

DISPARITIES IN ADVERSE PREGNANCY OUTCOMES BETWEEN  
ADVANCED AND YOUNGER AGE WOMEN DELIVERING AT  
HEALTH FACILITIES OF SHASHEMENE TOWN, ETHIOPIA.

BY

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## **Abstract**

**Introduction:** Women older than 35 years are known to bear “advanced maternal age” and considered to be at risk of adverse pregnancy outcome. Data, on adverse birth outcomes and the risk factors are still scarce in developing countries including Ethiopia, although they are critical for planning maternal and child health care services.

**Objectives:** To compare the proportion of adverse pregnancy outcome at an advanced and younger maternal age and identify its predictors among women delivering at public health facilities of Shashemene Town, Ethiopia from March to April 2016.

**Method and Materials:** Institution based comparative cross sectional study were conducted from March to April, 2016. A consecutive sampling technique was employed to select 306 study participants. Data were collected using pretested structured questionnaires through face to face interview and checklist. Four data collectors BSc, Midwife who work in maternity ward and two supervisors, BSc Midwife, were recruited. The data were entered in to Epi-data version 3.1 and analyzed using SPSS version 20.0. Logistic regression analyses were used to identify association of advanced maternal age with adverse pregnancy outcomes.

**Results:** A total of 306 mothers were involved in this study with response rate of 100%. Advanced maternal age (AOR=1.883, 95% CI, (1.078, 3.288)), ANC followup (AOR=3.902, 95% CI (1.529, 9.96)) and mode of current delivery (AOR=3.381, 95% CI (1.581, 7.234)) were factors associated to adverse pregnancy outcome.

**Conclusion:** Advanced maternal age, Antenatal follow up and mode of current delivery were risk factor for adverse pregnancy outcome.

**Keywords:** adverse Pregnancy Outcomes; Advanced maternal age

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## **Acronyms and Abbreviation's**

<b>AMA</b>	Advanced maternal age
<b>ANC</b>	Antenatal care
<b>AOR</b>	Adjusted odds ratio
<b>APH</b>	Ante partum hemorrhage
<b>ART</b>	Assisted reproductive technology
<b>C/S</b>	Caesarian section
<b>CI</b>	Confidence Interval
<b>COR</b>	Crude odds ratio
<b>LBW</b>	Low birth weight
<b>NICU</b>	Neonatal intensive care unit
<b>PIH</b>	Pregnancy induced hypertension
<b>PPH</b>	Postpartum hemorrhage
<b>SD</b>	Standard deviation
<b>SPSS</b>	Statically package for social science
<b>SVD</b>	Spontaneous vaginal delivery
<b>VBAC</b>	Vaginal birth after caesarian section
<b>HIV</b>	Human immune deficiency Virus
<b>AIDS</b>	Acquired immune deficiency syndrome

# Chapter one: Introduction

## 1.1. Background

Globally women and children are among the most vulnerable in terms of unfavorable influences in the environment including insufficient nutrition, inadequate health care and poor education. In addition, Pregnancy brings those factors high risk for women. Worldwide, it is estimated that more than 50 million women suffer from poor reproductive health and serious pregnancy-related complication (1).

A mother aged 35 years and above at estimated date of delivery is known to be old age (2).

Money study shows that being at old age risks to both mother and child's health. Older pregnant mother has an increased risk of pregnancy complications, labour complication and adverse fetal outcome (3).

Older age is risk factor for decreasing fertility and increasing miscarriage rates and as a result with an increase of involuntary childlessness. For women who succeed in conception at higher age, the risk for complications during pregnancy and in particular delivery is increased, but also the prevalence of adverse outcomes in their babies. These complications include medical conditions (hypertensive disorders, gestational diabetes, preterm birth), labour factors (induction of labour, prolonged labour) and mode of delivery (caesarean sections). Children have a higher risk for congenital anomalies and foetal and neonatal mortality (4).

Advanced age is associated with significantly increased risk of maternal antepartum and intrapartum complications such as hypertensive disorders, antepartum hemorrhage and placenta Previa, gestational diabetes mellitus, preterm labor, dysfunctional labor, induced labor, instrumental and cesarean delivery, and retained placenta, as well as adverse infant outcome including macrosomic and small-for-gestational infants, birth asphyxia, and need for admission into the neonatal intensive unit, in both nulliparous and multiparous women (5).

When we assess maternal mortality globally annually, 287,000 women die because of pregnancy related complications. From those deaths 99% in developing world and ~ 1% in developed countries. Globally, the total number of maternal deaths decreased from 543 000 in 1990 to 287 000 in 2010. The direct causes of maternal deaths

APH,PPH,obstructed labour prolonged labour, ruptureduterus, sepsis, severe pre-eclampsia and severe complication of abortion. Our country is one of the six countries in 2008 which contribute more than 50% of all maternal deaths. Newborn health and survival are closely linked to care the mother receives before and during pregnancy, childbirth, and the postnatal period. Every year: 4 million neonatal deaths (first month of life) ,4 million stillbirths,eight neonatal deaths every minute, Neonatal mortality is 37 per 1,000 live births ,50 percent of infant deaths in Ethiopia occur during the first month of life. One in every 17 Ethiopian children dies before reaching age one (6).

In our country adverse outcome of pregnancy are still major public health problems. Prevalence of adverse birth outcomes still birth, preterm birth and low birth weight were high and still a major public health problem (7).

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

The changing patterns of becoming pregnant at an advanced age have serious public health impact because of increased risk of adverse pregnancy outcome. In 2002, Astolfi and Zonta estimated that by the year 2025 about 25 % of mothers were in their child-bearing period at an “advanced age” (8).

In developed country for a number of social and medical reasons, such as career related delays and opportunity of ART, change in women’s social roles, the option of investing in training and career developments, and use of family planning, an increasing number of women gave birth at age 40 or greater (9).

Women who become Pregnant at advanced maternal age have increased, particularly in developed society. Currently the mean age of the primiparous is relatively high in Sweden, Netherlands and the United States (10).

The prevalence of older age mother is increasing in South Australia, and in the United States of America (11).

In 2009, the birth rate in the United States declined in all age groups below 40 years but continued to rise in women aged 40–44 and remained unchanged in women aged 45 and over (12).

In turkey the fertility rate in women over 35 years old is 4.7%. pregnancies that happen at over 35 years of age and that have higher pregnancy- and birth-related morbidity and death make up 12.2% of pregnancies in Turkey (13).

In Norway A historical cohort of 6619 singleton pregnancies between 2004 and 2007 shows that the prevalence of older age mother is 33.4%. In Taiwan proportion of women with older age mother at delivery increased from 11.4 to 19.1%. There is a clear trend in higher-income countries towards delaying childbirth to later reproductive years (14)

A cohort study done in the UK showed an 18.2% prevalence of maternal ages of 35 years or older. The average age at childbearing in UK has risen sharply over the last decade and 18% of all pregnant women are now aged 35 or above, compared with 8% in 1990(15)

Study conducted in Taiwan illustrate that women giving birth at age 35 years or older more likely to have pregnancy complications and adverse perinatal outcomes such as, preterm delivery, operative vaginal delivery, cesarean delivery, a birth weight <1500 g, low Apgar scores, fetal demise, neonatal death placenta previa, placenta accreta and placental abruption. This again proves that advanced maternal age is independently associated with specific adverse perinatal outcomes in this population (15).

study conducted in turkey prove that advanced age women were associated with increased risk for adverse pregnancy outcome such as, caesarian section (12.9% vs 7.9%) and complication rate when compared with normal reproductive age group (17).

Lower-income countries differ significantly in the socio demographic characteristics and the accessibility of obstetric care services; however, AMA still represents a significant and growing fraction of pregnant women in these countries (18).

In developed countries where older age women are more often primiparous, childbearing at advanced maternal age is more common among multiparous women in developing countries as a result of factors such as lack or ineffective family planning methods, favorable cultural disposition towards large family sizes and poverty (19).

Comparative study conducted in Nigeria confirm that older primigravida are risk of cesarean section, instrumental vaginal delivery (4.4% vs 2.9%), fetal macrosomia (16.2% vs 6.6% ), and preterm delivery (10.8% vs 5.1%), when compared to their younger counter parts (20).

A prospective case control study done by comparing women age 20-34 and 35 years and above conducted in Addis Ababa shows that advanced maternal age are high risk of adverse pregnancy outcome such as hypertension, induction of labor and operative deliveries. Women aged 35 years and above are multi Para and less educated than women <35 (21).

The association between increasing maternal age and perinatal complications has a substantial influence from a public healthcare point of view. Many women are unaware of the potential consequences of delayed childbearing. There are missed opportunities in preconception counseling and education that should be addressed to allow for more informed decision making about family planning. There is a need for more information

about the consequence childbearing in the advanced maternal age group and maternal and obstetric care should be adjusted accordingly (22).

### **1.3. Significance of the study**

Although there are many study done in developed country regarding the influence of advanced maternal age on adverse pregnancy outcome there is no current study conducted in these topic in Ethiopia especially in shashemene. In our country the mothers who gave birth at advanced age have no special attention given to them during antenatal follow up and delivery. Due to cultural influence, religion and low educational status having many children is seen as gift from god. Due to these problem and different problems large number of women gave birth at 35 ages and above. As much literature suggests advanced maternal age has high risk for the mother and the newborn. The aims of this study were to make the influence of maternal age on selected obstetric and prenatal outcomes clear in old aged. This study contributes to efforts to reduce maternal and child mortality rates which may occur as a result of the adverse pregnancy outcomes. In order for this goal to be attained, a substantial reduction in maternal and child deaths is required and to recommend policy makers for future planning and appropriate strategies to incorporate these issue in reducing the maternal and new born, mortality and morbidity. The paper was useful to other researchers as reference material while conducting further studies.

## Chapter 2: Literature review

At advanced maternal age there are various risks related to pregnancy for both the mother and infant, including prenatal and intra-partum complications and adverse outcomes.

