PREGNANCY INDUCED HYPERTENSION AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN ATTENDING ANTENATAL SERVICE AT JIMMA TOWN PUBLIC HEALTH FACILITIES, SOUTH WEST ETHIOPIA

BY

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ABSTRACT

***Background**: Hypertensive disorders of pregnancy are a major health burden in the obstetric population as it is one of the leading causes of maternal and perinatal morbidity and mortality. It ranges from preeclampsia/eclampsia, gestational hypertension, chronic hypertension and superimposed preeclampsia. World Health Organization estimates that at least one woman dies every seven minutes from complications of hypertensive disorders of pregnancy.*

***Objective:** To assess prevalence of pregnancy induced hypertension and associated factors among pregnant women attending antenatal service at Jimma town public health facilities, South West Ethiopia.*

***Methods**: Health facility based cross-sectional study design with quantitative method of data collection was carried out from March 01-30, 2015. The study was used a total sample size of 356 pregnant women who were proportionally allocated to the hospitals and health centers in the town according to the number of the pregnant women attending antenatal care in the respective health facilities. Then the study participants were systematically selected from each health facility. Prior to analysis data was entered and checked using Epi data and exported in to SPSS version 20.00. Descriptive statistics was computed to determine the proportions of pregnancy induced hypertension (PIH) and its associated factors. Bivariate analysis was carried out between the dependent and independent variables to determine the relation of pregnancy induced hypertension and independent variables. Multivariable logistic regression analysis was made to obtain odds ratio and the CI of statistical associations between PIH and its associated factors.*

***Result**: Prevalence of pregnancy induced hypertension was 10.3% and among PIH, preeclamsia 23(63.9%) was the most common type. This study also showed that rural residence (AOR=5.310, 95%CI=1.518-18.574), positive family history of chronic hypertension (AOR=9.90, 95%CI=2.31-42.44), Positive family history of pregnancy induced hypertension (AOR=9.13(2.33-35.78)), kidney diseases (AOR=3.97, 95%CI=1.36-11.56) and psychological stress (AOR=5.79, 95%CI=1.66-20.25) were statistically significant association with pregnancy induced hypertension.*

***Conclusion:** According to this study, the prevalence of pregnancy induced hypertension was 10.3% and address, family history of chronic hypertension and family history of PIH, kidney diseases, psychological stress during pregnancy were contributing factors of PIH.*

***Recommendations**: The town health office and health institutions should focus on early detection and prevention of PIH after detection of predisposing factors like kidney diseases, family history of chronic hypertension, family history PIH and psychological stress.*

***Key words**: Pregnancy Induced Hypertension, Pregnancy, Antenatal service, women, Jimma*

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ACRONYMS AND ABBREVIATIONS

ACOG: ----------American Congress of Obstetricians and Gynecologists

ANC: ----------Antenatal Care

AOR: ----------Adjusted Odds Ratio

BBHC: ----------Bacho Bore Health Center

BMI: ----------Body Mass Index

BP: ----------Blood Pressure

CI: ----------Confidence interval

DBP: ----------Diastolic Blood pressure

EDHS: ----------Ethiopian Demographic health survey

EmONC: ----------Emergency Obstetrics and Neonatal Care

FGAE: ----------Family Guidance Association Ethiopia

FMOH: ----------Federal Ministry of Health

H2HC:----------Higher 2 Health Center

HC: ----------Health Center

HDP: ----------Hypertensive Disorders of Pregnancy

HELLP: ----------Haemolysis, Elevated Liver enzymes and Low Platelet count

JHC: ----------Jimma Health Center

JUSH: ----------Jimma University Specialized Hospital

MDG: ----------Millennium Development Goal

MKHC: ----------Mendera Kochi Health Center

MMR: ----------Maternal Mortality Ratio

MOH: ----------Ministry of Health

NGO: ----------Non-Government Organization

PE: ----------Preeclampsia

PIH: ----------Pregnancy Induced Hypertension

SBP: ----------Systolic Blood Pressure

SGH: ----------Shenen Gibe Hospital

SOGC: ----------Society of Obstetricians and Gynecologists of Canada

UOR----------Unadjusted Odds Ratio

CHAPTER ONE: INTRODUCTION

1.1. Background

Hypertension in pregnancy is defined as a systolic blood pressure ≥ 140 or diastolic blood pressure ≥ 90 mmHg or both. Both systolic and diastolic blood pressure elevations are important in the identification of Hypertension Disorder of Pregnancy (HDP) (1).

