsible for substantial numbers of additional causes of adverse obstetric outcomes. Adverse obstetric outcomes can therefore be added to the known harmful immediate and long-term effects of FGM. It should be eradicated for good health of the mothers in Ethiopia.

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## ACRONYMS

APGAR	Appearance Pulse Grimace Activity and Respiration
CI	Confidence interval
CPD	Cephalopelvic disproportion
CSA	Central Statistical Authority
DHS	Demographic and Health Survey
EDHS	Ethiopian Demographic and Health Survey
FC	Female Circumcision
FGC	Female Genital Cutting
FGM	Female Genital Mutilation
ICPD	International Conference on Population and Development
MDG	Millennium Development Goal
MUAC	Mean Upper Arm Circumference
RR	Relative Risk
SNRS	Somali National Regional State
SSA	Sub-Saharan Africa
UN	United Nations
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICE	United Nations International Children's Education Fund
WCBA	Women of Child Bearing Age
WCRWC	Women's Commission for Refugee Women and Children
WHO	World Health Organization

# CHAPTER 1: INTRODUCTION

## 1.1 Background

Sex-based health disparities are evident throughout the world; however, nowhere are these disparities greater than in resource-poor countries. Women in developing nations face life-debilitating and life-threatening health issues. Female genital mutilation (FGM) is one of the issues that plague developing nations (1). Women suffer from FGM as young children from the operation, at the time of their marriage as adults and later during their child delivery. Female genital mutilation has detrimental effects on the physical and psychological health of the infants, girl-children and women operated (2).

Female genital mutilation is the collective name given to several different traditional practices that involve the cutting of female genitals (3). The term Female genital mutilation (FGM) also called 'Female genital cutting (FGC) or female circumcision' refers to any surgical modification of the female genitalia, comprising all procedures involving partial or total removal of the external female genitalia or other injury to the female genital organs for cultural or non therapeutic reasons (4). Although FGM is not undertaken with the intention of inflicting harm, its damaging physical, sexual, and psychological effects make it an act of violence against women and children (3). FGM differs from most forms of violence against girls and women in that women are not only the victims but also involved in perpetration and is promoted as a highly valued cultural practice and social norm (5).

There are several forms of FGM and these differ from community to community (6). The most recent World Health Organization (WHO) classification from 2008 divides FGM into four types namely: type I, partial or total removal of the clitoris and/or the prepuce (clitoridectomy); type II, partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora (excision); type III, the removal of labia minora and/or labia majora, with or without excision of the clitoris and stitching and/or narrowing of the vaginal opening leaving a small hole for urine and menstrual flow (Infibulation); and type IV, all other harmful procedures done to the female genitalia for nonmedical purposes, for example: pricking, piercing, incising, scraping and cauterization (7).

Type I and Type II are the two most common forms of FGM practiced among Ethiopian women and girls, Type II being the most common. Type III, the most drastic and harmful form, is common among the Afar, the Somali and the Harari. Type IV (referred to as "Mariam Girz" in Ethiopia) is practiced mainly in the Amhara region. These practices cross religious boundaries, including Christians, Muslims and Ethiopian Jews (Falashas) (8).

FGM is performed on girls aged 4–12 years and in some cultures as early as a few days after birth or as late as just before marriage (3, 9). Six to ten years is a commonly selected age. The procedure is often performed in poor light, without anesthesia and using blades, knives, broken glass or non-surgical instruments that are often shared. Following more extensive forms of FGM, the legs may be tied together for many days to aid healing (9).

The practice is underpinned by a variety of beliefs promoting it for perceived health and hygiene benefits, religious, traditional or gender-related reasons. The reasons given by communities who practice it vary widely but a common reason given for the practice is that it reduces the sexual desire of girls and women, promotes virginity and chastity, maintains fidelity and is done for aesthetic reasons (6, 10). Most importantly, girls who have not undergone one of the procedures are considered more likely to be promiscuous and, therefore, unworthy of marriage. The belief also exists that external female genitals are unclean. Some use religion as the basis for their justification in performing these procedures, despite the fact they are not required by either the Quran or the Bible (8). A choice to leave the girl uncut is often met with strong opposition from the community as it is a deeply entrenched tradition within social, economic and political structures (6).

## **1.2. Statement of the problem**

Female genital mutilation is a violation of a person's right to the highest attainable standard of health. The practice violates a series of well established human rights principles, norms and standards, including the principles of equality and non-discrimination on the basis of sex, the right to life when the procedure results in death, and the right to freedom from torture or cruel, inhuman or degrading treatment or punishment. As it interferes with healthy genital tissue in the absence of medical necessity and can lead to severe consequences for a woman's physical and mental health (7).

According to the World Health Organization estimates, between 100 and 140 million women and girls in the world have been subjected to some form FGM. It is primarily practiced in 28 African countries and in a few countries in Asia and the Middle East (7). Recent analysis reveals that some three million girls and women are cut each year on the African continent (SSA, Egypt and Sudan). Of these, nearly half are from two countries: Egypt and Ethiopia (11).

In Ethiopia it affects 23.8 million women and girls, making it the second highest country in Africa by affected numbers with the highest adoption being in Afar region (91.6%), Dire Dawa (92.3%) and Somali region 97.3% (12). Although the achievement so far has not been as desired, Ethiopia has made an important progress towards the reduction of FGM. According to the 2000 and 2005 Demographic and Health Survey (DHS) reports of Ethiopia, the prevalence rates for FGM were found to be 80% and 74%, respectively(13-14) , indicating that the practice is deep-rooted and declining slowly.

FGM has no any health benefits rather it poses a devastating physical and mental health consequences (12). One of the major problems related to FGM is the difficulty experienced during child birth (2). Although practices vary from country to country, it is generally done in girls younger than 10 years and leads to varying amounts of scar formation (15). As a result the vaginal canal loses its elasticity, preventing the normal and gradual dilation of the vagina as well as the descent of the presenting part of the child during the second stage of labor (16). If the vaginal opening is narrow, the mother's labor will be prolonged and delayed which may be fatal to both mother and foetus. In case of obstructed labor the head is forced to press on the scar which may lead to arrest labor, rupture of the scar or uterine rupture, tearing of the vulva and perineum (2).

It is very important that this aspect is not ignored when discussing the problem of maternal mortality in Africa (17). In industrialized countries, maternal deaths owing to childbirth are rare. But in Africa especially in Sub-Saharan Africa (18) including Ethiopia (19) childbirth complications remain the most frequent cause of maternal deaths (20). The risk of dying during childbirth increases greatly for both the mother and the infant if the mother has been genitally mutilated (17).

The consequences can be even more severe challenge in resource poor locations with few births attended by skilled health personnel in hospital settings (21). The high incidence of postpartum haemorrhage, a life-threatening condition, is of particular concern where health services are weak or women cannot easily access them (18). However the causal connection of FGM to child birth related health complication is not commonly known amongst FGM practicing communities. There is thus a clear need for research findings to be communicated not only in international settings but also at national and local level to raise awareness of the serious health consequences connected with it (21).

Therefore, this study is intended to contribute in narrowing the information gap and provide evidence-based information on the effect of female genital mutilation on birth complication among mothers who gave birth in karamara and Dire hospital, jijiga, Eastern Ethiopia.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1. Obstetric complications in the presence of FGM**

All types of female genital mutilation involve removal or damage to the normal functioning of the external female genitalia (22). The removal of or damage to healthy, normal genital tissue interferes with the natural functioning of the body and causes several immediate and long-term health consequences. Complication during childbirth is one of the long-term health consequences (23). A retrospective case control study undertaken to assess the effects of female genital mutilation on birth outcomes in Switzerland showed that in FGM patients, emergency CS and third-degree tears occurred significantly more often than in controls (24).

A prospective cohort study done in Kuwait revealed that among women experiencing FGM, 40% had an extended maternal hospital stay. There was a positive association between such women and prolonged labor, cesarean section and post-partum hemorrhage. The study also identified that Women admitted from remote villages that had traveled long hours in labor were more prone to complications such as prolonged or obstructed labor, and neonatal death (25).

Another case control study conducted in Burkina Faso showed that most of women with the practice had longer expulsion phase than those without it as a result intravenous oxytocin injection was higher in cases. Overall FGM were found to be associated with a higher incidence of cesarean section and episiotomy (26).

Study conducted in northern Ghana to assess trends in the Prevalence of Female Genital Mutilation and its effect on delivery outcomes showed that female genital mutilation was associated with 8.2% caesarean section rate compared with 6.7% in mothers without FGM. However this study is limited because it is based on secondary data, in addition to this some important obstetric outcomes are not considered (27).

In many studies it is reported that a need for episiotomy, and other obstetrical complications was linked to the degree of mutilation. A cross-sectional study conducted in Burkina Faso showed that the existence of FGM has statistically increased the proportion of cesarean section, episiotomy perineal tears and postpartum hemorrhage. Women with FGM Type 2 and 3 were more prone to obstructed labor and cesarean delivery than those with FGM Type 1 (28).

A large scale WHO collaborative study in six African countries, in which over 28,000 women participated, reported that women who had undergone FGM had a significantly increased risk of adverse events during childbirth. Higher incidences of caesarean section, episiotomy post-partum hemorrhage and inpatient perinatal death were found in the women with Type I, II and III FGM compared to uncut women and the risk increased with the severity of the procedure. Women with FGM II and FGM III were significantly more likely to have a caesarean section and postpartum blood loss of 500 mL or greater than were women who had not had FGM. Among primiparous women, the proportion having episiotomies ranged from 41% in women without FGM to 88% in those with FGM III; in multiparous women, the proportions were 14% and 61%, respectively (15).

Another institution based cross-sectional study which was conducted by Adriana K et al, in Gambia in 2010/11 found that 11.7% of the group that had not undergone FGM, 39.0% of those with type I and 65.9% of those with type II FGM had obstetric complications. Particularly the rates of perineal tear, need for episiotomy and prolonged labor were significantly increased in women who had under-gone type I or II FGM. Although the need for cesarean section was low in all groups, it was significantly higher for those with FGM type III. Complication rates in newborns were 5.3% for mothers who had not undergone FGM, 15.6% for mothers with type I and 37.8% for mothers with type II FGM (29).

A study conducted in Burkina Faso and Mali on FGM and its negative health outcomes also showed that uncut women were significantly less likely to have an observed complication during delivery than were cut women. Moreover, the likelihood of experiencing a difficulty during delivery increased with the severity of cutting: 5% of women without a cut experienced a difficulty, compared with 18% of women who had undergone type 1 cutting, 30% of women with type 2, and 36 percent of women with type 3 (30).

Unfortunately most studies conducted in Ethiopia were on prevalence and epidemiology of the practice and it was not possible to get a single study related with birth complications. Moreover, there is no citation of such studies in Ethiopia in the systematic review of the health complications of FGM done by the department of women's health of the WHO.

## **2.2. Other Risk factors of birth complication**

### **2.2.1. Socio demographic and economic factors**

Cross sectional study conducted in Indi to assess the influence of socio demographic and economic factors on birth complication showed that illiterate women were six times more likely to experience delivery complication (78.1%) than women who completed higher secondary and above education (14%). This study also discloses that women who experienced delivery complication had a positive relationship with their occupational status. In addition age, and religion were also significantly associated with delivery complications (31).

A review performed on 12,463 obstetric records in 2006 from six hospitals located in southwestern Uganda revealed that the risk of obstructed labor in the age group of 15-19 years of age was 43% significantly higher than that of the reference age group of 20-29 years. Nulliparous women and women who had given birth once before had 52-53% higher statistical significant risk of obstructed labor than the reference parity group of 2-4, while in grand multiparous women the risk was 32% higher than the reference group (32).

### **2.2.2. Maternal factors**

A study conducted in an inner-city tertiary maternity hospital in Lagos, Nigeria showed that Emergency caesarean section rate was highest among women living in rented accommodation (96%) and those who did not attend antenatal clinics for their current delivery (53.1%). More than half (54.2%) of mothers who had emergency caesarean section were primiparous. A 33.5% from the total study population had at least one medical indication for caesarean section and (87.6%) of this group had caesarean section. Previous caesarean section and prolonged/obstructed labor were the commonest maternal obstetric indication. Maternal age, parity and all obstetric factors including lack of antenatal care and multiple gestations were associated with increased risk of emergency caesarean delivery compared with vaginal delivery (33).