A prospective study conducted in Iraq showed that there is increase in the complications of pregnancy out come at older maternal age. The study stated that there is increased risk of parity, miscarriage, multiple pregnancy, essential hypertension, APH, PPH, rate of c/s, macrosomia, postdate delivery, low apgar score at one minute, congenital abnormality and IUFD to mothers aged 35 years and above (3).

Another study done in turkey a retrospective case control shows advanced maternal age are many adverse perinatal out comes. The finding shows that there is higher incidence of hypertension, diabetes mellitus, fetal complication, 5 minute apgar score <7, c/s for fetal distress and macrosomia for mothers aged 40 years and above(23).

Another study done in Iran shows that primipara women's age 35 years and above are high risk of preeclampsia, GDM, preterm labour ,malpresentation, c/s, LBW while multipara has increased risk of pre-eclampsia and LBW(24).

An observational descriptive study wereConducted in Argentina on mothers 40 years and above indicated that there were a significant increase in the frequency of chronic hypertension, c/s, preeclampsia, diabetes mellitus, bleeding, perinatal mortality, fetal mortality, preterm delivery and LBW (10).

A multi-center cross sectional study revealed that the prevalence of preterm birth, early neonatal mortality, LBW, NICU admission, and Apgar score <7 at 5 minute were increased in mother 35 years and above (18).

A comparative study done in Germany found that women age 35 years and above have a higher risk of gestational glucose intolerance, hypertension and hospitalization during their Pregnancy, 45% have a caesarean delivery and their hospital stays are longer (25).

Study conducted in University of Eastern Finland find out Women aged 35 years or older were 1.5 times more likely to have been diagnosed with preeclampsia compared with their younger counter parts. Older women aged  $\geq 35$  years had a higher prevalence



and increased risk of nearly all of the outcomes measured (preterm delivery <34 weeks of gestation and <37 weeks of gestation, low Apgar scores at 5 min., SGA, asphyxia, Caesarean and admission to NICU), except for induction, eclampsia and blood transfusion. The increased risk was the most evident in Caesarean and in preterm delivery <34 weeks of gestation. AMA women with preeclampsia were at an especially increased risk of preterm deliveries (<34 and 37 weeks of gestation) and SGA. AMA women with GDM were at increased risk of preterm delivery (<28 weeks' gestation), fetal death, shoulder dystocia, LGA, preeclampsia and NICU (26).

Study conducted in Israel, indicate that the rates of gestational diabetes mellitus , hypertensive complications , rate of preterm delivery at 37 and 34 weeks of gestation , rates of cesarean delivery, placenta Previa, postpartum hemorrhage, and adverse neonatal outcome ,toxemia, and neonatal intensive care unit admission were increased for women aged\_50 years(2).

Study conducted in Spain shows that advanced age mothers are prone to miscarriage, preeclampsia, small for gestational age, gestational diabetes mellitus, and cesarean section but not still birth, gestational hypertension, spontaneous preterm delivery or large gestational age (27).

A ten-year retrospective case control study of the birth outcome of elderly primigravida compared with younger primigravida (20-34years) conducted in Nigeria shows that Elderly primigravida are at an increased risk of pregnancy induced hypertension/Preeclampsia and caesarean delivery than the younger primigravida. On the other hand, there is no difference in the fetal outcome in the two groups (28).

A retrospective study conducted in turkey find that advanced maternal age has been associated with adverse pregnancy outcome including preterm birth, pre-eclampsia, hypertension, intrauterine growth restriction, and placental abruption also increase (29).

Study conducted in Nigeria indicate that advanced age have shown a significantly increased incidence of hypertensive disorders in pregnancy, rate of low birth weight babies, Uterine fibroids, gestational diabetes mellitus, abnormal presentation and caesarean deliveries. However, the rates of ante partum hemorrhage, postpartum hemorrhage, genital tract trauma, congenital malformation were higher in the older women, though not statistically significant. (11).

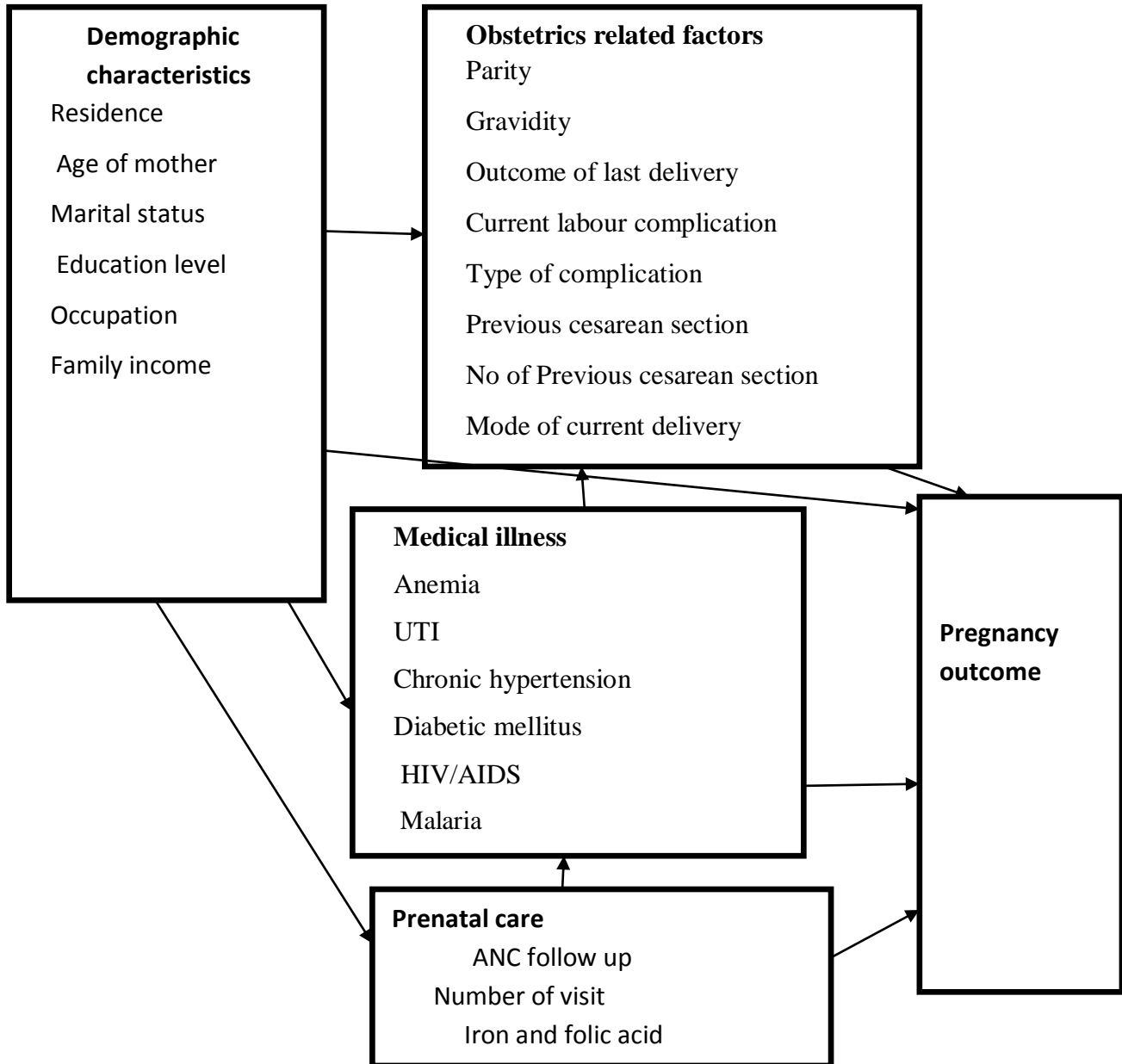
Study conducted in Cameron indicates that advanced maternal age women are at higher risk to cesarean delivery. Increased risk of ante partum and intra partum complications among multiparous advanced maternal age women were associated to adverse perinatal outcome such as higher incidence of preeclampsia/eclampsia, fetal distress, fetal death, postpartum hemorrhage, preterm delivery. Low birth weight, admission to special care neonatology unit, low Apgar scores (at 1 min and 5 min) and perinatal mortality rates. The primiparous older women have statistically similar perinatal outcome with their younger primiparous women and similar ante partum and intrapartum complications except APH. APH were tenfold higher in advanced maternal age primiparous women than their younger counterparts and twofold more frequent among advanced maternal age (15).

The study conducted in our setting also supported another finding that shows advanced maternal age were related to complications of bleeding during pregnancy, complication during labour and adverse pregnancy outcome (21).

Overall as different literature are searched on adverse pregnancy outcome at advanced maternal age mothers who were age 35 and above were poorer outcome when compared to younger age group. Different finding shows that advanced age were increased risk of gestational diabetes, placenta Previa, pregnancy-induced hypertension, Induction of labour, Perinatal mortality, low birthweight, low apgar score 5 minute <7, still birth, preterm birth, perinatal and neonatal death, and intra-uterine foetal death. Older women are also more likely to have been diagnosed with hypertensive disorders, diabetes mellitus and other chronic conditions.

## 2.1. Conceptual frame work

Conceptual frame work for this study constructed after review of different literatures. The box used to separate independent variables from dependent variable and the direction of arrow shows the relation between independent and outcome variables. The relationship between the independent variables in this study is not the interest of the investigator (**figure 1**).



**Figure 1:conceptual frame work constructed after review of different literature on disparities in adverse pregnancy outcomes between advanced and younger age women delivering at health facilities of shashemene town, Ethiopia, 2016.**

## **Chapter three: Objective of the study**

### **3.1 General Objectives:**

- ❖ To compare the proportion of adverse pregnancy outcome at an advanced and younger maternal age and identify its predictors among women delivering at public health facilities of ShashemeneTown, Ethiopia from March to April 2016.