Pregnancy induced hypertension that occurs after 20 weeks of gestation in a woman with previously normal blood pressure. The general classification of pregnancy-induced hypertension during pregnancy are Gestational hypertension (without proteinúria), pre-eclampsia (with proteinúria), and eclampsia (pre-eclampsia with convulsions) and chronic hypertension with superimposed preeclampsia (2).

Severe preeclampsia in pregnancy is defined as systolic blood pressure ≥160 mmHg or diastolic blood pressure ≥110 mmHg, or both. The Society of Obstetric and Gyneacologists of Canada (SOGC) expert consensus suggests that a single reading at this level be confirmed the sever pregnancy induced hypertension within 15 minutes. The American Congrense Obstetrics and Gynecology (ACOG) Committee recommends that severe hypertension that persists for 15 minutes or more in the setting of preeclampsia or eclampsia is a hypertensive emergency that requires immediate intervention (3).

Eclampsia is a severe form of pregnancy induced hypertension and women with eclampsia have seizures resulting from the condition. Eclampsia occurs in about one in 1,600 pregnancies and develops near the end of pregnancy, in most cases. HELLP syndrome is a complication of severe preeclampsia or eclampsia. HELLP syndrome is a group of physical changes including the breakdown of red blood cells, changes in the liver and low platelets (cells found in the blood that are needed to help the blood to clot in order to control bleeding (4).

Usually, there are three primary characteristics of pregnancy induced hypertension condition are high blood pressure (a blood pressure reading higher than 140/90 mm Hg or a significant increase in one or both pressures), protein in the urine, edema (5).

Pregnancy Induced Hypertension (PIH) is a global problem and the most common medical problem requiring special attention in the intrapartum period (6, 7). Pregnancy induced hypertension (PIH) is a leading cause of maternal and perinatal mortality and can also lead to long-term health problems like chronic hypertension, kidney failure, or nervous system disorders (5). As studies showed eclampsia is a leading cause of maternal and perinatal mortality in Nigeria. Preventive and interventional measures have been shown to reduce maternal mortality and morbidity with no significant beneficial effect on neonatal outcomes (8).

A survey in Ethiopia on Emergency Obstetrics and Neonatal Care (EmONC) assessment; approximately 1% of all deliveries and 5% of all pregnant women with complications were documented as having severe pre-eclampsia or eclampsia. However, nearly 16% of direct maternal deaths were due to pre-eclampsia/eclampsia. Overall, 10% of maternal deaths (direct and indirect) occurred among women whose pregnancies were complicated by pre-eclampsia/eclampsia (9).

The purpose of this study is to know the clear prevalence and associated factors of pregnancy induced hypertension among pregnant women attending antenatal service at Jimma town public health facilities.

1.2. Statement of the problem

The hypertensive disorders of pregnancy are major contributors to maternal and perinatal morbidity and mortality. Approximately 15% of maternal deaths are attributable to hypertension, making it the second leading cause of maternal mortality in the United States. Severe hypertension increases the mother's risk of heart attack, cardiac failure, cerebral vascular accidents, and renal failure and also fetus is at increased risk from complications such as poor placental transfer of oxygen, fetal growth restriction, preterm birth, placental abruption, stillbirth, and neonatal death (2). Hypertensive disorders represent the most common medical complications of pregnancy with a reported incidence between 5 and 10% (10, 11).