Another study conducted in Kenya showed that the magnitude of unfavorable birth outcomes were significantly higher for first births than for higher order births. Furthermore, frequency of antenatal care visits is observed to have a negative association with the incidence of premature births. Short maternal stature is reported as a significant risk factor for Caesarean section deliveries. The observed higher odds of Caesarean section deliveries among women from



households of high socioeconomic status are attributed to the expected association between socioeconomic status and the use of appropriate maternal health care services (34).

### **2.2.3. Health service related factors**

Many Pregnant women in rural areas have to walk long distances to access antenatal services. A recent study showed that distance to health care facility (25) and number of ANC visits were significantly associated with delivery complications. The study reported that the women residing within one Km radius of health care centers experienced less delivery complication (47.4%) whereas this proportion was 50% for women residing four Km away from health care centers. The number of antenatal care (ANC) visit during pregnancy period and the incidence of child delivery complication were positively related. The result reveals that the women who visited health care centre for ANC more than six times experienced less delivery complication (32.2%) while delivery, whereas this proportion was 52.6% for women who visited two or less times to the health care centers during their pregnancy period (32).

### 2.3. Conceptual framework

Birth complication, the outcome variable can be come about by numerous inter-related factors or independent variable. This group of independent variable includes socio demographic & economic factors, reproductive, medical factors, institutional factors, health service factor and Female genital mutilation. Figure 1 depicts the relationships between these factors and birth complication.

**Female genital mutilation:** - The genital area of mutilated women becomes too rigid, scarred and thought, it prevents the normal and gradual dilation of the vagina as well as the descent of the presenting part of the child as a result it can lead to ranges of birth complications.

**Socio demographic & economic factors:-** The general socioeconomic status of mothers, has an impact on birth outcome. Lack of education and income can contribute to delays in seeking care during pregnancy. Poor mothers are at high risk of developing delivery related complications. Maternal age has also an impact on increasing the risk of complication, thus parturients below 18 years and older than 35 years are more likely to have complications. The socio demographic factors, age, religion, educational status, occupational status and income can also affect birth outcome indirectly through influencing reproductive factors (parity gravidity and maternal health status).

**Reproductive history & medical factors:** The risk of complication in childbirth is influenced by reproductive histories of the mother. The higher the number of gravidity and parity, the greater the risk of delivery related complication. Bad obstetric history can be also being indication for current complication. In other round parturients with height of <150 Cm are at risk of developing a negative birth outcomes due to CPD. Likewise the current maternal health condition such as presence of diabetics and hypertension can also result in complication. Reproductive history & medical factors is also influenced by maternal Age, Religion, Income and Educational status.

**Institutional factors:** The distance travelled by pregnant women to reach to the health institutions influences birth outcome directly or indirectly. Pregnant women who traveled a long distance through labor may become at risk of complication. It can also affect birth outcome through influencing ANC visit. This is because of women who reside in short distance is more likely to have better ANC follow up than a women from long distance. This factor is also influenced by maternal residence.

**Health service factor:** - Most of the obstetric complications cannot be predicted but can be prevented and treated if women have access to appropriate ANC follow up. Therefore lack or limited number of ANC visit can influence birth outcome. Health service factor is also influenced by the Socio demographic & economic factors such as income, educational status and place of residence.

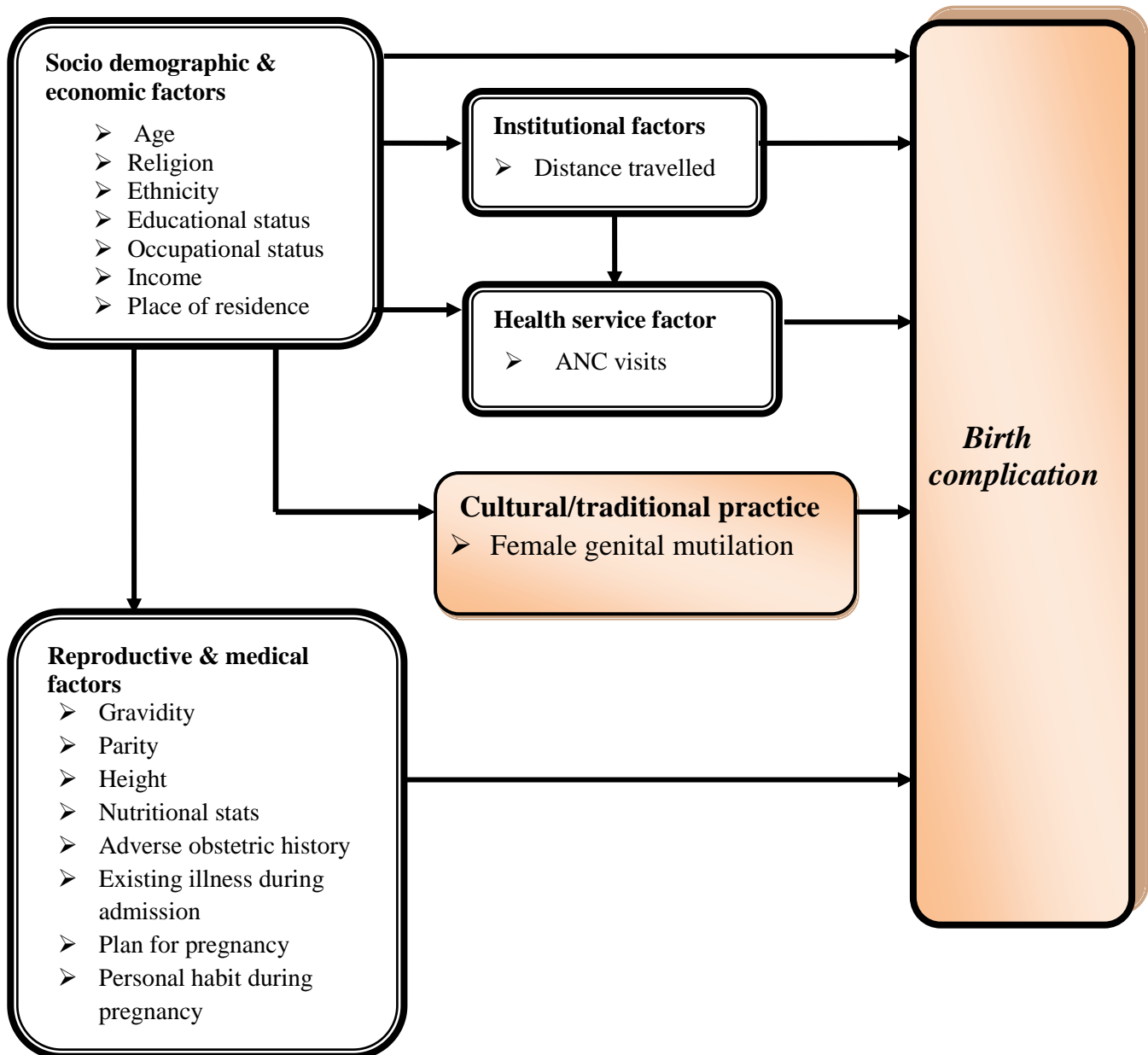


Figure 1: Conceptual framework showing the proposed relationship between the dependent and independent variables.

## **2.4. Significance of the Study**

Despite widespread condemnation of its practice and longstanding campaigns and legislation to eradicate it, in the Somali regional state the prevalence of FGM is exceedingly high. As it is reported in various studies FGM is associated with obstetric complications during childbirth. In the region, however, little is known about the effects of FGM on childbirth. While there are some reasonable reports on the magnitude of FGM in the reproductive aged group of women of the region, still there is a gap of information in the adverse obstetric outcomes. This study goes further in trying to identify the possible birth outcomes associated with FGM. It therefore attempts to fill information gap that exists in the effects of FGM on childbirth.

Hence, this study is expected to demonstrate the ill-health effect of FGM among women of the region, so that by providing area-specific information for decision-makers; it will help in breaking the mute consensus that prevailed in the region. At the same time, it will also remind health planners of the region to visualize the problem in terms of its significant lifelong negative health impacts and special health care needs of victims. The study will also be a contribution, however small, to fill the scarcity of such studies in the country.

## **CHAPTER 3: OBJECTIVE**

### **3.1 General objective**

- To determine the effect of female genital mutilation on birth outcome among parturients in Jijiga town, Somali Region, Eastern Ethiopia

### **3.2 Specific objectives**

- To determine if the risk of birth complications in parturients with FGM differed from those non-mutilated women.
- To determine the risk difference of birth complications between types of FGM
- To assess other risk factor of birth complication

## **CHAPTER 4: METHODS AND MATERIALS**

### **4.1 Study area and period**

The study was conducted at Karamara and Dire hospitals, found in Jijiga town. Jijiga is capital of the Somali National Regional State which is located at 628 Kms east of Addis Ababa in Jijiga zone, one of the nine administrative zones of the region. The town is located on the main road between Harar and the Somali city of Hargeisa, and has an elevation of 1,609 meters above sea level with semi-arid climate. There is one public hospital (Karamara) and one private hospital (Dire), two health center, one maternal & child health (MCH) clinic, and around thirty higher and medium clinics, one university, two high school, and 10 elementary schools. Based on population projection 2007 in to 2013/14 the population of Jijiga town is estimated to be 125,876 from which male accounts 67,125 while female are 58,748. This study was carried out from March 10 to May 12, 2014.

### **4.2 Study Design**

Facility based prospective cohort study design was employed.

### **4.3 Population**

#### **4.3.1 Source population**

All pregnant women visiting Dire and Karamara hospital for delivery services

#### **4.3.2. Study population**

**Exposed:** - parturients in Dire and Karamara hospital during the study period and underwent FGM

**Unexposed:** - parturients in Dire and Karamara hospital during the study period and don't underwent FGM.

### **4.4. Inclusion and Exclusion criteria**

#### **4.4.1. Inclusion criteria**

Gestational age of 37-42 weeks, singleton delivery and those who give consent to participate were included in the study

#### **4.4.2. Exclusion criteria**

Women who were appointed for elective caesarean section:- in such type of women there is no antepartum examination of the external genitalia therefore it would be difficult to identify her FGM status so they were excluded from the study.

Women arriving in the second stage of labor: - If the women arrived in the second stage of labor since the starting time is unknown it is difficult to measure the duration of this stage.

Parturients with foetal mal-presentation were also excluded.

### **4.5. Sample size determination and sampling technique**

#### **4.5.1 Sample size determination**

Sample size was calculated by using Epi info Version 7 software, assuming 95% confidence level, 80% power and the proportion of having prolonged 2<sup>nd</sup> stage labor among unexposed to be 8.6% and exposed to be 21.6% (29) with ratio of 1:1 and 10% non response rate. This gives total sample size of 292 study subjects (146 parturients in each group)

#### **4.5.2 Sampling technique**

The study subjects were identified by using consecutive sampling technique. Until the computed sample reached, all women who came to hospital for delivery and who was volunteer to participate in the study were recruited as study participants.

### **4.6. Data collection instrument and procedure**

#### **4.6.1. Data collection instrument**

Different data collection tools were used to collect information related with the objectives of the study. Structured interviewer guided questionnaire and checklists for clinical examination was employed as data collection tools.

##### ***4.6.1.1 Questionnaire***

An interviewer guided structured questionnaire was developed after reviewing different relevant literatures of similar studies (15, 27-28, 31). The questionnaire had questions about women's socio-demographic characteristics and obstetric and medical histories.

#### **4.6.1.2 Checklists**

Observational checklist was developed by adopting the WHO FGM classification system to identify and categorize women's status of FGM and the type of FGM she had respectively. In addition the checklist was also employed to collect information on the type of birth complication a women had.

#### **4.6.2 Study Variables**

##### ***Dependent variable***

**Birth complication:-**(Prolonged second stage of labor, outlet obstruction, Perineal tear, Postpartum blood loss, Emergency caesarean section, APGAR score and Stillbirth)

##### ***Independent Variables***

- **Female genital mutilation**
- Age
- Religion
- Ethnicity
- Income
- Education
- Occupation
- Residence
- Marital status
- Distance traveled
- Adverse obstetric history
- Parity
- Gravidity
- ANC visit
- Existing illness during admission
- Height
- Nutritional status (MUAC)
- Birth weight
- Plan for pregnancy
- Life-style/personal habits during pregnancy

#### **4.6.3. Data collection procedure**

Women who presented for singleton delivery at karamara and Dire hospital, between March 10 and May 12, 2014, and gave consent to participate, were identified as study subjects. Then information concerning their Socio demographic and economic characteristics, reproductive and medical histories was collected through pre-tested interviewer administered questioner from each study participants. Participating women had an antepartum examination of the external genitalia by a trained study midwife to ascertain whether or not they had had FGM, and if so, which type they had undergone. Women's FGM status was defined according to the finding at examination of the external genitalia and classified according to the WHO classification system. Women's nutritional status was measured by using MUAC tape. Women were then followed up until delivery for details of delivery and data on adverse obstetric outcome was collected at the end of



delivery by using checklists. A woman was defined as having birth complication if it is reported by the birth attendants.