### **3.2 Specific objectives**

- 3.2.1. To compare adverse pregnancy outcomes at an advanced and at younger maternal age.
- 3.2.2. To identify predictors of adverse pregnancy outcomes

## **Chapter four: Methods and Materials**

### **4.1. Study setting and Study period**

Shashemene, Town situated in the West Arsi Zone in Oromia Regional State, Ethiopia (“CSA-Ethiopia”, 2012). Shashemene is one of the urban centers of Oromia that are categorized under First-Class cities. The city lies on the Trans-African Highway 4 Cairo-Cape Town, about 150 miles (240 km) from Addis Ababa. Based on the 2007 population Census, the population size of Shashemene were 102,062 of which 51,477(50.4%) are males and 50,585 (49.6%) are females. According to the Central Statistical Agency of 2005, females 35.2 % (16,288.5) were in reproductive age group (15-49), the total fertility rate were 4.2. The population expected for 2013, using the census data in 2007, were 129,084; of which 65,091 were men and 63,993 were women. It was one of the newly emerging towns in the late 1960s; being on the way of migration and trade, it were connecting Kenya to Ethiopia. In terms of ethnicity, the majority of the inhabitants are Oromos. Amhara, Guraghe, Wolaita, Tigre, Kembata and Hadiya, Jamaicans’ and Arabs are among the ethnic groups in an order of dominance in number. Regarding Religion, Orthodox, Muslim, Catholic, Protestant and Rastafarian are the major religions in Shashemene. Shashemene is situated at the cross-road that connects five major towns/regions of the country; namely, the road from Addis Ababa, Bale, Hawassa, Wolaita and Wondo genet. Indeed, the city is growingly becoming a center of commerce and tourism. There two public hospitals and three health center. Shashemene referral hospital was one of the referral hospitals serving both rural and urban population around shashemene town. Melkaoda hospital were district hospital serving the community in shashemene town and the others community around the town. The study was conducted at Shashemene referral hospital and Melkaoda hospital. The studies were carried out for one month from March to April, 2016.

### **4.2. Study design**

A comparative cross sectional study was conducted on pregnancy outcomes among women aged **20\_34 years and 35<sup>+</sup>** delivering at public health facilities in the town.

### **4.3. Population**

#### **4.3.1. Source population**

All pregnant mothers who gave birth at public health facilities of Shashemene Town, Ethiopia, from March to April, 2016.

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

Selected mothers who gave birth during the study period at public health facilities of Shashemene Town, Ethiopia.

### **4.4. Inclusion criteria and exclusion criteria**

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

All mothers 20 years and above who give birth at public health facilities of Shashemene Town, Ethiopia during data collection period.

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

Seriously ill women who are unable to respond at time of data collection period.

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

#### **4.5.1. Sample size estimation**

The sample size is calculated using Epi info with the following assumption:

Confidence level of 95%,

Power of 95%

Ratio: 1:1

$p_1$ : 21 prevalence of all operative delivery for the mother age 20\_34

$p_2$ : 41 prevalence of all operative delivery for the age 35 and above

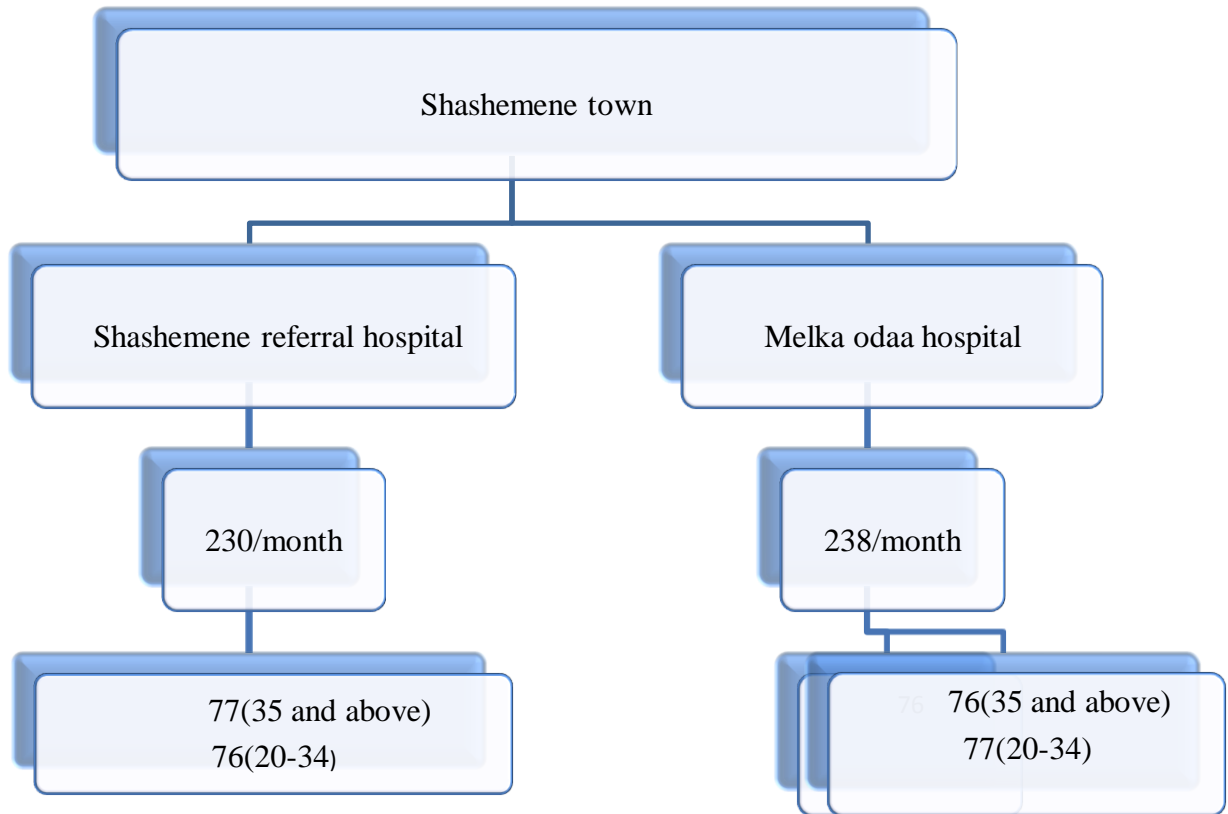
The expected sample proportions of the two groups: 278 (139 each)

Non response rate = 10%

Total simple size = 306 (153 each)

#### 4.5.2. Sampling technique

A consecutive sampling technique was employed to select study subjects according to inclusion criteria, from two hospitals. Sampling distributions were done to the hospital based on previous patient flow during one month deliveries that are same period to my study period.



**Figure 2: Sampling distribution of health facilities of Shashemene Town, Ethiopia, 2016**

## 4.6. Study Variables

### 4.6.1. Dependent variables

Pregnancy outcomes

### 4.6.2. Independent variables

#### **Sociodemographic variable**

Residence

Age of mother

Marital status

Education level

Occupation

Family income

#### **Obstetrics related factors**

Parity

Gravidity

Outcome of last delivery

Current labour

complication

Type of

complication

Previous cesarean

section

No of Previous

cesarean section

Mode of current

delivery

#### **Medical illness:**

Chronic

hypertension,

Diabetic mellitus,

Anemia

Malaria

HIV/AIDS status

#### **Prenatal care:**

ANC follow up

Number of visit

Iron intake/folic

acid intake



#### **4.7. Operational definitions and Definition of terms**

**Adverse pregnancy outcome:** this is a composite variable measured by the different indicators such that the presence of the indicator was given a score of “1” and its absence was given a score of “0”. If at least one of the following is present, it was rated as presence of adverse pregnancy outcome.

##### **Maternal out comes**

Pregnancy induced hypertension, Instrumental delivery, Induction, APH, PPH, Caesarian section

##### **Immediate fetal outcome**

Stillbirth, Fetal malformation, Low birth weight, 5-minute Apgar score <7, Preterm.

**Advance maternal age:** maternal age of 35 years and above at the time of current delivery.

**Normal reproductive age group:** maternal age of 20-34 at the time of current delivery.

**Anemia:** Classified based on hemoglobin level.

Normal: Hgb ≥ 10g/dl.

Anemic: Hemoglobin levels than 10 g/dL.

**Last normal menstrual period (LNMP):** was confirmed both from her chart, and through interview. Gestational age: was estimated based on her LNMP, using Ultrasound report from chart review.

**Family income** was determined by asking monthly income of households (herself and husband) if they were employed or sacks of grains harvested during their last harvesting season and multiplying it by the average local market cost plus any additional incomes.

**Malaria:** was defined as if the mother has already had malaria before pregnancy or during current pregnancy

**HIV AIDS:** was defined as if the mother has already have. HIV/AIDS virus in her blood before pregnancy or during current pregnancy

##### **Diabetes mellitus:**

**Gestational Diabetes Mellitus (GDM)** is any degree of glucose intolerance with onset or First recognition during pregnancy.

**Pre-pregnancy diabetes:** diagnosed prior to onset of pregnancy. This can be type 1 or Type 2.

#### **4.8. Procedure for data collection and tools**

Data were collected using a combination of a structured questionnaire and client's chart were reviewed by using checklist to retrieve medical information and test results that could not be captured by the interview.

The tools adapted after reviewing different literatures. The questionnaires were structured into four logical sections (socio demographic characteristics, obstetrics related factors; medical history and other characteristics and check list for outcomes assessment.

Four data collectors who are BSc Midwives (speaking both Afaan Oromo and Amharic language) working in maternity ward at melkaoda hospital and shashemene referral hospital were recruited. Two supervisors who were BSc Midwife were selected from shashemene health Science College for supervision of overall data process.

Interviews, Chart review, were taken after delivery when the woman was considered both physiologically and physically stable. Data was collected during day and night. The filled questionnaire was collected and signed by supervisor after it was checked for any missing items and correctness.