Preeclampsia remains a leading cause of maternal and neonatal mortality and morbidity worldwide, particularly in developing countries. The condition is usually diagnosed in late pregnancy by the presence of hypertension with proteinuria and /or edema. Prevention of any disease process requires knowledge of its prevalence, aetiology and pathogenesis, as well as the availability of methods for prediction of those at high risk for hypertension in pregnancy disorder. Numerous clinical, biophysical, and biochemical tests have been proposed for prediction or early detection of preeclampsia. Despite the fact that diagnostic criteria, the clinical manifestation of the disease, the management and the prognosis are clear and homogenous, the prevalence of maternal and fetal complications still differ considerably among studies (12) .

World Health Organization estimates that at least one woman dies every seven minutes from complications of hypertensive disorders of pregnancy. Pregnancies complicated with hypertensive disorders are associated with increased risk of adverse fetal, neonatal & maternal outcome including preterm birth, Intrauterine Growth Retardation (IUGR), perinatal death, ante partum haemorrhage, postpartum haemorrhage & maternal death (13).

As a study on a large cohort in Latin American and Caribbean identified the following risk factors for developing pregnancy induced hypertension: nulliparity, multiple pregnancies, history of chronic hypertension, gestational diabetes, maternal age over 35 years, fetal malformation and obesity (14).And also clinical observations indicate that extreme maternal age (less than 20 or over 40 years), nulliparity, history of PIH in previous pregnancies and multiple pregnancies, preexisting diseases like renal disease, diabetes

mellitus, cardiac disease, unrecognized chronic hypertension, positive family history of PIH which shows genetic susceptibility, psychological stress ,alcohol use, rheumatic arthritis, very underweight and overweight, asthma and low level of socioeconomic status are the risk factors for PIH (5, 15).

According to a population based study in South Africa the incidence of hypertensive disorders of pregnancy was 12% and hypertension disorder of pregnancy was the commonest cause of maternal death which contributed 20.7% of maternal deaths (16).

Studies in Ethiopia show that the incidence of hypertension disorder of pregnancy is around 5% of which majority were due to severe preeclampsia; according to this study eclampsia complicates 0.7% of the pregnancies. These disorders are major causes of maternal and perinatal morbidities and mortalities (11).

As Ethiopian Demographic Health survey (EDHS) 2011 reported, maternal mortality ratio is 676 deaths per 100,000 live births and pregnancy induced hypertension has a great role for this maternal death (17). A review study conducted on the causes of maternal mortality in Ethiopia showed that, the proportion of maternal mortality in Ethiopia due to hypertensive disorders between 1980 and 2012 is increased from 4%-29% at different health facilities (18).

Through my observation during my clinical attachment of graduate study, the number of pregnant women admitted with pregnancy induced hypertension was increased from time to time. And also in Ethiopia, specifically in Jimma, studies showing the clear prevalence and associated factors of pregnancy induced hypertension among pregnant women attending antenatal service have not been conducted but there are little studies on PIH among delivered women, so this study is proposed to fill this information gap.

The Federal Ministry of Health (FMOH) has applied multi-pronged approaches to reducing maternal and newborn morbidity and mortality by improving access to and strengthening facility-based maternal and newborn services but the maternal morbidity and mortality due to pregnancy induced hypertension was in increasing trend (19).

CHAPTER TWO: LITERATURE REVIEW

2.1. Literature Review

Hypertension in pregnancy is defined as a blood pressure of 140mmHg systolic and 90mmHg diastolic or more taken on two occasions at least six hours apart. As recommended by the National High Blood Pressure Education Program Working Group on high blood pressure in pregnancy is classified into four categories: chronic hypertension, preeclampsia, eclampsia, preeclampsia superimposed on chronic hypertension, and gestational hypertension (2, 20).

A facility based cross-sectional study conducted in Brazil by using retrospective data collection method between January 1st to December 31st 1999 to identify the prevalence of hypertension during pregnancy and associate maternal diastolic blood pressure with the type of delivery and the neonates' condition at birth after reviewing 5602 birth records revealed that the prevalence of hypertension among the pregnant women hospitalized was 13.9% and 95.8% of the women received antenatal care, 64.5% were between 20 and 34 years old .And also during their hospitalization the study was verified that 49.6% of the pregnant women presented a diastolic blood pressure (DBP) 110 mmHg and 46.3% had edema and there was no significant association between DBP and age group. However the study was retrospective data collection method as a result missed many important variables like educational status, economic status, and life styles (21).