#### **4.6.4. Data collector**

Eight diploma graduated midwives (birth attendants) as data collectors and two BSc midwives for supervision were recruited and participated throughout the data collection time.

#### **4.7. Data processing & analysis**

After data collection, each questionnaire were checked for completeness, inconsistencies, cleaned then coded and entered in to SPSS for windows version 16.0 and they were analyzed using SPSS version 16.0 and STATA (version 11). Descriptive statistics like frequency tables, graphs and descriptive summaries was carried out to describe the study variables. The differences in the proportion of the characteristics of exposed and non-exposed were compared using chi-square test. Bivariate analysis was done to test the association between the independent and the outcome variables. A P-value of  $<0.25$  was used to select candidates for the multivariate analysis.

Then, to control the confounding effect of other variables and to determine independent predictors of birth complication, multivariable log-binomial regression analysis was carried out by taking significant variables in the bivariate analysis. The risks of independent variables on adverse birth outcome were assessed using the risk ratio as the measure of effect. Estimates, together with corresponding 95% confidence interval of the estimates were computed. Statistical significance was declared at  $P<0.05$ .

#### **4.8. Data quality management**

To assure quality of data, the questionnaire was prepared in English and two BSC midwives with good language ability of English and Somali translate the English version to Somali. The translated Somali version of the questionnaire was also translated back to English by two other BSC midwives looking for a possible gap in the contents of the original and the second translated versions. The same procedure was followed to develop the Amharic version of the questionnaire. Based on the exercise, wording and ways of questioning to avoid vagueness was modified. In addition detail training for data collectors and supervisor was given for one day by the principal investigator. Furthermore, the principal investigator and supervisor were making frequent checks on the data collection process to ensure the completeness & consistency of the gathered

information. Any error, ambiguity, incompleteness encountered was addressed on the following day before starting next day activities.

### **Pre-test**

Pre-testing of the developed structured questionnaire was done on 5% of the total sample size in Degehabur hospital, which is located in Degehabur town 153 Km northwest of Jijiga. It shares similar geographic, economic, cultural and socio-demographic characteristics with Jijiga town. During pre-testing the questionnaire was assessed for its clarity, understandability, length and completeness.

### **4.9. Ethical consideration**

The technical proposal of this study was presented to the ethical review committee of Jimma University, collage of public health and Medical sciences through department of Epidemiology. After reviewed and approved by the committee, official letters was written to the respective Somali National Regional Health Bureau. The bureau also writes formal letters to the Karamara Hospital administrative explaining the relevance of the study to allow its implementation. Then, data collection was started after getting written consent from the Hospital administrative. Informed verbal consent of subjects to participate in the study was secured before conducting the interview. This was done with a page of consent letter attached to the cover of the questionnaire which stated the general purpose of the study, the need and benefits of conducting the study, and issues of confidentiality (Annex1). The interviewers briefly discussed the contents of the consent letter before proceeding to the interview. Confidentiality was kept at each step of data collection and processing. The participants were assured that they have full right to participate or withdraw from the study at any time they want to.

### **4.10. Dissemination plan**

Findings of the study will be submitted and presented to department of Epidemiology College of public health and medical science of Jimma University. The results of the study will also be disseminated to Somali Regional Health Bureau, Dera and Karamara Hospital, Somali Region woman's affair office, Jijiga Woreda Health office and different NGOs. Publication on peer reviewed journals will also be considered

### **4.11. Operational definitions**

**Distance travelled:** - this is the distance of the health facility from the house of the respondents and estimated by the amount of time taken by the respondents to walk to the health facility.

**Existing illness during admission:** it refers to any illness that pregnant women had and that can negatively affect the birth outcome.

**Adverse obstetric history:** refers to the occurrence of abortion or stillbirth in the previous time

**Birth complication** is defined as a condition that adversely affects women's and their foetal health during delivery.

**Outlet obstruction:** This is a situation whereby with a fully dilated cervix, the head has descended to the outlet but cannot be delivered without surgical intervention.

**Prolonged second stage of labor:** defined as the duration of second stage of labor that exceeds two hours in primigravida and one hour in multigravida.

**Postpartum hemorrhage:** This is defined as blood loss greater than 500 mls in a vaginal delivery and greater than 1000 mls in a caesarean delivery.

Estimation of blood loss:- A large sized kidney dish full of blood is equal to 1000 mls, while the medium sized one is 500 mls and the smallest one 250 mls.

**Emergency caesarean section:** refers to operations prompted by a diagnosis of fetal distress, vaginal bleeding, premature rupture of membrane, antepartum hemorrhage or hypertensive conditions.

**Perineal tears:** - is defined as damage to the superficial vaginal epithelium and/or deeper muscles tissue during delivery.

**Apgar score:-**This is immediate evaluation of the newborn infant at 5 minutes after birth.

- The infant with Apgar score 7 — 10 is regarded as being in the best condition. He/she is vigorous, pink and crying.
- The infant with Apgar score <7 is regarded as being depressed appears cyanotic with slow and irregular respiration and has slow heart rate less than 100 beats/minute.

## CHAPTER 5: RESULT

### 5.1. Socio-demographic characteristics

Data were collected from a total of 292 parturients with a response rate of 100%. However eleven cases were not included in the analysis because it was not clear whether or not they had undergone the practice or which type of FGM had been performed. Therefore, the final sample size was 281, 142 parturients with FGM and 139 parturients without FGM.

For the two groups of parturients, a number of Socio-demographic characteristics, including age, ethnicity, Religion, place of residence, occupation, income, educational level and maternal height were recorded. The mean age was 25.4 years (SD 5.69) and 26.1years (SD 4.86) among parturients with and without FGM respectively. As shown in Table 1, there was a statistically significant difference in the age distribution between exposed and non-exposed parturients ( $P = 0.048$ ). The exposed group had a greater proportion of mothers aged 20 years and below compared to the non-exposed group (26.1% versus 12.9%  $p=0.046$ ). The FGM group was also significantly different from the non-FGM group in terms of having high proportion of Muslim parturients (88.7 % versus 59 %,  $P<0.001$ ) and Somali ethnic group (72.5% versus 40.3%,  $p=<0.001$ ) The Somali ethnic group had a higher frequency of FGM (72.5%) followed by the Oromo and Amara who accounted for 13.4% and 9.2% respectively.

There was however, no significant difference in the two groups in terms of level of education ( $P=0.074$ ), Occupational status ( $P=0.588$ ) Monthly family income ( $P=0.507$ ), place of residence ( $P=0.343$ ) and maternal height ( $P=0.063$ ).

Table 1: Socio-demographic and economic characteristics of parturients in Karamara and Dire hospital, Jijiga, Eastern Ethiopia, March 10- May 12, 2014.

Variable	Category	Non-exposed (n-139)	Exposed(n-142)	P-value
		Number (%)	Number (%)	
<b>Age (years)</b>	<20	18(12.9)	37(26.1)	0.048
	20-24	36 (25.9)	28(19.7)	
	25-29	53(38.1)	48(33.80)	
	≥ 30	32(23.0)	29(20.4)	
	Mean (SD)	26.15(4.86)	25.40(5.69)	
<b>Religion</b>	Muslim	82(59)	126(88.7)	<0.001
	Orthodox	53(38.1)	13 (9.2)	
	Protestant	4(2.9)	3(2.1)	
<b>Ethnicity</b>	Somali	56 (40.3)	103(72.5)	<0.001
	Amhara	41 (29.5)	13(9.2)	
	Oromo	31(22.3)	19(13.4)	
	Others*	11(7.9)	7(4.9)	
<b>Education status</b>	No formal education	98(70.5)	105(73.9)	0.074
	primary	20(14.4)	17(12)	
	Secondary & above	21(15.1)	20(14.1)	
<b>Occupation</b>	Housewife	87(62.6)	83(58.9)	0.788
	Student	8(5.8)	12(8.5)	
	Daily Laborer	6(4.3)	10(7.1)	
	Merchant	14(10.1)	18(12.8)	
	Government employee	12(8.6)	11(7.8)	
	Private employee	12(8.6)	7(5)	
<b>Income</b>	<500	21(15.4)	23(16.2)	0.507
	500-999	42(30.9)	33(23.2)	
	1000-1499	29(21.3)	31(21.8)	
	≥ 1500	44(32.4)	55(38.7)	
<b>Residence</b>	Urban	120(87.6)	121(85.2)	0.343
	Rural	17(12.4)	21(14.8)	
<b>Height(cm)</b>	≤150	7(5)	13(9.2)	0.063
	>150	132(95)	128(90.8)	

\*Tigre, Garage and Hareri

Among women with FGM, 37(26.25%), 45(31.69%), and 60 (42.25%) had type I type, II and type III FGM respectively. There were no parturients with type IV of FGM (Figure1).

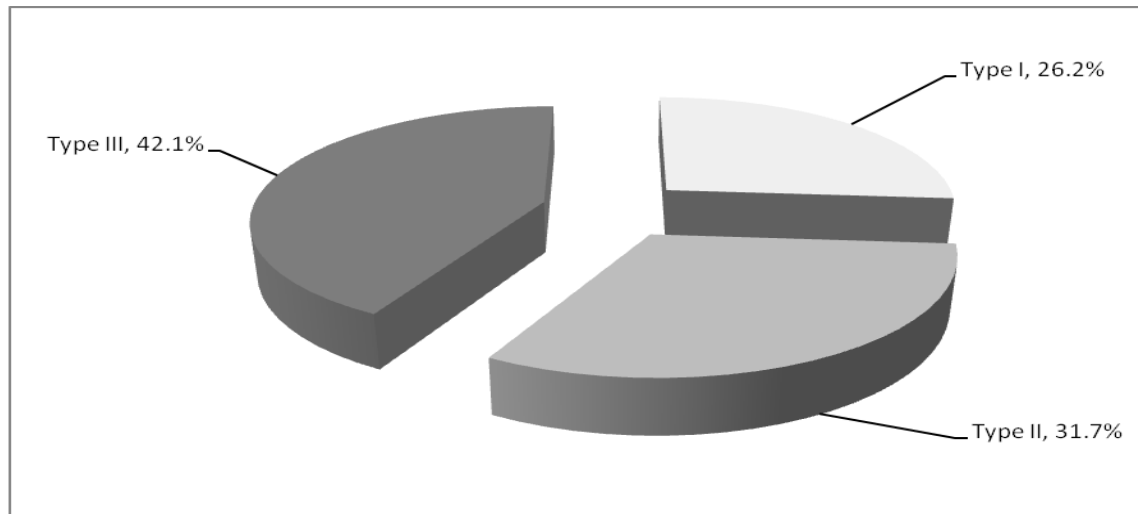


Figure 2:-Proportion (%) of genital cutting seen among exposed parturients in karamara and Dire hospital Jijiga, Eastern Ethiopia, March 10-May 12, 2014.

## 5.2 Past obstetric history of the study participants

There was a statistically significant difference in the distribution of parity between the two groups ( $p = <0.001$ ). The mean number of live birth (parity) for FGM and non-FGM group were 1.91(SD 0.71) and 1.71 (SD 0.82) respectively. Nulliparous was observed more in the FGM (52.8%) than in non-FGM (30.2%). Highest proportion (62.6%) of non-FGM groups had parity of 1-3 than the FGM groups which is (39.4%).