#### **4.9. Procedure for data processing and analysis**

Data were entered using Epi data version 3.1. After organizing, cleaning data for inconsistencies, exported to SPSS version 20.0 for analysis. Missing value in SPSS was checked, descriptive statistics was done such as percentages, frequency distributions cross tabulation and mean and measures of dispersion (SD) were used for describing data.

Binary logistic regressions were carried out to select candidate variable for multivariable logistic regression analysis. Variables with p value less than 0.25 in simple logistic regression selected for multivariable logistic regression. Multivariable logistic regression were done for variables that have p-value <0.25 during the Binary logistic regression analyses to identify factor associated with advanced age on pregnancy outcomes and to control for potential confounders. The degree of association between independent and dependent variables was assessed using odds ratio with 95% confidence interval p.value <0.05 were considered as statistically significant. The Hosmer -Lemeshow goodness-of-fit statistic was used to check if the necessary

assumptions for multivariable logistic regressions were fulfilled and the model had p-value > 0.05 which proved the model was good.

#### **4.10. Data management and quality control**

To assure the quality of data properly designed data collection instruments were developed. Training were given for data collectors and supervisors. To ensure the completeness, accuracy and consistency of data collection, a session were held each day of the data collection period. During these sessions thorough checking were done before receiving the filled questionnaires from each data collector, which helped to crosscheck for their performance and improving proper data collection.

The English version of the questionnaire were translated in to local language Afan Oromo and Amharic for better understanding by both data collectors and respondents and translated back into English Version by another individual who is expertise in both languages.

Pretest was done on 15(5%) of the sample just before data collection at dodalahospital. Based on the pretest, questions were revised, edited, and those found to be unclear or confusing were removed or modified by investigator. Day-to-day data collection processes were closely followed by Supervisor and the principal investigator during the actual study.

#### **4.11. Ethical consideration**

Ethical clearance were obtained from the Institutional Review Board (IRB) of Jimma University-College of Health Sciences to shashemene town health facility authorities. Permission letter were obtained from shashemene referral hospital and melkaoda hospital administration, after the objectives of the study were explained. Verbal consent were obtained from head of maternal and child health unit. Verbal consent was required from selected participant to validate willingness to participate in the study before the interview. Privacy and confidentiality were ensured to the information provided and the right to withdraw from the study as necessary confirmed.

#### **4.12. Dissemination plan**

The final report will be disseminated to the department of nursing and midwifery, College of health sciences, Jimma University. Also the study findings will be disseminated to the shashemene town health office and other relevant bodies. Attempts will be made to publish the findings in scientific Journal and Presentation in meetings/conference.

## Chapter five: Result

### 5.1. Socio demographic characteristics of the respondent

Three hundred and six study participants, women were interviewed resulting in a response rate of 100%. The mean age of the women 20-34 were 24.39 (SD±3.865) with a minimum of 20 years and maximum of 34 years. The mean age of the women 35+ were 37.44 (SD±2.575) with a minimum of 35 years and maximum of 48 years.

Regarding residence 65(42.5%) and 66(43.1%) among women aged **20-34** and **35+** respectively lives in rural area, majority of the women were married. The mother who read and write only 49(61.2%) and 31(38.8%) among aged **20-34** and **35+** respectively.

The major ethnic group in these area were Oromo 110(51.9%) and 102(48.1%) among aged **20-34** and **35+** respectively. One hundred sixty (48.7%) and 122(51.3%) among aged **20-34** and **35+** respectively were housewife. For more detailed description (see table 1)

### 5.2. Obstetric Characteristics of the respondent

Regarding gravidity 92(41.3%) and 131(58.7%) among aged **20-34** and **35+** respectively were multigravida. Parity 86 (56.2%) and 123(80.4%) among aged **20-34** and **35+** respectively were multiparous. One hundred forty two(50) of women aged **20-34** and **35+** delivered alive in preceding birth.

Sixty (42.1%) and 22(57.9%) of women aged **20-34** and **35+** respectively experienced previous cesarean section. fifty (48.4%) and 16(51.6%) of women aged **20-34** and **35+** respectively has one caesarian section. One hundred twenty(46.9%) and 136(53.1%) of women aged **20-34** and **35+** respectively had history of ANC follow up. Eighty nine(50.9%) and 86(49.1%) of women aged **20-34** and **35+** respectively has 1-3 no of ANC visit during current pregnancy.

Ninety eight (44.1%) and 124(55.9%) of women aged **20-34** and **35+** respectively were supplemented with Iron/Folic acid during the current pregnancy. Of the 306 deliveries about 96(44.4%) and 120(55.6%) were spontaneous vaginal deliveries among women aged **20-34** and **35+** respectively and the rest by caesarian section.

The study showed that 26(52%) mothers age(20-34) and 24(48%) mothers age(35 and above) encountered complications during current labour among which the leading cause

were prolonged labour 13(61.9%) for mothers age(20-34)and 8(38.1%) mothers age(35 and above).

One hundred twenty five (81.7%) of the mother age 20-34 and one hundred twenty (78%) of the mother age 35 and above knew their LNMP. For the rest the ultrasound estimate was taken from their follow up charts.

**Table 1: Distribution of women attending public health facilities of Shashemene Town by their Socio demographic characteristics, 2016**

Variables	Normal reproductive age group(20-	Advanced reproductive age group (35-49)
	34)	
	N0 (%)	N0 (%)
	N(153)	N(153)
<b>Residence</b>		
Rural	65(49.6%)	66(50.4%)
Urban	88(50.3%57.5)	67(49.7%)
<b>Marital status</b>		
Married	151(49.8)	152(50.2)
Others	2(66.7%)	1(33.3%)
<b>Educational status</b>		
Can'tto read and write	35(47.3)	39(52.7)
Can read and write only	49(61.2)	31(38.8)
Elementary	38(44.7)	47(55.3)
Secondary	14(35.9)	25(64.1)
College and above	17(60.7)	11(39.3)
<b>Ethnicity</b>		
Oromo	110(51.9)	102(48.1)
Amhara	26(48.1)	28(51.9)
Silte	11(68.8)	15(31.2)
Gurage	5(35.7)	9(64.3)
Others <sup>1</sup>	1(10)	9(90)
<b>Occupation</b>		
Housewife	116(48.7)	122(51.3)
Merchant	17(51.5)	16(48.5)
Others <sup>2</sup>	20(57.1)	15(42.9)
<b>Income</b>		
300-1000	44(48.9)	46(51.1)
1001-1800	43(61.4)	27(38.6)
18001-3000	48(50.0)	48(50.0)
>3000	18(36.0)	32(64.0)

<sup>1</sup>Wolayita, Hadiya, Tigire, Kambata

<sup>2</sup>government employee ,working in private

**Table 2: Distribution of women attending public health facilities of Shashemene Town by their Obstetric related characteristics, 2016**

Variables	Age	
	Normal reproductive age group (20-34) N0 (%) N(153)	Advanced reproductive age group (35-49) N0 (%) N(153)
<b>Gravidity</b>		
primigravida	61(73.5)	22(26.5)
multigravida	92(41.3)	131(58.7)
<b>Parity</b>		
Multipara	86(41.1%)	123(58.9%)
primiparous	67(69.1%)	30(30.9%)
<b>Outcome of your last delivery</b>		
preterm birth	8(53.3)	7(46.7)
live birth	142(50)	142(50)
stillbirth	3(42.9)	4(57.1)
<b>Previous cesarean section</b>		
Yes	16(42.1)	22(57.9)
No	137(51.1)	131(48.9)
<b>No of Previous cesarean section</b>		
One	15(48.4)	16(51.6)
Two or more	1(14.3)	6(85.7)
<b>Current antenatal follow up</b>		
Yes	120(46.9)	136(53.1)
No	33(66)	17(34)

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Number of visit		
1-3	89(50.9)	86(49.1)
>=4	31(38.3)	50(61.7)
Take Iron /folic acid during ANC		
Yes	98(44.1)	124(55.9)
No	55(65.5)	29(34.5)
Mode of current delivery		
SVD	112(73.2)	106(26.8)
Caesarian section	41(46.6)	47(53.4)
Current labor have any problem or complication		
Yes	26(52)	24(48)
No	127(49.6)	129(50.4)
Type of complication		
Prolonged labor	13(61.9)	8(38.1)
Mal position or Mal presentation	8(42.1)	11(57.9)
Obstructed labor	2(33.3)	4(66.7)
Others <sup>3</sup>	4(80)	2(20)

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<sup>3</sup> obstructed labour Failure of VBAC, uterine rupture, posterm, APH



### 5.3 Medical related complication of the respondent

Twenty two (56.4%) and 17(43.6%) mothers age **20-34** and **35+** coming for delivery report that they have chronic medical problem. Among this mothers age 35 and above report, Anemia 6(26.1%), malaria (3(100%), Upper urinary tract infection 2(33.3%), Chronic hypertension 2(66.7) and Diabetes mellitus 4(100%). From those participant 13(43.3%) were on treatment (see table 3)

**Table 3: Distribution of women attending public health facilities of Shashemene Town by their medical related characteristics, 2016**

Variables	Age	
	Normal reproductive age group (20-34) N0 (%) N(153)	Advanced reproductive age group (35-49) N0 (%) N(153)
medical illness before pregnancy		
yes	22(56.4)	17(43.6)
no	131(49.1)	136(50.9)
Type of medical illness		
Anemia	17(73.9)	6(26.1)
Malaria	0(0.0)	3(100)
Upper urinary tract infection	4(66.7)	2(33.3)
Chronic hypertension	1(33.3)	2(66.7)
Diabetes mellitus	0(0.0)	4(100)
On treatment		
Yes	17(56.7)	13(43.3)
No	136(49.3)	140(51.7)

#### 5.4 proportion of maternal adverse pregnancy outcomes of the respondent

When we compare the prevalence of adverse maternal pregnancy outcomes among women aged 20-34 and 35+, the risk was high among advanced maternal age. Those adverse maternal pregnancy outcomes among advanced maternal age were, Hypertensive disorder of pregnancy 21(53.8%), Postpartum hemorrhage 24(51.1%), Cesarean section 47(53.4%). The major indication for caesarian delivery was fetal distress in both groups. (Error! Reference source not found.)