A facility based prospective cohort study conducted in the United Kingdom and Netherlands between August 2003 and June 2005 on 861 women with chronic hypertension to validate pregnancy outcome in women with chronic hypertension and to identify risk factors for superimposed preeclampsia indicated that, 22% developed superimposed preeclampsia; nearly half of these (44%) had early-onset disease before 34 weeks gestation and raised body mass index, black ethnicity, present smoking and present antihypertensive use significantly associated development of preeclampsia and also previous history of preeclampsia, HELLP or eclampsia and chronic renal disease as well as the presence of one or more additional risk factors in addition to chronic hypertension were significantly associated with the development of preeclampsia (22).

A cross-sectional descriptive study was conducted in Iran in 2014 on the 1694 cases of delivery to assess prevalence of hypertension and complications of hypertensive disorders in pregnancy revealed that the prevalence of pregnancy induced hypertension among the 1694 delivery was173 (9.8%). Among these, 75 (45%) had gestational hypertension, 24 (14.8%) had preeclampsia-eclampsia, 30(18%) had preeclampsia superimposed on chronic hypertension, 21 (13.5%) cases had chronic hypertension (23).

A population based prospective cohort study conducted in Sri Lanka for one year from May 2001 to April 2002 to study the effect of psychosocial stress on maternal complications in terms of pregnancy induced hypertension and gestational diabetes mellitus revealed that psychosocial stress during second trimester was a risk factor for maternal complications (pregnancy induced hypertension) and similar studies conducted in New York and Pittsburgh indicated that psychological stress and sleep pattern had an association with pregnancy induced hypertension(24,25,26).

A facility based prospective cross sectional study was conducted in India over a period of one year on 1330 pregnant women attending antenatal clinic to determine the frequency and distribution of different types of hypertensive disorders of pregnancy and to assess the drug utilization pattern of anti-hypertensive drugs in pregnancy revealed that, the prevalence of hypertensive disorders of pregnancy was 7.8% and mean maternal age at delivery was 23.8 years and the highest number of patients was found in the age group of 18-22 years (41.3 %) and least was above 32 years age group (3.8%). Preeclampsia was the most common cause of hypertension during pregnancy (71.2%) and followed by gestational hypertension (19.2 %) and the incidence of hypertension in pregnancy was highest among primigravida (53%) and 46.1% were multigravida (27).

A retrospective descriptive study design conducted in Port Elizabeth, on 22,711 deliveries, by reviewing records of patients admitted with hypertension in pregnancy over a 2 year period (2007-2008) to determine the prevalence, complications, risk factors, social and demographic characteristics of hypertensive complications of pregnancy showed that an incidence of hypertension as 6.69% (66.9 per 1000 deliveries) and the incidence of preeclampsia is 35.40% and chronic hypertension 2.80%.and the primigravida accounting

for 44.30% while 5.70% were multigravida and regarding smoking status, 14.33% smoked cigarette, 85.67% were nonsmokers, and 81.61% of patients did not have co-morbidities while 18.39% had co-morbidities. Previous histories of complications associated with 18.90% of the cases while 81.10% did not have previous complications and 5.10% of the patients have a positive family history of hypertension (12).

A facility based cross sectional study conducted in Pakistan from July 2007 to June 2008 to assess predisposing factors of PIH revealed that, 59% of women in age group of 30-40 years, 52% were overweight, 50% were multiparous and 15% were of grand-multiparous, 43% of women had history of PIH in previous pregnancies, 9% had positive family history and 12% were with diabetes and twin pregnancy and they had association with pregnancy induced hypertension (15).

According to the facility based comparative cross sectional study conducted in Ghana from July to September 2008, to assess rural and urban differences in BP and PIH among pregnant women and its factors associated with high BP on 967 of which 290 were included in urban Ghana and 677 in rural Ghana revealed that, the prevalence of PIH was higher in urban women than in rural women (3.1% versus 0.4%, and mean systolic BP and diastolic BP levels were also higher in urban than rural. Among urban women, diastolic BP and systolic BP to some extent increased with age but among rural women, however, there were no relationship between BP and age. On other hand urban residence, BMI, family history, and high education were related to high systolic and diastolic BP, in contrast, parity was inversely related to low systolic and diastolic BP (20).