Regarding to the distribution of respondents gravidity, there was a statistically significant difference between the two groups ( $p=0.002$ ). The mutilated mothers had a higher mean gravidity compared with for the non-mutilated ( $1.91 \pm 0.71$  versus  $1.71 \pm 0.82$ ). In the non-FGM group, Primigravid had the largest proportion of the study participants (47.5%), whereas in the FGM group, multigravida had the largest proportion (66.2%). Although both FGM and non-FGM group had less occurrence of still birth on their life time, a slightly higher proportion of women in the FGM group 13(9.2%) had history of stillbirth than that of non-FGM 7(5%). There was however, no significant difference in the both groups in terms of the respondents history of abortion ( $P=0.133$ ) and still birth ( $P=0.505$ )

Table 2:-Past obstetric history of parturients in Karamara and Dire hospital, Jijiga, Eastern Ethiopia, March 10-May 12, 2014.

Variable	Category	Unexposed (N= 139 )	Exposed(N= 142)	p-value
		Number (%)	Number (%)	
<b>Gravidity</b>	Primigravid	37(26.6)	67(47.5)	0.002
	2-4	92(66.2)	61(43.3)	
	≥ 5	10(7.2)	13(9.2)	
	Mean (SD)	1.91(0.71)	1.71(0.82)	
<b>Parity</b>	Nulliparous	42(30.2)	75(52.8)	<0.001
	1-3	87(62.6)	56(39.4)	
	≥ 4	10(7.2)	11(7.7)	
	Mean (SD)	1.31(1.35)	1.07(1.70)	
<b>History of abortion</b>	Yes	6(4.3)	7(5)	0.133
	No	133(95.7)	133(95)	
<b>History of still birth</b>	Yes	7(5)	13(9.2)	0.505
	No	132(95)	129(90.8)	

### 5.3. History of current pregnancy

In terms of reproductive health characteristics, the booking status was significantly different between the two groups of mothers, with a majority of the FGM group (53.5%) not obtaining antenatal care services compared with the non-FGM (30.2%)  $P = <0.001$ . There was no significant difference in the Plan for Pregnancy ( $P=0.348$ ), illness during admission (0.515) Mid-upper arm circumference ( $P=0.435$ ) and in the distance traveled to reach to the hospital.

Data on alcohol consumption and smoking status of the respondents were collected but since 100% of both exposed and unexposed were non-users, test of association with birth complication could not be employed.

Table 3:-History of current pregnancy of parturients in Karamara and Dire hospital, Jijiga, Eastern Ethiopia, March 10-May 12, 2014.

Variable	Category	Unexposed(n-139 )	Exposed(n-142)	P-value
		Number (%)	Number (%)	
<b>Plan for Pregnancy</b>	Yes	111(79.9)	117(82.4)	0.348
	No	28(20.1)	25(17.6)	
<b>Number of ANC visits</b>	None	42(30.2)	76(53.5)	<0.001
	1-3	85(61.2)	56(38.7)	
	≥ 4	12(8.6)	11(7.7)	
<b>Illness during admission</b>	Yes	4(2.9)	5(3.5)	0.515
	No	135(97.1)	137(96.5)	
<b>MUAC (cm)</b>	<21	45(32.6)	44(31)	0.435
	≥ 21	93(67.4)	98(69)	
<b>Distance traveled (Mints)</b>	≤ 60	111(81)	116(81.7)	0.504
	> 60	26(19)	26(18.3)	

#### 5.4. Frequency of birth complications

The findings of the study implicated that almost all of the complications observed were more prominent in the exposed parturients than the non-exposed. In the exposed group the proportion of obstructed labor, perineal tear and Postpartum blood loss was (35.2%), (23.4%) & (10.6%), whereas in the non-exposed it was (14.4%), (7.2%) and (3.8%) respectively. At the same time the frequency of prolonged second stage of labor was slightly higher in exposed (12.4%) than non-exposed (7.1%). The frequency of still birth were 3(2.2%) in non-exposed and 6(4.2%) in exposed (Figure 3).



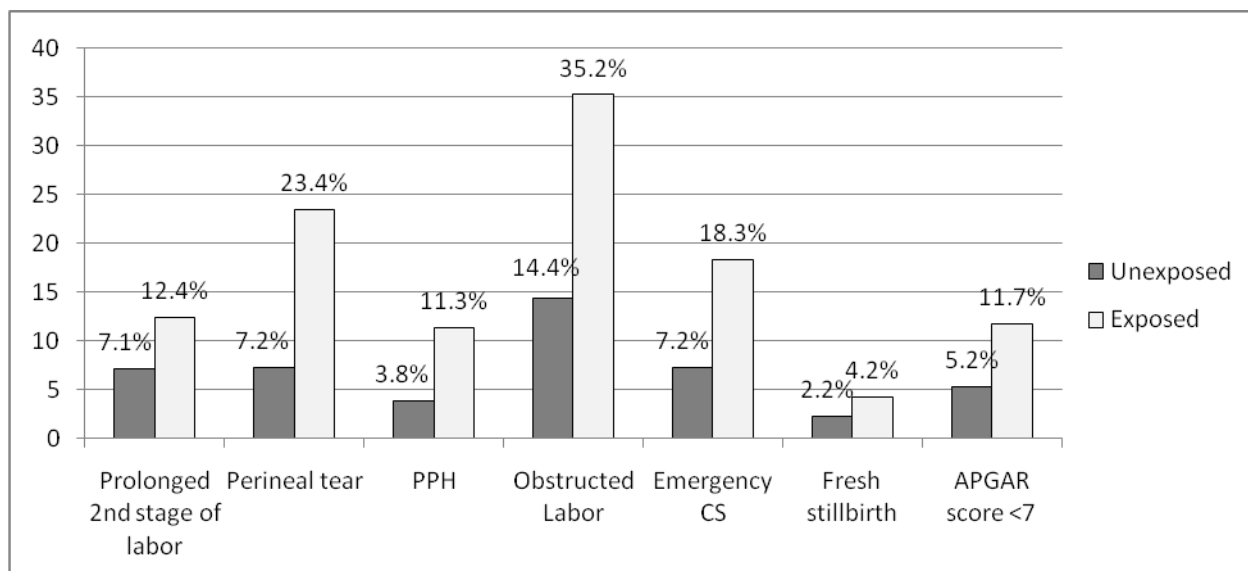


Figure 3: Proportion (%) of birth complication among parturients with and without FGM in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

### 5.5 Female genital mutilation and its association with birth complication

Maternal and infant risk factors for birth complication were analyzed using log-binomial regression and presented using Relative risks and their 95% confidence intervals. Both bivariate and multivariate analyses were performed with each outcome variable. Variables that show significant association in bivariate analysis at p value of <0.25 were taken as candidate variables to be included in the multivariate analyses.

The multivariate analysis reveals that the risk of prolonged second stage of labor in exposed was 1.33 times higher than unexposed; however the association was not statistically significant [RR 1.33, (95% CI 0.56-3.16)]. The proportions of having Perineal tear range from 7.2% in unexposed to 23.4% in exposed groups. The risk of having Perineal tear was 2.52 times higher in exposed than unexposed which is statistically significant [RR 2.52 (95% CI, 1.26-5.02)]. The independent effect of FGM on the risk of having postpartum blood loss was assessed and there was a statistically significant effect of FGM. From this finding the risk of having postpartum blood loss was 3.14 times higher for exposed groups [RR 3.14 (95% CI 1.27-7.78)].

Similarly the risk of outlet obstruction was observed to be significantly associated with FGM states of parturients. Exposed parturients had 1.83 times higher risk of obstructed labor than non-exposed groups [RR=1.83 (95% CI 1.19-2.79)]. Women with FGM had 2.31 times higher risk of

Emergency caesarean section than those without FGM and the observed difference was statistically significant [RR=2.31 (95% CI, 1.10-4.820)]. Infants born to women with FGM were found to have 1.35 times higher risk of having APGAR score <7 than infant from unexposed women; however the observed difference was not statistically significant [RR=1.19 (95% CI, 0.56-3.2)].

Table 4:-The association of female genital mutilation with birth complication among parturients with (n=142) and without FGM (n=139) in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

Type of complication	Complication		CRR(95%CI)	P-value	ARR (95%CI)†
	No Number (%)	Yes Number (%)			
<b>Prolonged 2<sup>nd</sup> stage of labor</b>					
<i>Non-exposed</i>	118 (92.9)	9(7.1)	1		1
<i>Exposed</i>	120(87.6)	17(12.4)	1.75(0.80-3.75)	0.154	1.33(0.56-3.16)
<b>Perineal tear</b>					
<i>Non-exposed</i>	128(92.8)	10(7.2)	1		1
<i>Exposed</i>	108(76.6)	33(23.4)	3.22(1.65-6.29)	0.001	2.52(1.26-5.02)*
<b>Postpartum blood loss</b>					
<i>Non-exposed</i>	134(96.4)	5(3.6)	1		1
<i>Exposed</i>	126(88.7)	16(11.3)	3.13(1.17-8.31)	0.022	3.14(1.27-7.78)*
<b>Outlet obstruction</b>					
<i>Non-exposed</i>	119(85.6)	20(14.4)	1		1
<i>Exposed</i>	92(64.8)	50(35.2)	2.44(1.54-3.88)	<0.001	1.83(1.19-2.79)*
<b>Emergency CS</b>					
<i>Non-exposed</i>	129(92.8)	10(7.2)	1		1
<i>Exposed</i>	116(81.7)	26(18.3)	2.54(1.27-5.07)	0.008	2.31(1.10-4.82)*
<b>APGAR score &lt;7</b>					
<i>Non-exposed</i>	127(94.8)	7(5.2)	1		1
<i>Exposed</i>	113(87.6)	16(12.4)	2.37(1.01-5.58)	0.047	1.35 (0.56-3.2)
<b>Fresh stillbirth**</b>					
<i>Non-exposed</i>	136(97.8)	3(2.2)			
<i>Exposed</i>	136(95.8)	6(4.2)			

† Adjusted for potential confounders

\* P<0.05

\*\*Not calculated because of insufficient number of cases

## **5.6. The risk of birth complication in relation to the type of FGM**

The second objective of this study was to estimate the risk of having a specific adverse maternal or infant outcome versus not having this outcome, in women who had had FGM I, II, and III compared separately with women who had not had FGM.

The result revealed that the risk of obstetric complications to be increased with the severity of the procedure. Women with FGM II and FGM III were significantly more likely to suffer from childbirth related complications than parturients with type I FGM.

Overall, 36(12.8%) women delivered by caesarean section, and 19(6.8%) deliveries were complicated by postpartum blood loss of 500 mL or more. Women with FGM III were significantly more likely to have a caesarean section and postpartum blood loss of 500 mL or more than were women who had not had FGM (Table 6). The RRs of having Emergency caesarean section, were 2.00 (95% CI 0.74-5.85)] for women with FGM I, 2.40 (95% CI 0.94-6.08)] for those with FGM II, and 3.60 (95% CI 1.65-7.86)] for those with FGM III, compared with women with no FGM. When women with caesarean section were excluded from the analysis of postpartum haemorrhage, the RRs were 0.93 (95% CI 0.10-8.15) for FGM I, 2.31(95% CI 0.53-9.96) for FGM II, and 6.37(95% CI 2.11-19.20) for FGM III, compared with women without FGM.

In terms of perineal tear it was found that 7.2% of the group that had not undergone FGM, 10.8% of those with type I, 17.8% of those with type II and 35.6% of FGM III had perineal tear. The risk of having perineal tear was significantly increased in women who had under-gone type II [RR=2.45 (95% CI 1.03-5.83)] and III FGM [RR=4.91(95% CI, 2.46-9.77)] than women without FGM. Similarly Parturients with FGM type II and III were found to be 2.38 (95% CI 1.39-4.08) times and 2.94 (95% CI 1.84-4.71) times more likely to be complicated by outlet obstruction respectively, than women without FGM. However, having FGM type I was found to be a less risky of outlet obstruction, Specifically, partuernts with FGM I were found to be 0.68 times less likely to have outlet obstruction than women without FGM ,however the association was not Statistically significant [RR=0.68 (95% CI 0.25-1.85)].