**Table 4: Distribution of women attending public health facilities of Shashemene Town by their proportion of maternal adverse pregnancy outcomes, 2016**

Variable	Age	
	Normal reproductive age group(20-34) N0 (%)	Advanced reproductive age group(35+) N0 (%)
PIH		
Yes	18(46.2)	21(53.8)
No	135(50.6)	132(49.4)
Type of PIH		
Gestational HTN	9(42.9)	2(57.1)
Preeclampsia	7(50)	7(50)
Eclampsia	2(50)	2(50)
APH		
Yes	19(57.6)	14(42.4) \
No	134(49.3)	139(50.7)
PPH		
Yes	23(48.9)	24(51.1)
No	130(50.2)	129(49.8)
Instrumental delivery	3(2%)	2(1.3%)
Forceps	150(98%)	151(98.7%)
Induction		
Yes	25(59.5)	17(40.5)
No	126(48.5)	136(51.5)
cesarean section		
yes	41(46.6%)	47(53.4)
No	112(51.4%)	106(48.6)
Indication for CS		
Previous CS	12(46.2)	14(53.8)
Fetal distress	20(43.5)	26(56.5)

Others<sup>4</sup>

7(58.3)

5(41.7)

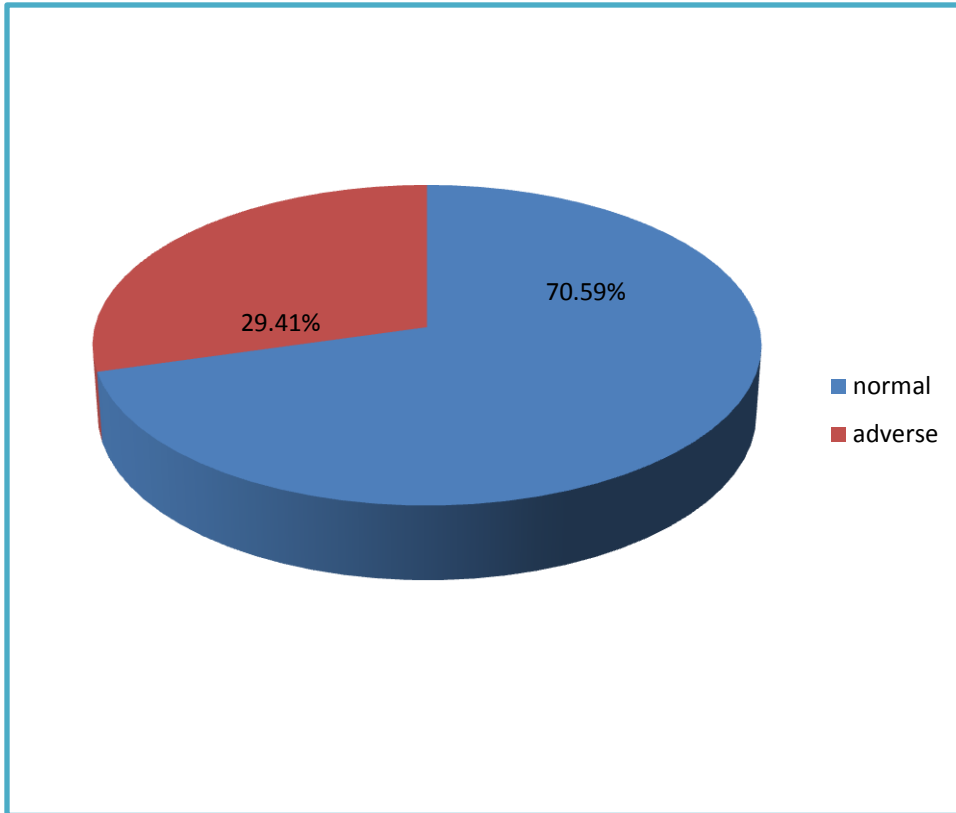
### 5.5. Proportion of fetal adverse pregnancy outcomes of the respondent

Adverse fetal outcomes were more at advanced maternal age except still birth which is the same frequency among the two age groups.

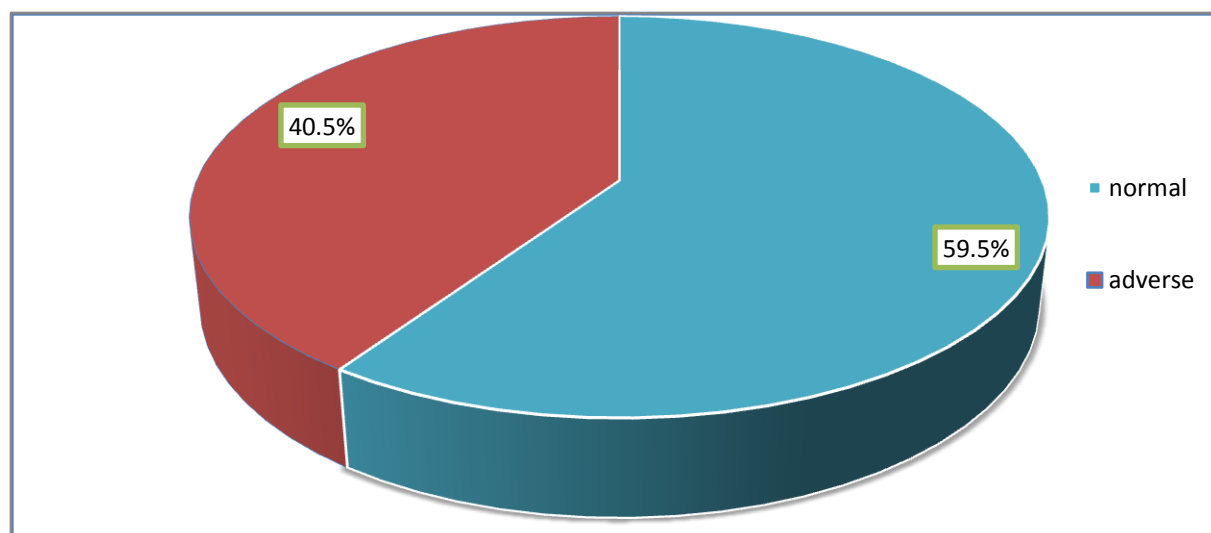
**Table 5: Distribution of women attending public health facilities of Shashemene town by their proportion of fetal adverse pregnancy outcomes, 2016.**

Variable	Age	
	Normal reproductive age group (20-34) No(%)	Advanced reproductive age group (35 and above) No(%)
Neonatal condition		
Live birth	143(50%)	143(50%)
Still birth	10(50%)	10(50%)
Gestational age		
Term	146(50.7)	142(49.3)
Preterm	5(45.5%)	(54.5)
Post term	2(28.6)	5(71.4)
Current pregnancy condition		
Single	152(50.3)	150(49.7)
Others	1(33.3)	2(66.7)
Twins	0(0)	1(100)
birth weight		
<1500g	1(14.3)	6(85.7)
1500-2500g	4 (28.6)	10(71.4)
2500-4000g	145(52.5)	131(47.5)
>=4000g	3(33.3)	6(66.7)
5 minute APGAR score <7		
Yes	140(54.1)	119(45.9)
No		
Congenital anomaly		
Yes	7(33.3)	14(66.7)
Yes	146(51.2)	139(48.8)
No	2(28.6)	5(77.4)
Death		

<sup>4</sup>Preeclampsia, Malpresentation, Failure to progress, cord prolapsed



**Figure 3: Proportion of adverse pregnancy outcome at age 20-34 among women at public health facilities of Shashemene Town, 2016**



**Figure 4:proportion of adverse pregnancy outcome at age 35 and above among women at public health facilities of Shashemene Town, 2016**

**Table 6:Binary logistic regression Analysis of Adversepregnancy outcome with socio demographic characteristics among women age20-34 and 35<sup>+</sup> delivering at public health facilities of Shashemene Town, 2016**

Predictors		Adverse pregnancy out come		P value	COR	95%C.I.for EXP(B)	
		No (%)	Yes (%)			Lower	Upper
Age	20-34	108(70.6)	45(29.4)		1.00		
	35 <sup>+</sup>	91(59.5)	62(40.5)	.042	1.635	1.017	2.628
Residence	urban	89(67.9)	42(32.1)		1.00		
	rural	110(62.9)	65(37.1)	.357	1.252	.776	2.020
Marital status	Married	197(65.0)	107(35.0)		1.00		
	Others*	2(66.7)	1(33.3)	.952	.929	.083	10.367
Educational status	Unable to read and write	52(70.3)	22(29.7)	.909	1.058	.405	2.761
	Read and write	52(65.0)	28(35.0)	.535	1.346	.526	3.446

	only							
	Elementary	50(58.8)	35(41.2)	.237	1.750	.693	4.421	
	Secondary	25(64.1)	14(35.9)	.530	1.400	.490	3.997	
	College and above	20(71.4)	8(28.6)		1.00			
<b>Religion</b>	Muslim	121(65.1)	65(34.9)		1.00			
	Orthodox	40(66.7)	20(33.3)	.819	.931	.503	1.723	
	others	38(63.3)	22(36.7)	.809	1.078	.588	1.974	
<b>Ethnicity</b>	Oromo	133(62.7)	79(37.3)		1.00			
	Amhara	37(68.5)	17(31.5)	.430	.774	.409	1.464	
	Others *	29(72.5)	11(27.5)	.240	.639	.302	1.349	
<b>Occupation</b>	House wife	150(63.0)	80(37.0)		1.00			
	Merchant	23(69.7)	10(30.3)	.456	.741	.337	1.629	
	Others*	74.3	25.7	.198	.590	.264	1.316	
<b>Income</b>	300-1000	44(48.9)	46(51.1)	.924	1.00	.		
	1001-1800	43(61.4)	27(38.6)	.516	1.243	.645	2.396	
	18001-3000	48(50.0)	48(50.0)	.646	1.154	.628	2.120	
	>3000	18(36.0)	32(64.0)	.650	1.183	.572	2.448	