A systematic review study conducted in Nigeria to provide evidence on the diagnosis, prevention, treatment, and challenges to control preeclampsia published between 2000 and 2010 indicated as the incidence of preeclampsia ranges between 2% and 10% and this incidence, the precursor to eclampsia, varies greatly worldwide. Also WHO estimates that the incidence of preeclampsia to be seven times higher 2.8% of live births in developing countries and 0.4% developed countries, the incidence of eclampsia in developing nations also varies widely, ranging from 1 case per 100 pregnancies to 1 case

per 1700 pregnancies, for instance African countries such as South Africa, Egypt, Tanzania, and Ethiopia vary from 1.8% to 7.1% and in Nigeria, 2% to 16.7%. (28).

A one-year longitudinal study conducted in Ethiopia at Tikur Anbessa hospital to assess the prevalence of hypertensive disorders of pregnancy and it association with socio-demographic, clinical parameters and pregnancy outcome showed that from 3424 deliveries conducted during the study period, 5.3% were found to have one form of it, of the PIH, 78.2% were severe pre-eclampsia and eclampsia; the remaining 14.8% had pregnancy aggravated hypertension or chronic hypertension (11).

A facility based cross-sectional study was conducted from April 1, 2009 to March 31, 2010 in JUSH, Ethiopia on 1863 deliveries to explore the pattern and outcomes of pregnancies complicated by hypertensive disorders and factors associated with the disorder and pregnancy outcomes showed as 8.48% were diagnosed to have HDP and 52.5% of these mothers were in the age range of 25-34 years and 66.7% were nulliparous and there was no statistically significant association between parity of the mothers and severity of the disease .From the study subjects 10.1% of them had history of PIH during their previous pregnancies while only 1.9% mothers reported family history of PIH and severe preeclampsia accounting for 51.9% of the cases followed by eclampsia which contributed for 23.4% of the cases. Fifty seven percent of HDP were from rural area which had statistically significant associate with HDP but ANC follow up had not statistically significant association with HDP .In addition to this study another study conducted in 2012 at same area shows that 57.1% of them were primigravida,78.2%) of them had ANC follow up(29,30) .

The variables like alcohol consumption, rheumatic arthritis, asthma, diversified diet, physical exercise, caffeine use and MUAC measurement had scientific background as a risk factor of PIH but as far searched no studies done to see the association of those variables with PIH (5, 15).

2.2. Conceptual framework

The conceptual frame work for this study was developed after reviewing different literature (31, 32, 33, 34, 35).The solid line shows that the relationship between dependent and independent variables, the broken line shows the relation between independent variables which is not an interest of this study to see the relationship between them.