Infants born from parturients with FGM type I were found to have 0.54 times less risk of having APGAR <7 than infants of unexposed women but it was not Statistically significant [RR=0.54

(95% CI 0.06-4.29)]. Similarly infants born from women with FGM type II were found to have 0.95 times less risk of having APGAR <7 than infants of unexposed women, however the observed difference was not Statistically significant [RR=0.95 (95% CI 0.20-4.42)]. Unlike from type I and II infants born from a women with FGM type III had 4.41 times higher risk of having APGAR <7 than of unexposed and it was statistically significant [RR=4.41( 95% CI 1.84-10.6)]

Table 5: Difference in risk of adverse obstetric outcomes in women with FGM I, II, & III compared with women without FGM in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

Type of birth Complication	FGM status	Number (%)	RR (95% CI)	P value
<b>Prolonged 2<sup>nd</sup> stage of labor</b>	No FGM	9(7.1)	1	
	FGM I	2(5.6)	0.78(0.17-3.46)	0.748
	FGM II	5(11.4)	1.60(0.56-4.52)	0.373
	FGM III	10(17.5)	2.47(1.06-5.76)	0.035
<b>Emergency CS*</b>	No FGM	10(7.2)	1	
	FGM I	5(13.5)	2.00(0.74-5.85)	0.162
	FGM II	7(15.6)	2.40(0.94-6.08)	0.064
	FGM III	14(23.3)	3.60(1.65-7.86)	0.001
<b>Perineal tear</b>	No FGM	10(7.2)	1	
	FGM I	4(10.8)	1.49(0.49-4.48)	0.476
	FGM II	8(17.8)	2.45(1.03-5.83)	0.042
	FGM III	21(35.6)	4.91(2.46-9.77)	<0.001
<b>Outlet obstruction</b>	No FGM	20(14.4)	1	
	FGM I	6(16.2)	0.68(0.25-1.85)	0.456
	FGM II	16(35.6)	2.38(1.39-4.08)	0.001
	FGM III	38(46.7)	2.94(1.84-4.71)	<0.001
<b>Postpartum blood loss</b>	No FGM	4(2.9)	1	
	FGM I	1(2.7)	0.93(0.10-8.15)	0.955
	FGM II	3(6.7)	2.31(0.53-9.96)	0.205
	FGM III	11(18.3)	6.37(2.11-19.20)	0.001
<b>APGAR score &lt; 7</b>	No FGM	7(31.8)	1	
	FGM I	1(4.5)	0.54(0.06-4.29)	0.548
	FGM II	2(9.1)	0.95 (0.20-4.42)	0.955
	FGM III	12(19.9)	4.41(1.84-10.60)	0.001

\*Caesarean Section

## **5.7 Other predictors of birth complication**

After binary logistic regression analysis, variables which are found statistically significant at p value <0.25 were added to multivariable log-binomial regression models. The results of log-binomial regression output for the incidence of delivery complications (both maternal and foetal) are shown below. The log-binomial regression analysis result shows that the Risk ratios indicate the effect of each of the predictor variables on the pattern of delivery complication, controlling other variables included in the model. Estimates of relative risk less than 1.0 indicate that not experienced delivery complication that for the reference category of each variable and estimates of relative risk greater than 1.0 indicates that experienced delivery complication is greater than that for the reference category.

### **5.7.1. Predictors of outlet obstruction**

As shown in table 6, the log-binomial regression analysis revealed significant associations between outlet obstruction and Parity. Those Nulliparous women had 6.93 times higher risk of outlet obstruction, than the reference parity group of 1-2 [RR=6.93 (95% CI 3.27-14.65)]. A similar significant increased risk was observed among women in the age group of 20 years and below [RR=1.02 (95% CI 1.00-1.34)]. Mothers of infants with birth weight less than 3500 gm had 0.66 times less risk of outlet obstruction than mothers of 3500gm and above infants [RR=0.66 (95% CI 0.50-0.89)]. Illiteracy was observed to be a risk factor for outlet obstruction [RR=1.42 (95% CI 0.80-2.52)] . Women with educational status of secondary & above were observed to have 0.55 times less risk of outlet obstruction[RR=0.55(95% CI 0.19-1.58)] than women of the reference group. However the association between women's educational status and the risk of outlet obstruction was not found to be statistically significant.

Table 6:- Predictors of outlet obstruction among parturients in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

Complication	Variables	Yes	No	RR ((95%CI)
		Number (%)	Number (%)	
Outlet obstruction	<b>Parity</b>			
	1-2	10(8.1)	114(91.9)	1
	Nulliparous*	57(48.7)	60(51.3)	6.99(3.12-14.62)
	≥ 3	3(7.5)	37(92.5)	1.15(0.30-4.36)
	<b>AGE (years)</b>			
	25-29	25(24.8)	76(75.2)	1
	<20	42(43.6)	31(56.4)	1.02 (1.00-1.34)
	20-24	16(25)	48(75)	1.00 (0.93-1.22)
	≥ 30	5(8.2)	56(91.8)	0.90 (0.89-0.90)
	<b>Birth weight</b>			
	>3500	9(39.8)	14(60.9)	1
≤ 3500	57(23.8)	182(76.2)	0.66 (0.50-0.89)	
<b>Education</b>				
primary	4(10.8)	33(89.2)	1	
No formal education	57(28.1)	146(71.9)	1.42(0.80-2.52)	
Secondary & above	9(22)	32(78)	0.55(0.19-1.58)	

\* has not given birth previously

### 5.7.2. Predictors of emergency caesarean section

On binary logistic regression, FGM, ANC visit, maternal Height, Place of residence and Birth weight, were associated with Emergency caesarean section. In a multivariate analysis Parturients with height of less than 150 cm had a four-fold increased risk of delivery by Emergency caesarean section, compared with taller mothers [RR=3.85(95% CI 2.18-6.79)]. The risk of delivery by Emergency caesarean section was also 2.61 times higher for women with babies having birth weight greater than 3500gm than mother of babies of less than 3500gm [RR=2.61 (95% CI 1.42-4.80)]. Similarly, rural dwellers had 2.84 times higher risk of delivery by emergency caesarean section than women who live in urban areas [RR=2.84 (95% CI, 1.53-5.26)]. Parturients with no ANC visits had 1.9 times increased risk of delivery by Emergency caesarean section, but the association was not statistically significant [RR=1.90 (95% CI 0.94-3.81)].

Table 7:- Predictors of Emergency caesarean section among parturients in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

Complication	Variables	Yes	No	RR ((95%CI)
		Number (%)	Number (%)	
Emergency CS*	<b>Height(cm)</b>			
	>150	27(10.5)	231(89.5)	1
	≤150	9(40.9)	13(59.1)	3.85(2.18-6.79)
	<b>Birth weight</b>			
	≤ 3500	20(8.4)	219(91.6)	1
	>3500	14(60.9)	9(39.1)	2.61 (1.42-4.80)
	<b>Residence</b>			
	Urban	21(8.7)	220(91.3)	1
	Rural	15(39.5)	23(60.5)	2.84(1.53-5.26)
	<b>ANC visit</b>			
Yes	11(7.0)	143(91.1)	1	
No	25(20.5)	97 (79.5)	1.90(0.94-3.81)	

CS\* caesarean section

### 5.7.3. Predictors of peruneal tear

As shown in table below, the risk of peruneal tear was more than two fold for women with babies having birth weight greater than 3500gm than babies of less than 3500gm, [RR=2.16 (95% CI 1.08-4.33)]. In addition to birth weight maternal height were also found to be a significant risk of Perineal tear. Parturients with the height of <150 cm had 1.69 times higher risk of Perineal tear than parturients who are > 150 cm however it was not Statistically significant [RR 1.69 (95% CI 0.78-3.68)].

Table 8:- Predictors of peruneal tear among parturients in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

Complication	Variables	Yes	No	RR (95%CI)
		Number (%)	Number (%)	
Peruneal tear	<b>Birth weight</b>			
	≤ 3500	28(11.8)	209(88.2)	1
	>3500	7(30.4)	16(69.6)	2.16(1.08-4.33)
	<b>Height(CM)</b>			
	≥ 150	37(14.4)	220(85.6)	1
<150	6(28.6)	15(71.4)	1.69 (0.78-3.68)	

#### 5.7.4. Predictors of Postpartum hemorrhage

The multivariate analysis showed that, older women experienced more Postpartum hemorrhage than younger women. Parturients in the age group of 30 years and above had almost four-fold increased risk of Postpartum hemorrhage, compared with women aged 25-29 years [RR=3.52 (95% CI 1.26-9.84)]. The time elapse to reach to hospital was also identified as predictors of Postpartum hemorrhage. This is women who traveled  $\geq 60$  minutes in labor had seven fold higher risk of postpartum hemorrhage (25%) than women who traveled less (3.5%). The association between time traveled and Postpartum hemorrhage was very strong and highly significant [RR 6.8 (95% CI 3.17-14.96)]

Table 9:- Predictors of postpartum hemorrhage among parturients in Karamara and Dire hospital, Jjjiga, Eastern Ethiopia, March 10-May 12, 2014.

Complication	Variables	Yes	No	RR ((95%CI)
		Number (%)	Number (%)	
Postpartum hemorrhage	<b>Time to travel to hospital</b>			
	<60 minutes	8(3.5)	219(96.5)	1
	$\geq 60$ minuets	13(25)	39(75)	6.8(3.17-14.96)
	<b>AGE (years)</b>			
	25-29	4(4)	97(96)	1
	<20	7(12.7)	48(87.3)	2.18 (0.72-6.63)
	20-24	1(1.6)	63(98.4)	0.44 (0.05-3.72)
$\geq 30$	9(14.8)	52(85.2)	3.52 (1.26-9.84)	

#### 5.7.5. Predicators of prolonged second stage of labor

Antenatal care visit during pregnancy period and the incidence of prolonged second stage of labor were negatively related. The result reveals that those women who has no ANC visits during their pregnancy had prolonged second stage of labor (65.4%) than women who were using ANC service (34.6%), but the difference did not reach the level of significance [RR=2.16 (95% CI 0.87-5.33)].

Similarly, women with Mid-upper arm circumference of less than 21 centimeter had 2.35 time higher risk of Prolonged second stage of labor than a women with Mid-upper arm circumference of 21 or above [RR=2.35(95% CI 1.06-5.21)].



Table 10:- Predictors of Prolonged second stage of labor among parturients in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

Complication	Variables	Yes	No	RR ((95%CI)
		Number (%)	Number (%)	
prolonged 2 <sup>nd</sup> stage of labor	<b>ANC visits</b>			
	<i>Yes</i>	7(4.7)	143(95.3)	1
	<i>No</i>	18(16.1)	94(83.9)	2.16(0.87-5.33)
	<b>MUAC(cm)</b>			
	$\geq 21$	12(6.7)	167(93.3)	1
$<21$	14(16.7)	70(83.3)	2.35(1.06-5.21)	

### 5.7.6. Predictors of low APGAR score

The infants of the Nulliparous women showed a higher incidence of 5 minute Apgar score <7 (15.9%), than infants of the reference group (2.7%) and the differences were statistically significant [RR=5.2 (95% CI 1.58-17.72)]. Further, Parturenta without ANC visit had almost 2.43 times higher risk of having infants with Apgar score <7, compared with women with ANC visits [RR=2.43 (95% CI 1.06-5.54)] (Table 11).

Table 11:- Predictors of low APGAR score among parturients in Karamara and Dire hospital, Jjijiga, Eastern Ethiopia, March 10-May 12, 2014.

Complication	Variables	Yes	No	RR ((95%CI)
		Number (%)	Number (%)	
APGAR score <7	<b>Parity</b>			
	<i>1-2</i>	3(2.7)	109(97.3)	1
	<i>Nulliparous</i>	18(15.9)	95(84.1)	5.2(1.58-17.72)
	$\geq 3$	2(5.3)	36(94.7)	1.45(0.25-8.41)
	<b>ANC visits</b>			
	<i>Yes</i>	8(5.4)	141(94.6)	1
<i>No</i>	15(13.4)	97(86.6)	2.43 ( 1.06-5.54)	

## CHAPTER 6: DISCUSSION

A sustained commitment to maternal health issues in Ethiopia is vital to the attainment of Millennium Development Goal 5 globally. This is because Ethiopia, with an estimated current population of over 82 million, is the most populous country in Africa as well as the largest contributor of maternal deaths globally (19). This prospective cohort study on the effect of FGM on birth complication was conducted in Jijiga town, Somalie region. A prospective approach has an advantage over a retrospective study in investigating etiologic relationships as it deals with incident rather than prevalent cases.

Although the literature on genital cutting frequently describes a range of obstetric complications that may be associated with the procedure, little empirical evidence exists of the nature and extent of the relationship between cutting and such complications. The data presented here were primarily collected through direct observation by trained medical staff, and they appear to be of greater validity than women's self-reports. The most common type of complication observed was directly associated with scarring caused by cutting the sensitive tissue of the genitals.