<b>Gravidity</b>	Primigravida	55(66.3)	28(33.7)		1.00			
	multigravida	144(64.6)	79(35.4)	.783	1.078	.633	1.833	
<b>Parity</b>	primiparous	134(67.0)	75(33.0)		1.00			
	Multipara	65(64.1)	32(35.9)	.621	.880	.529	1.463	
<b>Outcome of last delivery</b>	live birth	15(100.)	0.0		1.00			
	Others*	184(63.2)	107(36.8)	.214	1.807	.710	4.598	

<b>Previous cesarean section</b>	no	160(61.5)	100(38.5)		1.00		
	Yes	39(84.8)	7(15.2)	.004	.287	..124	.451
<b>No of Previous cesarean section</b>	One	31 (83.8)	6(6.5)		1.00		
	Two or more	6(85.7)	1(14.3)	.898	.861	.087	8.507
<b>Antenatal follow up</b>	Yes	157(61.3)	99(38.7)		1.00		
	No	42(84.0)	8(16.0)	.003	.302	.136	.670
<b>Number of visit</b>	1-3	109(62.3)	66(37.7)	.644	.881	.514	1.509
	>=4	48(59.3)	33(40.7)		1.00		
<b>Take Iron /folic acid during ANC</b>	Yes	137(61.7)	85(38.3)		1.00		
	No	62(73.8)	22(26.2)	.049	1.749	1.002	3.051
<b>Mode of current delivery</b>	SVD	83(45.9)	98(54.1)		1.00		
	Caesarian section	116(92.8)	9(7.2)	.000	.066	.031	.138
<b>Current labor have any problem or complication</b>	Yes	43(86.0)	7(14.0)	.001	.254	.110	.587
	No	156(60.9)	100(39.1)		1.00		
<b>Type of complication</b>	Prolonged labor	18(85.7)	3(14.3)	.052	3.448	.992	11.983
	Others	181(63.5)	107(36.5)		1.00		
<b>medical illness before pregnancy</b>	yes	44(73.3)	16(26.7)	.135	.619	.331	1.161
	no	155(63.0)	91(37.0)		1.00		

<b>Type of medical illness</b>	Anemia	17(73.9)	6(26.1)		1.00		
	Malaria	2(66.7)	1(33.3)	.791	1.417	.108	18.595
	others	180(64.3)	100(35.7)	.355	1.574	.601	4.120
<b>Currently on treatment</b>	Yes	29(96.7)	1(3.3)		1.00		
	no	155(61.6)	91(38.4)	.005	18.082	2.427	134.708

**KEY:** number one shows (1) reference category

### 5.6 Factors associated to adverse pregnancy outcome among women of age 20-34 and 35<sup>+</sup>

In the Bivariate analysis 13 independent variables were significantly associated with occurrence of adverse pregnancy outcome value at  $\leq 0.25$ . When all these independent variables were included in multivariable logistic regression analysis, Advanced maternal age, lack of ANC visit, and mode of current delivery were found to be significantly associated with adverse pregnancy outcome outcomes with p value  $< 0.05$ . Advanced maternal age women were nearly 2 times more likely to have adverse pregnancy outcome than younger mother (AOR = 1.88395% CI (1.078, 3.288,)). Mothers who didn't have ANC follow up were nearly 4 times more likely to have adverse pregnancy outcome than mothers who had ANC follow up (AOR = 3.902 95% CI (1.529, 9.960)). Mothers who have previous caesarian section were 0.094 times less likely to have adverse pregnancy outcome than mothers who had no previous caesarian section (AOR = 0.094 95% CI (0.027, 0.321)). Mothers who deliver by cesarean section were 3 times risk of adverse pregnancy outcome than mothers who deliver by spontaneous vaginal delivery (AOR = 3.38195% CI (1.581, 7.234)).



**Table 7: Multivariable logistic regression Analysis of Adverse pregnancy outcome among women of age 20-34 and 35 and above delivering at public health facilities of Shashemene Town, Ethiopia, 2016**

Predictors		P value	AOR	95% C.I. for EXP(B)	
				Lower	Upper
Age	20-34		1.00		
	35 <sup>+</sup>	0.026	1.883	1.078	3.288
Antenatal follow up	yes		1.00		
	No	0.004	3.902	1.529	9.960
Previous caesarian section	No		1.00		
	yes	0.000	0.094	0.027	0.321
Mode of current labour	SVD		1.00		
	Caesarian section	0.002	3.381	1.581	7.234

Those variables which had p value less than 0.05 were significantly associated with adverse pregnancy outcome.

## Chapter 6. Discussion

The study results revealed that the prevalence of adverse pregnancy outcomes were 45(29.41%) and 62(40.5%) among mothers aged 20-34 and 35<sup>+</sup> respectively. This study showed that adverse pregnancy outcomes were highly prevalent in advanced maternal age when compared to younger age group. The study done in Norway from 2004 to 2007 rule out that the prevalence of advanced maternal age was 33.4 %. Another study conducted in Taiwan found that the prevalence of advanced maternal age was increased from 11.4 to 19.1%.<sup>3</sup> A large, population-based cohort study in the UK showed an 18.2% prevalence of maternal ages of 35 years or older (18). When compared to this study those prevalence were lower. This difference may be explained by the difference in study setting, Unlike developed country where women at older age was primiparous in these study multipara women were more at old age. The reason behind may be in our country many women give birth to many children, because of these they may continue to give birth at older age.

The prevalence of hypertensive disorder of pregnancy in advanced maternal age was higher when compared to their younger counterparts. This study was similar to the study conducted in Nigeria (16).

The prevalence of post partum hemorrhage in advanced maternal age were higher when compared to their younger counterparts. This study was supported by the study done at Israel (1). This study rule out that the prevalence of caesarian delivery were 6 times higher among advanced maternal age when compared to younger mother. Similar study done in Nigeria show that advanced age has higher incidence of cesarean delivery (28)

The most common indication for caesarian section in both group were fetal distress. The study done at Vakif Gureba Training and Research Hospital support these study for advanced maternal age but for the younger group previous cesarean section were the most common indication (30), The rate of operative delivery were higher among younger age group in these study but study done in Norway differ from these finding which operative delivery higher in older group (31).

Regarding adverse fetal outcome advanced maternal age was higher prevalence of adverse fetal outcome than younger women. Similar study done in turkey support these finding (8).

Those adverse fetal outcome were, low birth weight, Preterm, APGAR score 5 minute <7, congenital anomaly, admission to NICU and fetal death. similar study conducted in Turkey rule out that advanced maternal age were significantly associated to fetal complication and APGAR

score 5 minute <7(26) .similar study conducted in Flemish found that advanced maternal age were associated to with very preterm and low birth weight(32).

According multivariable logistic regression analysis after adjusting for other maternal characteristics and obstetric history advanced maternal age (35<sup>+</sup>) was 2 times risk of wide range of adverse pregnancy out come when compared to mothers who are in normal reproductive age group (20-34). A case control study conducted in Iran revealed that advanced maternal age 40 and above were more complicated by maternal and neonatal complication(35).another retrospective study done in Spain shows that advanced maternal age 40 and above was associated with increased risk of adverse pregnancy outcome (27).Another study conducted by revising different literature on pregnancy over 35 years conclude that Advanced maternal age is associated with certain pregnancy-related risks (26).The study conducted in turkey by reviewing medical records shows that advanced maternal age was associated withincreased adverse fetal and neonatal outcomes(29).Reference( 1,3,8,10,11,12,15,18,20,22,23,24,27,35,36,37,38,39,40) supported these study.

From this finding antenatal care follow up was significantly associated to adverse pregnancy outcome. Studies done in Gondar University Hospital, Northwest Ethiopia rule out that lack of ANC follow up were associated with adverse pregnancy out like still birth (7).The study suggest that regular ANC Regular will help a pregnant woman seek early treatment for her potential pregnancy related problems .A prospective study done at University Hospital UZ Brussels prove that lack of antenatal follow up was associated with adverse pregnancy outcome like preterm (41). The reason behind these may be follow up can minimize the risk by early detection and prompt treatment

Mode of current labour is significantly associated to adverse pregnancy out come.The mothers come to these hospital most of them were referred from health center with complication that leads to caesarian section. Mothers who deliver by caesarian section were more risk to develop adverse pregnancy outcome than those who delivered by spontaneous vaginal delivery.Caesarian section is a major operation which can beassociated with significant maternal and fetal, morbidity and mortality (34).

Previous caesarian sections were less likely associated to adverse pregnancy outcome. The finding was different from other literature which supportscesarean section associated with

adverse birth out come. The factors that might increase the likelihood of uterine rupture include two or more prior cesarean deliveries. The patient should be aware that problems could arise during her pregnancy that could necessitate repeat cesarean delivery. VBAC are Contraindicated if classic scar, a low vertical scar that extends into the upper segment of the uterus, previous uterine rupture, and a T-shaped scar are found. So for that reason the repeat cesarean section is needed, the chance of adverse pregnancy outcome increased (33)

## **Chapter 7: Conclusion and recommendation**

### **7.1. Conclusion**

Advanced maternal age women were risk factor for adverse pregnancy outcome.

Antenatal follow up, and mode of current delivery were another risk factor for adverse pregnancy outcome. Adverse pregnancy outcomes are the result of a multiplicity of factors and cannot be corrected with simple intervention. Counseling of advanced maternal age women about pregnancy risks, comprehensive antenatal care and early detection and management of labor and pregnancy complication must be strengthening.