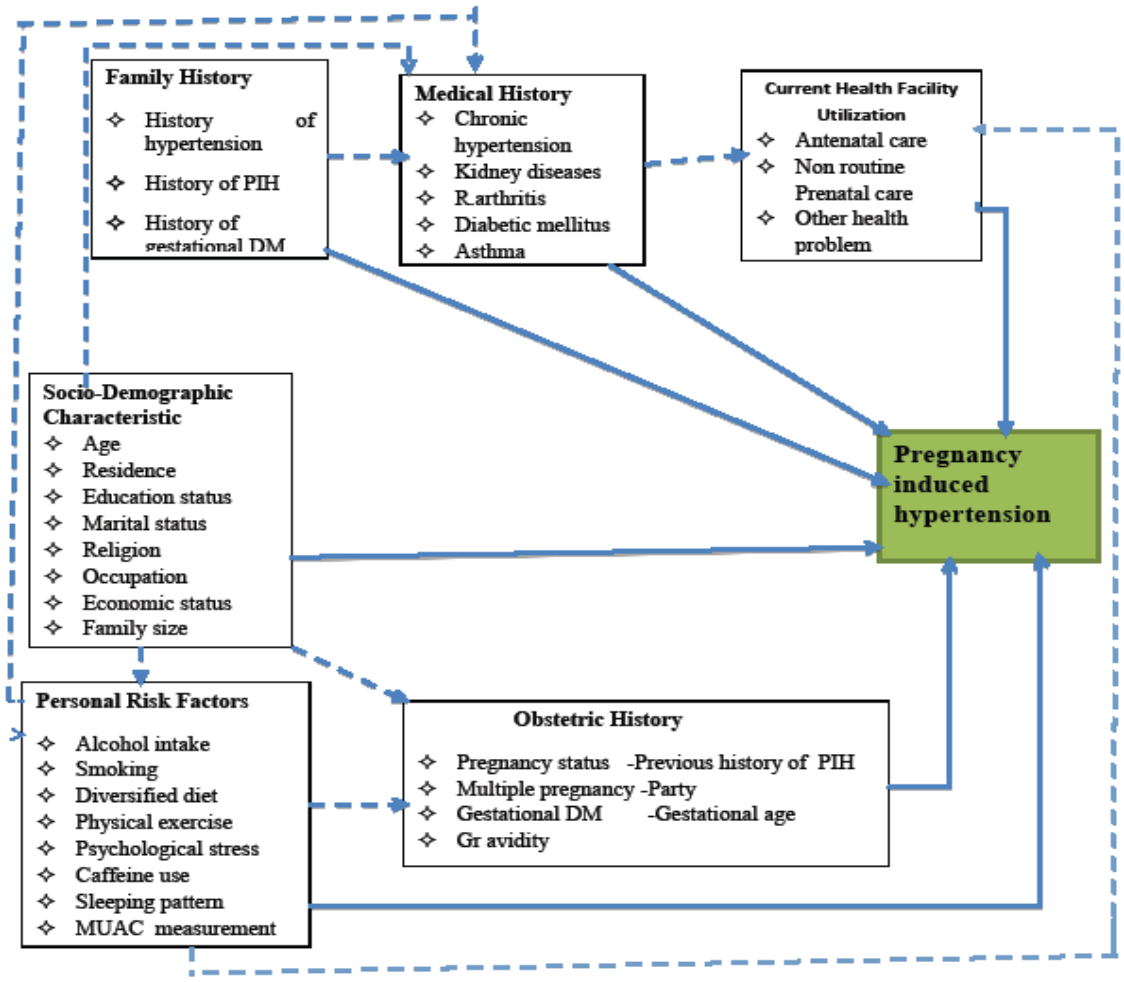

Figure 1. The schematic representation of the conceptual frame work of pregnancy induced hypertension and associated factors among pregnant women attending antenatal service at Jimma town public health facilities,Southwest Ethiopia,March,2015.

2.3. Significance of the Study

Hypertensive disorders in pregnancy is leading causes of pregnancy associated morbidity and it is most frequent cited cause of maternal death (23). Despite the fact that hypertensive disorders in pregnancy is leading causes of maternal morbidity and mortality during pregnancy but little is known about the current magnitude and associated factors among pregnant women in Ethiopia and specifically in Jimma.

This study therefore aims to fill this gap by assessing the current status and factors associated with hypertensive disorders in pregnancy among pregnant women attending antenatal service in Jimma town, south west Ethiopia, through health facility based cross sectional study. It is hoped that the results of the study will provide valuable information for the design of possible programs and interventions that maternity nursing will be used to improve maternal health for the realization of post Millennium Development Goals 4 and 5. Furthermore it may also help as source for further study in the same area of inquiry.

CHAPTER THREE: OBJECTIVES

General objective

- To assess prevalence of pregnancy induced hypertension and associated Factors among Pregnant women attending antenatal service at Jimma town public health facilities, South West Ethiopia, 2015.

Specific objectives

- To determine the prevalence of pregnancy-induced hypertension among pregnant women attending antenatal service at Jimma town public health facilities.
- To identify factors associated with pregnancy-induced hypertension among pregnant women attending antenatal service at Jimma town public health facilities.