The current study attempted to determine the association of female genital mutilation with birth complication. These results show that deliveries to women who have undergone FGM are significantly more likely to be complicated by emergency caesarean section, postpartum hemorrhage obstructed labor and perineal tear, than deliveries to women who have not had FGM. However, the association between FGM and the risk of having an infant with low-APGAR score and prolonged second stage of labor was not statistically significant.

In this study a clear, positive relationship is found between the type of FGM a woman has undergone and the likelihood that she will have a visible obstetric complication, the more severe the cut, the more likely she is to have a complication. No major differences appear to exist in the type of complication associated with the type of cut, in that all types of complication are more prevalent among women with type II and type III cuts than among those with a type 1 cut. This finding was also reported in different studies (15, 28-30, 35).

One of the birth complication most often found among women with FGM was obstructed laborer, with a frequency of two and half times higher for women with type II FGM (35.6%) and

three times higher for women with type III FGM (46.7%) compared with women who had not undergone FGM/C (14.4%). The observed increased risk of obstructed laborer among women with FGM is consistent with other studies (15, 26, 28). The higher frequency of obstructed labor may be attributed to loss of elasticity of the perineal tissue. This is because the scar (fibrosis and keloids), which are formed after excision increases the fragility of the tissues (36). Consequently, episiotomy or Instrumental delivery may be justifiable among women who have undergone genital cutting, especially of types II and III (15), in order to control the degree of perineal laceration that may occur. Indeed, for women who have been infibulated, episiotomy is frequently required, especially for first deliveries (37)

Similarly women who had been exposed, particularly those with type II and type III FGM, were significantly more likely to suffer a perineal tear during delivery. Our findings persisted even after adjusting for major risk factors. This can be well explained by the scarring of the introitus following FGM, which reduces its elasticity. The perineum being unscarred, gives way easily during the second stage of labour because of overstretching. Moreover, the scarred part of the introitus is tougher than the perineum. The increased risk of perineal tear among exposed women in this study is similar to findings from earlier studies (24, 28-29).

Of more relevance is the finding, that FGM was statistically associated with postpartum blood loss. Parturients with FGM had 3.14 times higher risk of postpartum blood loss than Parturients without FGM. The association between FGM types I and FGM type II was however not significant but FGM type III with relative risk of 6.37 (95% CI 2.11-19.20) was strongly associated with postpartum blood loss. This finding is also consistent with other studies (15, 25, 28). This might be attributed to the fact that FGM is generally done in girls younger than 10 years and leads to varying amounts of scar formation. The presence of this scar tissue, which is less elastic than the perineal and vaginal tissue would normally be, might cause differing degrees of obstruction and tears or episiotomy therefore, could underlie the findings of an increased risk of postpartum blood loss.

Furthermore, this study also revealed a significant positive relationship between the practice of female genital mutilation and emergency cesarean section. Parturients who were exposed to the practice had 2.31 times higher risk of delivery by emergency cesarean section than non-exposed parturients. In addition, our study also revealed that the risk of having emergency CS increase

with the severity of the procurers in which parturients with FGM type III had significantly higher risk of emergency CS. Finding is consistent with previous studies (25-28). This is because when the vagina is seen to be too rigid and scarred, and thought to be a possible cause of severe vaginal lacerations or third degree tears, it is likely that caesarian section will be decided upon. In addition if keloids have formed and are too large, a caesarian section might be the best option to deliver this woman (16)

In the current study women with and without FGM did not have significantly different risks of prolonged second stage of labour. The frequency of prolonged second stage of labour was not found to be higher among circumcised women than uncircumcised. This is different from a study conducted in Sweden (38) that found patients with FGM had a significantly shorter second-stage of labour. That study only investigated nulliparous women but this study is not, which may be of significance. Our results agree with a study conducted in Switzerland (24) and a statement from the WHO that concluded that no documented evidence had been found to confirm a relationship between prolonged 2<sup>nd</sup> stage of labour and FGM (22). It is unlikely that scarring from FGM would be too resilient to be torn during delivery and these tears may be related to scar tissue with decreased tensile strength. Scar tissue consists of mature collagen and the highest concentration of mature collagen is found in tissue after recurrent incision and healing, indicating the importance of inflammatory activity(39). Thus, porous women after FGM may well have a reduction in tissue strength and, therefore, a greater probability of vaginal tears.

This study demonstrated no association between FGM and low Apgar score. The difference in the proportion of poor foetal outcome (low Apgar score) among both groups was not statistically significantly. Our finding are different from a Case control study conducted in San Camillo Hospital, Burkina Faso in which low APGAR score was significantly higher among case than control group (26). The difference can be explained duo to difference of study design.

## **Strength and limitation of the study**

### **Strength**

The data presented here were primarily collected through direct observation by trained medical staff, and they appear to be of greater validity than women's self-reports.

Since this study used a cohort study design it is possible to determine cause and effect relationship as well as identification of multiple outcomes.

### **Limitation of the study**

Since there was no post delivery follow-up, late complications like fistula and maternal death are not evaluated

## **CHAPTER 7: CONCLUSION AND RECOMMENDATIONS**

### **7.1 Conclusion**

The study showed that women with FGM are significantly more likely than those without FGM to have adverse obstetric outcomes such as outlet obstruction, Perineal tear, Postpartum blood loss and Emergency caesarean section. Risks seem to be greater with more extensive form of FGM. This means that FGM is likely to be responsible for substantial numbers of additional causes of adverse obstetric outcomes. Adverse obstetric outcomes can therefore be added to the known harmful immediate and long-term effects of FGM.

### **7.2 Recommendation**

Since FGM is a deeply rooted, multifaceted social practice, there should be a concerted effort by the government, religious leaders, community and women's leaders, nongovernmental organizations and international agencies against the practice.

The following recommendations are forwarded in line with what has been found in this study:

#### **To Somali National regional state Health bureau and women's affair**

- The regional health bureau, women's affairs and other related sectors of the region responsible for the health of the people of the region should take the health implications seriously and strengthen activities against the practice of female genital mutilation.
- The greater health risks associated with FGM Type III should be emphasized and publicized through local media.
- Health professional in the region should have to give special care while giving delivery service for mutilated women's because birth complication will be sever based on type of mutilation.
- Health institution should give special care in providing necessary equipment, medication and giving special training for health professionals who attend delivery.

#### **To Religious and community leaders**

As respected figures, religious and community leaders have considerable power to guide the opinions of their communities and bring about the attitude changes necessary for abandoning FGM. The involvement of religious leaders is particularly important in communities in which there is a strong belief that FGM is performed to fulfill religious requirements.

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## ANNEX 1: QUESTIONNAIRE

**JIMMA UNIVERSITY**  
**COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES**  
**DEPARTMENT OF EPIDEMIOLOGY**

Questionnaire Developed for Study on Female Genital Mutilation and Birth Complications  
among women's who came to health facility for delivery services  
Somali National Regional State  
Jijiga Town

**Introduction:** Good morning/afternoon, my name is \_\_\_\_\_ and I am a midwife/nurse working in this hospital. I am also part of a team carrying out a study conducted by an Epidemiology postgraduate student in Jimma University. The purpose of the study is to identify the association of female genital mutilation and birth complication. We believe that the study findings will help in order to improve maternal health and for planning of appropriate interventions and health care plans.

**Confidentiality and consent:** You have been selected to participate in this study. I am going to ask you some very personal questions. You can refuse to answer any questions or series of questions if you are uncomfortable. Your participation is purely voluntary, and you can withdraw any time after you get involved in the study without compromising the services you ought to get from the hospital. However, I would like to assure you that all that is said during the interview will be strictly confidential and the information collected from you will be used only in scientific reports without mentioning of your personal identification including your name. There is no harm to you in participating or no incentive paid but your honest answer to these questions will help us better understand the situation. In addition the Information gathered from the study will be used to improve programs that promote the wellbeing of women. So we hope you will give accurate answers! We appreciate your help in responding to these questions. Do you have any questions?

Would you be willing to participate?"

Yes\_\_\_\_\_ (continue)

No\_\_\_\_\_ (Thank and stop)


Questionnaire code\_\_\_\_\_ Name of the health facility: \_\_\_\_\_

**General instruction**

- i. For all questions that have a pre-coded response, it is important to follow the following instructions while you are interviewing the respondents and recording their responses
  - ✓ Ask each question exactly as written on the questionnaire
  - ✓ Circle the responses that best match with the answer of the respondent
  - ✓ Do not read the pre coded responses for the respondents, listen only the response of the respondents.

**Section 1:- FGM related information (based on observation)**

Notice: Use the following description to ascertain the type of FGM



S No	Question	Observation	Skip to
Q101	Does the woman have any type of FGM? <b>Observe and record!</b>	1. Yes 2. No 	Go to Q201
Q102	If yes what type of FGM? <b>Observe and record!</b>	1. Type I Excision of partial or total of the clitoris and/or the clitoral hood  2. Type II Partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora.  3. Type III The removal of labia minora and/or labia majora, with or without excision of the clitoris and stitching and/or narrowing of the vaginal opening leaving a small hole for urine and menstrual flow.  4. Type IV All other harmful procedures to the female genitalia for non-medical purposes (e.g., pricking, piercing, incising, scraping, and cauterization.	


<b>S.No</b>	<b>Question</b>	<b>Coding categories</b>	<b>Skip to</b>
Q201	How old are you? (Age in years)	_____ Years	
Q202	Where is your residence?		
Q203	What is the highest level of School you completed?	<ol style="list-style-type: none"> <li>1. Unable to read &amp; write</li> <li>2. Able to read &amp; write</li> </ol>	

## **Section 2:- Respondent background information**



		Highest grade completed _____	
Q204	What is your religion	1. Muslim 2. Orthodox 3. Protestant 4. Catholic 5. Others(Specify)_____	
Q205	What is your ethnicity?	1. Somali 2. Amhara 3. Oromo 4. Tigre 5. Other (Specify)_____	
Q206	What is your marital status?	1. Single/never married 2. Married/Living together 3. Divorced/separation 4. Widowed	
Q207	What do you do for living? {Or What is your occupation	1. Housewife 2. Student 3. Daily laborer 4. Merchant 5. Government Employee 6. Private employee 7. Other (specify) _____	
Q208	How much is the average family income per month?	_____ Birr 1. No income 88. Don't now	
Q209	How many minutes' walk is it from your residence to the hospital?	_____ No of minutes	



### Section 3: Past obstetric history

S.No	Question	Coding categories	Skip to
Q301	Have you had any pregnancy before?	1. Yes 2. No 	Go to Q401
Q302	How many pregnancies have you had?	Number of pregnancies _____	
Q303	How many times did you give birth? (Parity)	Number of times _____	
Q304	Have you ever-experienced still birth? (Birth of dead fetus after 28 weeks of gestation)	1. Yes 2. No 	Go to Q307
Q305	How many times did you have still births?	Number of still births _____	

Q306	Have you ever-experienced miscarriage/ abortion? (That is any pregnancy terminated before 28 weeks of gestation)	3. Yes 4. No 	Go to Q401
Q307	How many abortions did you have?	Number of abortions_____	

#### Section 4:- Current pregnancy history

S.No	Question	Coding categories	Skip to
Q401	Have you planned this Pregnancy?	1. Yes 2. No	
Q402	Did you see any health professional for antenatal care for this pregnancy?	1. Yes 2. No 	Go to Q404
Q403	How many times in total did you go for antenatal care during this pregnancy?	No of visit_____	
Q404	During this pregnancy have you been told that you have hypertension?	1. Yes 2. No	
Q405	Have you ever been told that you have DM?	1. Yes 2. No	
Q406	Did you have any history of trauma or injury, in the current pregnancy period? Probe for all, car accidents etc.	1. Yes 2. No 88. Don't remember	
Q407	What is the height of the mother?	_____Height in Cm	
Q408	Mid-upper arm circumference (MUAC) (Please measure and recorded )	_____Cm	
Q409	During your pregnancy, did you take alcohol drinks?	1. Yes 2. No  88. Don't remember	Go to Q411