### **7.2. Recommendation**

- Based on the above findings, the following recommendations are forwarded:-
- The regional health bureau and Zonal health department should strengthen the preconception counseling and antenatal follow up for women of advanced maternal age.
- The regional health bureau and Zonal health department should strengthen the newly focused ANC service utilization by pregnant women as it can improve pregnancy outcomes.
- Zonal health department, wereda health office and health professionals should implement health education programs and improving health care quality delivered to pregnant mothers to control these risk factors and consequently promote public health in the study area.
- Health professionals should screen older mothers for the important risk factors of adverse pregnancy outcome and provide effective and early treatments.
- Health professionals should give preconception counseling to all mothers visiting health facilities and Prompt evaluation of the laboring patient must be performed.

### **For further researches**

Prospective comparative studies involving large sample size are needed to clearly identify the clear influence of age on pregnancy outcome.

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## Annexes

### Annexe1. Questionnaire (English)

A Questionnaire prepared to collect data on pregnancy outcomes among women delivered at public health facilities of Shashemene Town West Arsi Zone, Oromia Region State, Ethiopia.

Questionnaire Number \_\_\_\_\_

Hello! Good morning/ evening?

I am \_\_\_\_\_ I am working in this health institution. I am a research team member of Jimma University and carrying out a study on a title pregnancy outcomes at advanced age among women delivered at public health facilities of Shashemene Town West Arsi Zone, Oromia Regional State, Ethiopia. The result of this study will produce information that wereuseful for police makers in reducing maternal and child mortality. The study will involve you completing the questionnaire that is enclosed with this data and it will not take more than 15 minute to complete. Confidentiality and anonymity is fully assured, as your name is not required on the questionnaire and only the research team will have access to the result. It will not affect you in any way, if Should you not take part in this study. Therefore, you are kindly requested to respond genuinely and voluntarily with patience.

Do you have any question? Are you willing to participate in the interview?

[ ] Yes, Go to the next page [ ] No, Thank them and interrupt the interview

Name and Sign of the consenting interviewer \_\_\_\_\_

Result of the interview:

1. Completed 2. Partially completed 3. The interviewee refused

Supervisor's name \_\_\_\_\_ sign \_\_\_\_\_

Date of interview \_\_\_\_\_ Time interview started \_\_\_\_\_ Time interview Finished \_\_\_\_\_

**Part one: Questions related to socio- demographic characteristics**

No	Questions	Response	Remark
001	Current Age of the mother in years	_____	
002	Residence	1.rular 2.urban	
003	Marital status	1. Married 2. Single 3. Divorced 4. widowed	
004	Educational status	1. Unable to read and write 2. Read and write only 3. Elementary 4. Secondary 5. College and above	
005	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Other (specify)	
006	Ethnicity	1. oromo 2. Amhara 3. Silte 4.Gurage 5. Others(specify) _____	
007	Occupation	1.House wife 2. Merchant 3. Gov't employee 4. Working in private 5 Others(specify)_____	

008	Average family income per month (Ethiopian Birr }	1. Mother _____ Birr/month 2. Father _____ birr/month 3. Additional income _____ birr/month Total _____	
-----	---	--	--

**Part two : Obstetricrelatedcharacteristics of the répondent**

009	The first day of the Last menstrual period	[ _____ _]dd/m/yy	
010	Gravidity	Primigravida multigravida	
011	Parity	1. multi para 2. primipara	
012	What were the outcomes of your last delivery?	a) Preterm birth b) Live birth c) Stillbirth d) Others (Specify)	
013	Does the mother has perivousceserian section	1. yes 2. no	If yesproceed to next question
014	How manypreviousceserian section	1. one 2. two or more	
015	Does the mother have ANC follow up	1.yes 2.no	If yesproceed to the next questions
016	How many number of visit	.....	
017	Does the mother take Iron /folic acid during ANC	A. yes B. no	

**Part three: Questions related medical and other characteristics of the respondent**

018	Did you have any medical illness before pregnancy?	1.yes 2.no	
019	If yes ,which one	1.anemia 2.Malaria 3.UTI 4.Chronic hypertension 5. DM 6.HIV 7.Others(specify)_ _____	
020	Were you on treatment?	a) Yes b) No	
021	If yes, for how long?	_____	
022	Do you have bleeding during current pregnancy	1.yes 2.no	

**Part four : Observational check-list for maternal out come**

No	Questions	Response	Remark
1	mode of current delivery	1. SVD 2.cesrian delivery	
2	Currentlabor have any problem or complication?	1.yes 2.no	
3	If yes , what type	1. Prolonged labor 2.Malposition or malpresentation 3. Obstructed labor 4. Other (specify)-----	

4	Ceaserian section currently	1. yes 2. no	
5	If yeswhat are the indication for c/s	1. Previous cesarean section 2. Fetal distress 3. Pre_ eclampsia 4. Malpresentation 5. Fetal macrosomy 6.Failuretoprogress 7.Previous myomectomy 8.Cord prolapsed 9.Fetal anomaly	
6	Induction of labour	1. yes 2. no	
7	Pregnancy induced hypertensions	1. yes 2. no	
8	If yeswich one	1.gestational hypertension 2.pre_eclampsia 3.eclampsia	
9	post partumhemorrhage	1.yes 2.no	

**Part four : check-list for perinatalfetal out come**

1	Gestationnel Age	1. term 2. preterm 3.postterm	
2	Neonatal condition at birth?	1. live birth 2.stillbirth	
3	Apgar score 5th.minute < 7	1.yes 2.no	
4	weight of the baby at birth	1. <1500g 2.1500-2500g	

		3.>2500g-4000g 4.>4000g	
5	Current prégnance condition	1. singleton2. twin 3.othersspecify	
6	AnyCongenitalabnormality	1.yes 2.no	
7	Neonatal out come	1. discharged 2. admitted to NICU 3. neonataldeath	



## Annexe2.Unkawaliigaltee

Gaafiwwinarmaangadiikuniinkanqopha'aniifqorrannoodubartotadahaniirrattiigaggeffa muubuufatafayyaummatamagaalaShashemene,GodinaArsiNannooOromiyaakeessattiika niigaggeffamuudha.

Ani

gareeqorattuuyuniiverstijimmaayoommuutahuumatadureenaniirrattihojachaajiruurrakkowwanii hadhaa fi da'immamudataniidubartotaumriinisaaniiwagga 20fi sanaolijiraaniikanillalatuudha.

Bu'aaniqorrannookanaadu'aahadholii \_\_\_\_\_ fi da'immanihiirdhisuuirrattiiddooguddaqabachuudandahajedheeamanaa.

Qorrannookuniigaffilleedeebiibarbadaniiofiikessaakanqabuuyootahuu \_\_\_\_\_,gaffiwwan kana deebisuufidaqiqa \_\_\_\_\_ 15

qofakanisiinittiiifudhatudha.Eyyummankessanfedhiikessanmaleeqamaakaniibiraatiifkanii \_\_\_\_\_ hin ibsamneetahuudurseesiinbekisisa.

Odeffannoonisinnuufnaalattanbu'aaqorrannooduwwaakanoluu \_\_\_\_\_ fi

iccitiinisaaegamaata'uusiiniifmirkanneessuubarbaada. Qorannoo kana keessattihirmachuu fi dhisuuirraakanka'emidhaanqaamasta'eekanbiraaisinirraga'ukan \_\_\_\_\_ hin jirree fi yeroobarbaadanittiiqorannoo kana gargarkutuufmirgikeessanseeraaneegamaadha.

Qoraannoo kana keessattihirmaachuuffedhiiqabduu?

**Eeyyee** \_\_\_\_\_ **Lakki** \_\_\_\_\_

Yoolakkita'easummattidhabaa

YooEeyyeejettaniifgaragaffii ittii anuuttidarbaa

Maqaa fiiMallttoo abbaagaffiiigafatuu \_\_\_\_\_

Bu'aagafichaa:

1. Xumuramera 2. Walakkan xumuramera 3.hirmachuu hin barbnee

Maqaa supparivizera \_\_\_\_\_ mallttoo \_\_\_\_\_

Guyyaa \_\_\_\_\_ yeroo ittii jelqabamee \_\_\_\_\_ yeroo ittii xumurame \_\_\_\_\_

**Kutatokkoffa.Gaffiidhunfa**

No	Gaffiwwan	Debiwwani	yaada
001	Umrikeemeeqa ?	-----	
002	Iddojirenyakeeessa	1.badiyya 2.magalaa	
003	Halligailakeemaali	1.herumate 2. kanhinherumne 3. kanabbamanangargarbaate 4. abbanmanakanjelaadu'ee	
004	Sadarkanibarnotakeemaali	1. barressu fi dubbisukanhindandenyee 2. barressu fi dubbisuqofakandanda'u 3. sadarkatokkoffa 4. sadarkalammaffa 5. kollejjii fi sanaolii	
005	Amantikeemaali	1. orthodoxii 2.musilima 3. Protestantii 4.katolic 5. kanbirajiratuibsii	
006	Sabniikeemaali	1. oromoo 2. Amaraa 3. silxee 4.guragee	

		5. kanbirajiratuibsii	
007	Hojiinkeemalii	1. hadhamana 2. daldalaa 3. hojjatamotumma 4. hojjatamitimotumma 5. kan birayoojirateibsii	
008	Galiinmaatiji' aanmeeqa	1. kanhadhaqarshii _____ 2. kan abbaqarshii _____ 3. galiidabaltaqarshii _____ Galiiwalii gala _____	

Kutaalamaffa : gaffiwanniulfaa fi dahinsawaliiqabatani

009	Guyyanxuriilaaguuisaadhumaargiteyoomii	[ _____ ]g/j/bara	
010	Yeroomeeqaffaulfootee	1. kanjelqaba 2. yeroo lama fi sana olii	
011	Yeroomeeqaffadahuukeeti	1. kanjelqaba 2. yeroo lama fi sana olii	
012	Da'innisaisaadhuma kandarbeehalaaakamiituree	1. da'imaaguyyandhalootaosoohinga hiindhalte 2. Da'immalubbunijiruu 3. Da'imma luubbunihinjirree	