CHAPTARE FOUR: METHODS AND MATERIALS

4.1. Study area and period

The study was conducted in Jimma town public health facilities from March 01-30/2015 ,which is one of the big town in Ethiopia, located 357 kilometers to southwest of the capital city of Ethiopia, Addis Ababa and has total surface area of 4,623 hectares. The town has 17 kebele and about 32,191 households. The total population projection of 2014/15 of Jimma town was 184925. Kersa woreda in East, Manna woreda in West, Manna and Kersa woreda North and Seka woreda in South bound the town. The town has one referral, one district hospital, four health center and 47 private clinics.

The town has some of Non-Governmental Organizations working (NGO) on maternal health like Family Guidance Association of Ethiopia (FGAE), Marie stops international, IPAS and others. The general weather condition of the town has 1676 altitude, 7.66 latitude, and 36.83 longitudes. The total reproductive age groups and targets of pregnant women of Jimma town is 40692, 6834 respectively. The study was conducted on public health facilities includes Jimma University Specialized Hospital (JUSH),Shenen Gibe Hospital (SGH),Jimma Health Center (JHC),Higher-2-Health Center (H2HC), Mendera Kochi Health Center (MKHC) and Bacho Bore Health Center(BBHC).

4.2. Study Design

Health facility based cross-sectional study design with quantitative data collection method was used.

4.3. Population

4.3.1. Source population

All pregnant women attending antenatal service at Jimma town public health facilities during the study period were used as source of population.

4.3.2. Study population

All sampled pregnant women attending antenatal service at Jimma town public health facilities during the study period.

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion Criteria

All pregnant women attending antenatal service with gestational age greater than 20 weeks.

4.4.2. Exclusion Criteria

Those pregnant women who were critically ill and not respond after three days.

4.5. Sample Size and Sampling Technique

4.5.1. Sample Size Determination

The sample size was calculated by using a single population proportion sample size calculation formula considering the following assumptions. d = margin of error of 5% with 95% confidence interval, α = 0.05 (level of significance), P=50% were assumed. The assumption of p=50% was to get maximum sample size.10% of non-response rate were considered.

The one population proportion formula was used.

$$n = \frac{z\left(\frac{\alpha}{2}\right) 2 * P(1-p)}{d^2}$$

$$n = \frac{(1.96)^2 (0.5) (1-0.5)}{(0.05)^2}$$

n = **384** individuals

Since the population of pregnant women attending antenatal service in Jimma town health facilities were less than ten thousand (**2072**). The finite correction formula was used.

$$n_f = \frac{n}{1+n/N}$$

nf =384/1+384/2072= 324

Considering 10 percent of non-response rate; n = **356**

4.5.2. Sampling Technique

The source of population was calculated from twelve months of report of pregnant women attending antenatal service at all public health facilities of Jimma town. Then the average was taken, which was 2072 women monthly.

The total sample size (n=356) was allocated proportionally to the different care giving public health facilities of Jimma town according to the number of pregnant women attending antenatal service in the respective health facilities .Then the study participants were systematically selected from each health facilities and pregnant women who were eligible to the study were include in the study by using the "k" value interval (k=6) and list of antenatal service attendants used from registration book for each unit until the sample size was achieved. The first pregnant woman was selected based on lottery method.