Q410	How often were you taking alcohol drinks?  One unit of alcohol means 1, One glass of beer, Wine, tella, tej, bordi, or 2, one cup of arekie, gin, whisky etc.	1. Daily 2. 5-6 times per week 3. 3-4 times per week 4. 1 times per week 5. Once a month 6. 3-8 times during pregnancy 7. 1-2 times during pregnancy 88. Don't remember	
Q411	During your pregnancy, did you ever chew khat?	1. Yes 2. No  88. Don't remember	Go to Q413
Q412	How often were you chewing khat?	1. Daily 2. 5-6 times per week 3. 3-4 times per week 4. 1 times per week 5. Once a month 6. 3-8 times during pregnancy 7. 1-2 times during pregnancy 88. Don't remember	
Q413	During your pregnancy, did you ever smoke?	1. Yes 2. No  88. Don't remember	End of interview
Q414	How often were you smoking?	1. Daily 2. 5-6 times per week 3. 3-4 times per week 4. 1 times per week 5. Once a month 6. 3-8 times during pregnancy 7. 1-2 times during pregnancy 88. Don't remember	

### Section 5:- Information on delivery outcome (Observational)

**Notes:** This observational checklist should be filled at the end of delivery

S No	Question	Observation	Skip to
------	----------	-------------	---------

Q501	What was the mode of delivery	1. Spontaneous vaginal delivery 2. Spontaneous vaginal delivery assisted by episiotomy 3. Instrumental delivery 4. Cesarean section → Q504	
Q502	What was duration of second stage of labor?	Duration in mints _____	
Q503	Does she have perineal tear?	1. Yes 2. No	
Q504	Is there Postpartum blood loss?	1. Yes 2. No → Go to Q506	
Q505	Amount of blood lose	_____ estimated volume in ML	
Q506	Is the labor obstructed?	1. Yes 2. No	
Q507	Is the child born alive?	1. Yes 2. No	
Q508	Birth weight of the baby in grams? <b>Please review and fill from records.</b>	Weigh in gram _____	

***Thank you for your participation!!!***

INTERVIEWER:

Name \_\_\_\_\_ signature \_\_\_\_\_ Date [\_\_/\_\_/\_\_]

CHECKED BY SUPERVISOR:

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date [\_\_/\_\_/\_\_]

**QUESTIONNAIRE (SOMALI VERSION)**

JAAMACADA JIMMA

KULIYADA CAAFIIMADKA IYO MACADKA CULUUNTA DAAWAYNTA

WAAXDA IBIDHIMOOLAJIGA



Foomaka xog ururinta loosameeyay in lagu ogaado dumarka lagu sameeyay gudniinka fircoonigaa iyo dhibaatooyinka uu ku keeno xiliga dhalnada marka ay kudhalayaan xarun Caafimaad Deegaanka Ismaamulka Soomalida Itoobiya magalada Jigjiga

**Hordhac:** Subax wanaagsan/Galab wanaagsan,magacaygu waa \_\_\_\_\_Waxaan ahay kalkaaliye kashaqeeya cuspitaalkan ana Waxaan kamid ahay Koox Arday Ibdhi-molojistayaal Shahaadada Sare ee Masters ka dhigta Jaamacda Jimma Kuwaaso Daraasad cilmibaadhis kuhawlan. Ujeedada daraasadkan aya waxay tahay in lagu xaqiijiyo xidhihka ka dhexeeya Gudniinka fircooniga iyo foosha adkaata.Waxaan rumaysanahay inay natiijada kasoo baxaysa cilmi baadhistan ay gacan ka gaysndoonto tayanta adeega caafimadka hooyoyinka lasiiyo.

**Xog dhawrista iyo ogolaanshaha :** Waxaad kamidtahay Dumarka loo xushay inay kaqayb qaatan darasadka cilmi baadhista..Waxaan ku su'ali doonaa su'aalo aad uh mid shaqasiyeed. Waxaa kubaanaan inaad kajawaabin su'asha ama su'alaha kuu cuntami waaya. .Ogolaanshahaaga kaliya ayay kuxidhantay inaad kaqaybqaato,takale waxaa kuu banana inaad kabixi kartid daraasadkan markasta iyadoon wax caqabada ah ku yeelanayn adeega aad cuspitalka ka heshid.Lakiin waxaan kuu xaqiijinayaa in xogtaada ladhawri doono iyadoon wax magaca iyo Sumada lagaa qorayn, kaliya xogtaada loo isticmaali doono daraasad cilmi baadhis oo kaliya.Wax khatar caafimad ah kugu ma yeelan doonto inaad ka qayb qaadatid daraasadkan.Mana laha wax guno kharash ah,lakiin xogta sugan eed bixinayso ayaa ah mid muhiimad uleh inay gacan ka gasato tayaynta adeega caafiaamdka hooyoyinka.Waxaan ku rajo waynahay inaad nasiin doonto warbixin sugan.Waanad ku mahadasatnay inaad xogta nasiisid.Hadii ay jirto wax su'all ah way kufurantahay.

**Ma kuqanacsantahy inaad ka qayb qaato?"**

Haa \_\_\_\_\_ (Siiwad) maya \_\_\_\_\_(Umahad celi kadibna jooji)

Sumada Warqadan \_\_\_\_\_ Magaca xarunta caafimaadka : \_\_\_\_\_

Sumada Warqadan \_\_\_\_\_ Magaca xarunta caafimaadka : \_\_\_\_\_


**Tilmaamo guud**

- ii. Waxaa muhiim ah inaad raacidid talaboyinka wakhtigaad su;aalyso dhamaan su'allaha leh jawaabaha xadidan kadib qor jawaabtooda

- ✓ U su'aal sida kuqaran su'aasha
- ✓ Ka Dooro jawaabta ugu dhaw
- ✓ Ha u akhrin jawaabaha qoran kahor.

### Qaybta 1:-Xog laxidhaha Fircooniga(Arag ku xaqiijin )

FG; Fadlan raac tilmaamahan si aad uxaqiiso nooca fircooniga

Tir	Su'asha	fiirin kadib: Malaha Fircooni	Ugudub
S101	Gudniinka fircooniga malagugusameeyay Fiiri kadibna diwaangali	1. Haa 2. Maya 	ugudu,S2 01
S102	Hadii ay jirto waa noocee Fircoongasi?fiiri kadibna diwaangali	1 Jarida qayb kamids ah ama dhamaan xubinta dareenka ama 2 Jarida qayb ama dhamaan xubinta dareenka,iayadoo laracinayo qaybta hore ee saxaaxa,tasooy lasocoto tolida qaybta hore . 3 Soo uriir kusamayn daloolak saxaaxa iyadoo toliin lagu samaynayo tasooy lasocon karto jarida xubinta dareenka.	

### Qaybta2:- War bixin kusaabasan shaqsiga

Tir	Su'aasha	Summada	ka gudub
S201	Da'adu waa imisa? (TI)	_____ Sanadka Years	
S202	Waxagee deegankagu?	1. Magallo 2. Miyiga Rural	
S203	Waxbarshadu halkeed ka gaadhay?	1, Waxaba aan qorin iyo akhrinakhrinaba 2, Wax qori kara akhrina kara Fasalkad gaadhay _____	
S204	Diinteed haystaa?	1. Muslim 2. Ortodhogos 3. Borotestan 4. Kaatolik 5. Tukale(Cadee)_____	
S205	Qoomiyadeed tahay?	1. Soomali 2. Axmaar 3. Oromo 4. Tigrey 5. kale(Cadee)_____	
S206	Ma guursatay?	1. Wali aan guursan 2. Guursaday/Reer leh 3. Carmal ah 4. Kalatgay 5. Dumaal	
S207	Maxaad ka qashaqaystaa?	1. Marwo 2. Ardayad 3. Xoogsato 4. Ganacsto 5. Shaqaale dawladeed 6. Shaqale aan dawli ahyn 7. Wax kale (Halkan ku qor) _____	
S208	Waa intee dakhliga qooykiina	_____ Birr	

	bishaba?	1, Wax kharsha an helinin 88. Ma garankaro	
S209	Imisa daqiiqo ayay ujirtaa xaafdaadu cuspitalka?	_____ Tirada daqiiqadaha	

### Qaybta 3: Xogta Taranka Hooyada ee wakhti hore

Tir	Su'aasha	Summada	Ugudub
S301	Hada ka hor uur ma yeelatey?	1. Haa 2. Maya →	ugudu,S303
S302	Ilaa hada Imisa jeer ayaad Uur qaaday/Yeelatay?	Tirada Uur ka_____	
S303	Imisa jeer ayaadse umashay?	Tirada _____	
S304	Imisa jirr ayaad ahayd marki kugu horaysay eed Umosho?	Da'da oo sanad _____	
S305	Waligaa ma umashay ilmo aan shinkiisa(waqtigiisu) gaadhin?	1. Haa 2. Maya →	ugudu,S307
S306	Imasa jeer ayaad umashay ilmo aan shinkiisa(waqtigiisa) gaarin	Tirada _____	
S307	Waligaa maad umashay ilmo dhicis ah?	1. Haa 2. Maya →	ugudu,S401
S308	Imisa jeer ayaad umashay ilmo dhicis ah?	Tirada_____	

### Qaybta 4:- Xogta Taranka Hooyada ee Hada



Tir	Su'aasha	Summada	Ugudub
S401	Uurkan ma mid aad qorshaystay baa?	1. Haa 2. Maya	
S402	Daryeelka Xanaanda uurka ma tagtay mudada uurkan lahyd wali??	1. Haa 2. Maya →	ugudu,S 403

S403	Imisa gor ayad tagtay Daryeelka,Urkan dhaxdis	Tirada _____	
S404	Mudadii uurkan dhaxdiisa ma lagu gu sheegay calamdo cudurka dhiig kara	1. Haa 2. Maya	
S405	Waligaa malagugu sheegay cudurka macaanka ama sonkrowga?	1. Haa 2. Maya	
S406	Wax dhaawac ama shil ah ma lakulantay mudadan uurka? Tusale;Shil baabuur IWM.	1. Haa 2. Maya 88. Ma xuusto	
S407	Waa imasa cabirka dhererka hooyada?	_____Dherarka oh SM	
S408	Wax khamri ah ma cabtay urkan dhaxdiisa?	1. Haa 2. Maya 88. Ma xuusto	
S409	Ilaa xilima ayaad khamrida cabaysay? Hal cadad ah waxay udhigantaa 1, Hal galas oo beer, wayn,Tella,Tej bordi 2, Hal galas oh ARAKE,JIIN,WISKI,Iwm.	1. Maalinkasta 2. 5-6 Jeer Todobaadkiiba 3. 3-4 jeer todobaadkiba 4. 1 jeer todobaadkiiba 5. Bishi hal mar 6. 3-8 jeer mudadii uurkan 7. 1-2jeer mudadii uurkan t 8. Ma xusuusto	
S410	Waligaa jaad maqayishay adoo uurleh?	1. Haa 2. Maya 88. Ma xusuusto	
S411	Ilaa xilimaad qayilaysay jaadka?	1. Maalinkasta 2. 5-6jeer todobaadkiiba 3. 3-4 jeer todobaadkiba 4. 1 jeer todobaadkiiba 5. Hal mar 6. 3-8 jeer mudadii Uurkan 7. 1-2 jeer mudadii uurkan 88. Ma xuusto	

### Qaybta 5:- Xogta dhalmada kadib buuxi(Fiiri)

FG: Foomkan waa mid labuuxinayo kadib dhalmada adoo arkaya

Tir	Su'aasha	Dhawrida	Ugudub
S501	Hab nooce ah ayay ku umushay hooyadu?	1. Dhalmo caadi kutimid 2. Hooyo ku dhashay si caadiya laakin lagu	

		gargaaray jeexdin yar oo xubinka taranka 3. Hooyo lagaga dhaliyay qalabka dumarka lagaga umuliyo  4. Hooyo lagaaga umuliyay qalitaan calaasha ah	<b>ugudu,S</b> <b>504</b>
<b>S502</b>	Mudo intee ah ayay qaadatay foosha heerka labaad?	Daqiidaha _____	
<b>Q503</b>	Hooyadu ma leedahay wax dilaaca dhanka xubinta? Does the women have perineal tear?	1. Haa 2. Maya	
<b>S504</b>	Dhalmada kadib Wax dhiig baxa ma leedahay hooyadu?	1. Haa 2. Maya 	<b>ugudu,S</b> <b>506</b>
<b>S505</b>	Cadad ka dhiiga kabaxay hooyada	_____ Qiyaastii ML	
<b>S506</b>	Fooshu may adkayd?	1. Haa 2. Maya	
<b>S507</b>	Ilmo sidee ah	1. Ilma nool 2. Todaba kudhalow	
<b>S508</b>	Miisanka ilma oo giraam ah? <b>Fadlan ka tix raac faylka</b>		