		4 kanbiraayoojiraateebisi-----	
013	Gara keebaqaqsameeturee	1.Eyyen 2.Mitii	
14	Yoodeebinkeeyyeetaheeyeroomeeqaf	1. Tokko 2. lama fi sana olii	
015	Ulfakanan mana yalattiilallamaturte	1.Eyyen 2.Mitii	
016	Yoodeebinkeeyyeetaheeyeroomeeqaf	_____	
017	Yerooulfaaqorichaahiri'inaadhigaatiifkeen namuufudhachaturtee	1.eyyen 2.mitii	

Kutaasadaffa:

gaffiwwanidhibeeulfaanwoliihinqabatiinilallatuu fi  
rakkogargara

018	Dhibeewwaniulfaanwaliihinqabatiniiruu	1.eyyeni 2.mitii	
019	Yoojirateeisaakamii	1.hanqina dhigaa 2.dhukkuba busa 3.rakkoo afuffeeficaanii 4.dhibba dhigaayeroodheraafituree 5. dhibeesukkara 6.dhukkuba hiv 7.kan biraajiratuubsii_____	Eyyenyooj ettegaffiitt ianuttiida bra
020	Yeroammaqorichfudhachajirta	1,eyyeni	

		2.mitii	
021	Yoodeebiinkeeyeetahee Yeroohangamiif	_____	
022	Ulfaakanandhigniisiisirrabahaaturee	1.eyye 2.miti	

Signature of supervisor \_\_\_\_\_ Date \_\_\_\_\_

Annex 3 –አ ሚና ማጠቃለያ

**ጅምየኒቨርሲቲ የህብረተሰብ እና የህክምና ሳይንስ ትምህርት ኮሌጅ ፣ ነርሲንግና ሚዲያ ፈራሪ ትምህርት ክፍል በኦሚያክልል ፣ በምዕራብ አርሲ ዞን በሻሸ መኔክተማበመንግስት ጤና ተቋማት ስፐርቪዥና ቸየ እርግዝና የወሊድ ውጤት ላይ የሚደረግ ጥናት መጠይቅ**  
**የመጠይቅ ቁጥር-----**

**እንደምንደረሱ/ ዋሉ/ አመሰኙ □ የኔስም-----**

ይባላል፡፡ እኔ የምሰራው በጅምየኒቨርሲቲ የህግ ምርመራ ተቋማት ጠቅላይ ስራ ሲባል ስኑ ስፔሻላይዘሽን ስለሆነው፡፡ የጥናቱ አላማ በበኦሚያክልል ፣ በምዕራብ አርሲ ዞን በሻሸ መኔክተማበመንግስት ጤና ተቋማት ስፐርቪዥና ቸየ እርግዝና የወሊድ ውጤት ስምን መልክ እንዳለው ለማወቅ ነው፡፡ ጥያቄዎቹ ለላይ በእርስዎ አጠቃላይ ጤንነት እንዲሁም ያለፉት የእርግዝና ታርክ ምረቃ የሆኑት ላይ ያተኮሩ ናቸው፡፡ የሚሰጡን መረጃ መላው በሙሉ በሚስጥር መጠቀም ላይ የሚገቡ ናቸው ለዚህም ጥናት አላማ ስታይል ላይ ውላል፡፡ ከጥናቱ በፊት ማስታወሻ ለሌላ ሰው ማስተኛ አካል ተላልፎ አይሰጥም፡፡ በመረጃ ላይ ስፐርቪዥና ቸየ አገልግሎት አይጠቀምም፡፡ ከጥያቄዎቹ መካከል መመለስ ማይፈልጉት ካለ ያለ መመለስ መብት አለዎት፡፡ እንዲሁም አጠቃላይ መጠይቅን ማቋረጥ ከፈለጉም ያንን ማቋረጃ ያችላሉ፡፡ ይህንን በማድረግ ወኪሉ ከጤና በሚያገኙት እርዳታ ወይም እንክንካቤ ላይ ምንም ተጽዕኖ አይኖረውም፡፡ በመሆኑም በጥናቱ ላይ በቅንነትና በሙሉ ፍላጎት እንዲሳተፉ ልንበ አክብሮት እንጠይቃለን፡፡ መጠይቁ በአማካይ 15

ደቂቃ የሚፈጅ ነው፡፡ ወደ መጠይቁ ከማለፍ ሽንብፍት ጥያቄ አለዎት?  
 በጥናቱ ላይ ሳይሳተፉ ፊያ ደኛ ነዎት?

ሀ. አዎ- ይህንካሉ ወደሚቀጥለው ገጽ የለፉ፡፡

ለ. አይደሉም --- ይህንካሉ አመሰግናለሁ መጠይቁን ያቋርጡ፡፡

መጠይቁን የሞላው/ሞላችሁ ባለም ያሰም \_\_\_\_\_ ፊርማ \_\_\_\_\_

የመጠይቁ ውጤት 1. ሙሉ በሙሉ የተጠናቀቀ 2. በክፍል የተጠናቀቀ 3. ተጠያቂ ዋባል መሆን ማማታቸው ያልተሞላ 4. ሌላ ይጠቀስ-----

መጠይቁ መሞላት የተጀመረበት ሰዓት -----  
 መጠይቁ የተመናቀቀበት ሰዓት -----  
 መጠይቁ የተሰራበት ጤና ድርጅት -----

**ክፍል አንድ: Questions related to socio- demographic characteristics**

001	እድሜ	-----አመት
002	መኖሪያስፍራ	ሀ. ከተማ ለ. ገጠር
003	የጋብቻ ሁኔታ	ሀ. ያገባች ለ. የፈታች ሐ. ባልሞተ ባት መ. ያገባች ሠ. ሌላ ይጠቀስ.....
004	የትምህርት ደረጃ	ሀ. ማንበብና መጻፍ የማትችል ለ. ማንበብና መጻፍ ብቻ የምትችል ሐ. አንደኛ ደረጃ መ. ሁለተኛ ደረጃ ሠ. ኮሌጅና ከዛባላይ
005	ኃይማኖት	ሀ. ኦርቶዶክስ ለ. ሙስሊም ሐ. ፕሮቴስታንት መ. ካቶሊክ ሠ. ሌላ ይጠቀስ

006	ብሔር	ሀ. አሮሞ ለ. አማራ ሐ. ስልጤ መ. ጉራጌ 5.ሌላ(ይጠቀስ)
007	ስራ (መተዳደሪያ)	1. የቤት እመቤት 2. ነጋዴ 3. የመንግስት ሠራተኛ 4. የግል ስራ 5. ሌላካለ(ይጠቀስ)
008	ወራዊ ገቢዎች ብብርሱ ገመት/ሲገለፅ/ ስንት ይሆናል	1. የግል----- ብር/ወር 2. የባለቤት ዎ----- --ብር/ወር 3. ሌላተጨማሪ ገቢ----- ብር/ወር ጠቅላላ የገቢ ድምር----- -----

**ክፍል ሁለት** : Questions related to obstetric characteristics of the respondent

009	ለመጨረሻ ጊዜ የወር አበባ ያየሽው መቼ ነው (የመጀመሪያ ቀን) (LNMP)	ቀን/ወር/አ.ም-----/-- -----/----	
010	ስንተኛ እርግዝና ነው (gravidity)	(----- ) እርግዝና	
011	ከዚህ በፊት ስንት ልጅ ወልደዎል?	ሀ. የመጀመሪያ ጊዜ ለ. ሁለት ና ከዚያ በላይ	

012	ከአሁኑ እርግዝና በፊት የነበረዎት የእርግዝናና ምጥውጫት ምንነት? ?ከአንድ በላይ መልስ ይቻላል::	ሀ. ወፍሳይ ሞላየተወ ለደሀፃን ለ. በሀይወት ያለሀፃን ሐ. ሞቶየተወ ለደሀፃን መ .ሌላካለግለት	
013	ከአሁን በፊት በኦፕሬሽን ወልደው ያው ቃሉ?	ሀ. አዎ ለ. አይደለም	ምልሰዎ አዎ ከሆነ ወደቀ ጠይይለፉ
014	ምን ያህል ጊዜ	ሀ. አንድ ለ. ሁለት	
015	የእርግዝና ክትትል አለዎት? <input type="checkbox"/>	ሀ. አዎ ለ. የለኝም	ምልሰዎ አዎ ከሆነ ወደቀ ጠይይለፉ
016	ስንት ጊዜ ሄደዋሉ? <input type="checkbox"/>	-----	
017	በእርግዝና ወቅት ደም መነስኪኒ ንወስደዋል? <input type="checkbox"/>	ሀ. አዎ ለ. አልወሰድኩም	

**ክፍል ሦስት : Questions related medical and other characteristics of the respondent**

018	ከማርገዞ በፊት የታወቀ ህመም ነበረቦት ወይ?	ሀ. አዎ ለ. የለም
019	መልሶ አዎ ከሆነ የትኛው	ሀ. የደም ማነስ ለ. የወባ በሽታ ሐ. የሽንት ቧን ቧት ግር መ. የቆየ የደም ግፊት ሠ. የስኳር በሽታ ረ. የኤች-አይቪ በሽታ ሠ. ሌላካለግለጽ
020	በአሁኑ ስዓት የሚወስዱት መደሐኒት አለ?	ሀ. አዎ



		<b>ለ. የለም</b>
021	<b>መልስዎ አዎከሆነለምን ያህል ጊዜ</b>	_____
022	<b>በአሁኑ እርግዝና የደም መፍሰስ ነበረብዎት?</b>	<b>ሀ. አዎ</b> <b>ለ. የለም</b>

**የተቋባባሪ/ዋጪርማ----- ቀን-----**