Waan ku mahad celinayaa inaad ka qayb qadato

Qofka warystaha:

Magaca \_\_\_\_\_ Saxeexa \_\_\_\_\_ Tarikhda [\_\_\_/\_\_\_/\_\_\_]

Masuulka hubiyay:

Magaca \_\_\_\_\_ Saxeexa \_\_\_\_\_ Tarikhda [\_\_\_/\_\_\_/\_\_\_]

**QUESTIONNAIRES –AMHARIC VERSION**

**በጅማ ዩኒቨርሲቲ በህብረተሰብ ጤና እና በህክምና ሳይንስ ኮሌጅ**

**የኢፒዲዮሎጂ ትምህርት ክፍል**

**መግቢያ:-** እንደምን አደሩ ዋሉ አመኛ ስሜ \_\_\_\_\_ ይባላል እኔ በዚህ ሆስፒታል የምስራ አዋላጅ ነርስ ስሆን በተጨማሪም በጅማ ዩኒቨርሲቲ የህብረተሰብ ጤና እና ህክምና ሳይንስ ኮሌጅ የኢፒዲዮሎጂ ትምህርት ክፍል የሚማር ተማሪ በሚያካሂደው ጥናታዊ ዳስሳ መረጃ ስብሰባ ነኝ። የዚህ ጥናት ዋና አላማ የሴት ልጅ ግርዛት በወሊድ ወቅት የሚያመጣው ችግር እንዳለ ለማወቅ ሲሆን የጥናቱ ውጤት የእናቶችን የጤና ሁኔታ ከፍ ወዳለ ደረጃ ለማድረስና በመረጃ የተደገፈ የመከላከል እቅድ ለመንደፍ ያስችላል።

**ሚስጥርን መጠበቅና የፈቃደኝነት መግለጫ።** እርሶን በዚህ ጥናት እንዲሳተፉ መርጦታል። በቅድሚያ አንዳድ ሰዎችን ለመመለስ ሊያስቸግራቸው የሚችሉ በጣም የግል የሆኑ ጥያቄዎችን መጠይቁ ማካተቱንና የምንጠይቅዎ መሆኑን እንገልጻለን። ። ለማይፈልጉት ጥያቄ መልስ ያለመስጠት ይችላሉ። የእርሶ ተሳትፎ ሙሉ በሙሉ በፈቃደኝነትዎ ላይ የተመሰረተ ነው። በጥናቱ ላይ መሳተፍ ጀምረው በፈለጉበት ሰዓት የማቋረጥ መብት አለዎት ይህን በማድረግዎ ከሆስፒታሉ ሊያገኙት የሚገባዎትን አገልግሎት አያጓደልቡትም። ሆኖም የሚሰጡንን ማንኛውንም አይነት መልሶች በሚሰጡ እንደሚያዙና ስምዎን ወይም የእርስዎን ማንነት የሚገልጽ ማንኛውም አይነት ነገር እንደማይጻፍ በጣም ሊረዱልን እንፈልጋለን። ። እዚህ ጥናት ላይ መሳተፍ በእርሶ ላይ ምንም አይነት ጉዳት አያስከትልም እንዲሁም ምንም አይነት ክፍያም አይከፈሉትም። ሆኖም በጥናቱ ላይ በመሳተፍ የሚሰጡን ቅንነት የታከለበት መልስ የችግሩን ደረጃ በትክክል እንድናውቀው ይረዳል። ትክክለኛ ምላሽ ይሰጡናል ብለን እናምናለን። ለሚያደርጉልን ትብብር ከወዲሁ እናመሰግናለን። ጥያቄ አለዎት?


ለመሳተፍ ፈቃደኛ ነዎት?

ፈቃደኛ ነኝ \_\_\_\_\_ (አመስግነህ ቀጥል/ይ)  
የመጠይቁ መለያ ቁጥር \_\_\_\_\_

ፈቃደኛ አይደለሁም \_\_\_\_\_ /ከሆነ አመስግነህ/ሽ እለፍ/ፊ  
የሆስፒታሉ ስም \_\_\_\_\_

## Section 1:- FGM related information (based on observation)

Notice: Use the following description to ascertain the type of FGM


<b>S No</b>	<b>Question</b>	<b>Observation</b>	<b>Skip to</b>
Q101	Does the woman have any type of FGM? <b>Observe and record!</b>	1. Yes 2. No 	Go to Q201
Q102	If yes what type of FGM? <b>Observe and record!</b>	1. Type I Excision of partial or total of the clitoris and/or the clitoral hood  2. Type II Partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora.  3. Type III The removal of labia minora and/or labia majora, with or without excision of the clitoris and stitching and/or narrowing of the vaginal opening leaving a small hole for urine and menstrual flow.  4. Type IV All other harmful procedures to the female genitalia for non-medical purposes (e.g., pricking, piercing, incising, scraping, and cauterization.	



**ክፍል ሁለት: የግለሰቧ ማህበራዊና ኢኮኖሚያዊ ሁኔታ**

ተ.ቁ.	ጥያቄዎች	መልስና ኮድ	አለፍ ወደ
201	እድሜዎ ስንት ነው?	_____ አመት	
202	በአሁኑ ጊዜ የት ነው የሚኖሩት?		
203	ያጠናቀቁት ከፍተኛ የትምህርት ደረጃ ስንት ነው?	1. ማንበብና መጻፍ የማትችል 2. ማንበብና መጻፍ የምትችል ያጠናቀቁት የትምህርት ደረጃ _____	
204	ሀይማኖትዎ ምንድን ነው?	1. ሙስሊም 2. ኦርቶዶክስ 3. ፕሮቴስታንት 4. ካቶሊክ ሌላ/ይገለጹ/_____	
205	የየትኛው ብሄረሰብ አባል ነዎት?	1. ሶማሌ 2. አማራ 3. አሮሞ 4. ትግሬ ሌላ/ይገለጹ/_____	
206	በአሁኑ ሰዓት የትዳር ሁኔታዎ እንዴት ነው?	1. ያላገባች 2. ያገባች 3. አግብታ የፈታች 4. በሞት የተለየ 5. የተለያዩ 6. ያላገባች ነገር ግን በጓደኝነት ያለች	
207	በአሁኑ ጊዜ ስራዎ ምንድን ነው?	1. ስራ አጥ 1 2. ተማሪ 2 3. የቤት እመቤት 3 4. የቤት ሰራተኛ 4 5. የቀን ተቀጣሪ 5 6. ነጋዴ 6 7. መንግስት ሰራተኛ 7 8. የግል ድርጅት ሰራተኛ 8 ሌላ/ይገለጹ/_____9	
208	አጠቃላይ የቤተሰብዎ የወር ገቢ ስንት ነው? /በግምት/	_____ ኢት ብር 1. ምንም ገቢ የለንም 88. አላውቅም	
219	ከመኖሪያ ስፍራዎ እዚህ ለመድረስ ምን ያህል ደቂቃ ይፈጃል?	_____ የሚፈጅው ደቂቃ	

**ክፍል ሦስት: ቀደምት የስነ ተዋልዶ ሁኔታ**

ተ.ቁ.	ጥያቄዎች	መልስና ኮድ	አለፍ ወደ
301	ከዚህ በፊት አርግዘው ያውቃሉ?	1. አዎ 2. አላረገዝኩም 	ወደ ቁ 401

302	ስንት ጊዜ አረገዙ?	የእርግዝና ብዛት _____	
303	በህይወት ዘመንዎ ስንት ልጆች ወልደዋል?	የወለዱዎቻቸው ልጆች ብዛት _____	
304	በወሊድ ወቅት የሞተቦት ወይም ሞቶ የተወለደ ህጻን ነበሮት?	1. አዎ 2. አላጋጠመኝም →	ወደ ቁ 306
305	መልስዎ አዎ ከሆነ ለምን ያህል ጊዜ ነው ያገጠሞት?	_____ ጊዜ	
306	በህይወት ዘመንዎ ውርጃ አጋጥሞት ያውቃል?	1. አዎ 2. አላጋጠመኝም →	ወደ ቁ 401
307	መልስዎ አዎ ከሆነ ለምን ያህል ጊዜ ነው ያገጠሞት ?	_____ ጊዜ	

**ክፍል አራት: በአሁኑ እርግዝና ወቅት የነበሩ ሁኔታዎች**

ተ.ቁ.	ጥያቄዎች	መልስና ኮድ	አለፍ ወደ
401	የአሁኑን እርግዝና አቅደውበት ነበር	1. አዎ 2. አላቀድኩበትም	
402	በዚህ የእርግዝና ወቅት የቅድመ ወሊድ ክትትል አድርገዋል?	1. አዎ 2. አላደረሁም →	ወደ ቁ 404
403	መልስዎ አዎ ከሆነ ስንት ጊዜ አደርጉ?	_____ ጊዜ	
404	በዚህ እርግዝና ወቅት የደም ግፊት አለቦት ተብለው ነበር?	1. አዎ 2. አልተነገረኝም	
405	በዚህ እርግዝና ወቅት የስኳር በሽታ እንዳለቦት ተነግሮዎታል?	1. አዎ 2. አልተነገረኝም	
406	በዚህ እርግዝና ወቅት አደጋ ለምሳሌ ግጭት መውደቅ አገጥሞት ነበር ?	1. አዎ 2. አላገጠመኝ 3. አላስታውስም	
407	የናትየው ቁመት ምን ያህል ነው ?	_____ ቁመት በሴ.ሜ	
408	Mede upper arm circumference (MUAC) (እባኩትን ለከተው ይመዘግቡ)	_____ ሴ.ሜ	
409	በእርግዝናዎ ወቅት አልኮል መጠጥ ይጠቀሙ ነበር?	1. አዎ 2. አልተጠቀምኩም →	ወደ ቁ 411
410	መልስዎ አዎ ከሆነ በየስንት ጊዜ ነበር የሚጠጡት? አንድ መለኪያ አልኮል ማለት 1. አንድ ጠርሙስ ቢራ ,ወይን ,ጠላ,ጠጅ 2. አንድ መለኪያ አረቄ, ጅን ውስኪ የመሳሰሉ	1. በየቁኑ 2. በሳምንት 5-6 ጊዜ 3. በሳምንት 3-4 ጊዜ 4. በሳምንት 1 ጊዜ 5. በወር አንድ ጊዜ 6. በእርግዝና ወቅት 1-2 ጊዜ 7. አላስታውስም	
411	በእርግዝናዎ ወቅት ጫት ይቅሙ ነበር ?	1. አዎ 2. አልቅምም 3. አላስታውስም	

412	መልስዎ አዎ ከሆነ በየሰዓት ጊዜው ነበር የሚቆሙት?	1. በየቁኑ 2. በሳምንት 5-6 ጊዜ 3. በሳምንት 3-4 ጊዜ 4. በሳምንት 1 ጊዜ 5. በወር አንድ ጊዜ 6. በእርግዝና ወቅት 1-2 ጊዜ 7. አላስታውሰውም	
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**Section 5:- Information on delivery outcome (Observational)**

**Notes:** This observational checklist should be filled at the end of delivery

S No	Question	Observation	Skip to
Q501	What was the mode of delivery	1. Spontaneous vaginal delivery 2. Spontaneous vaginal delivery assisted by episiotomy 3. Instrumental delivery 4. Cesarean section →	Q504
Q502	What was duration of second stage of labor?	Duration in mints _____	
Q503	Does she have perineal tear?	1. Yes 2. No	
Q504	Is there Postpartum blood loss?	1. Yes 2. No →	Go to Q506
Q505	Amount of blood lose	_____ estimated volume in ML	
Q506	Is the labor obstructed?	1. Yes 2. No	
Q507	Is the child born alive?	1. Yes 2. No	
Q508	Birth weight of the baby in grams? <b>Please review and fill from records.</b>	Weigh in gram _____	

በጥናቱ ላይ ስለተሳፉ በጣም እናመስግናን

መጠይቁን የሞላው ባለሞያ

ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን [\_\_\_/\_\_\_/\_\_\_]

መጠየቁ እንደተሟላ ያረጋገጠው

ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_ ቀን [\_\_\_/\_\_\_/\_\_\_]

## ANNEX 2: SNRS MAP (study area)