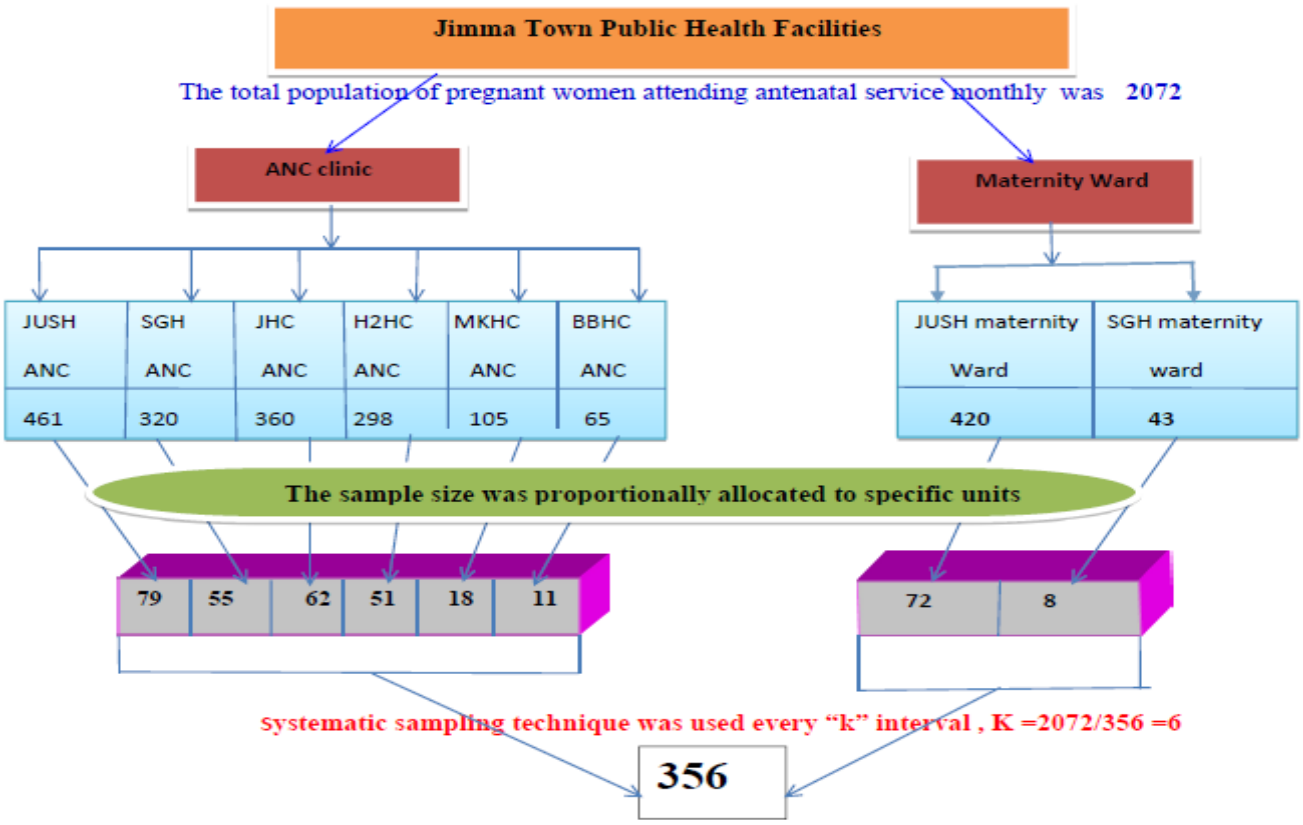

Figure 2: Schematic presentation of sampling procedure for pregnancy induced hypertension and associated factors among pregnant women attending antenatal service Jimma Town Public Health facilities, South West Ethiopia, 2015.

4.6. Study Variables

4.6.1. Dependent variable

Pregnancy induced hypertension.

4.6.2. Independent variables:

- ***Socio-demographic characteristic*:** Age, Residence, marital status Religion, Education status, Occupation, Economic status and family size.
- ***Family history*:** History of chronic hypertension, History of PIH, History of gestational diabetic mellitus.
- ***Personal risk factors:*** Alcohol intake, Smoking, diversified diet, MUAC measurement, Sleeping pattern, Physical exercise, psychological stress
- ***Obstetric history*:** Pregnancy status, Gravidity, party, Gestational age, previous history of PIH, Multiple pregnancies, Gestational Diabetic mellitus.
- ***Medical history*:** Chronic hypertension, Kidney diseases, Rheumatic arthritis, Diabetic mellitus, Asthma.
- ***Health service utilization*:** ANC, Non-routine prenatal visit, other health problem.

4.7. Operational Definitions and Definition of terms

Pregnancy induced hypertension (PIH): If the blood pressure of pregnant women attending antenatal service is ≥140/90mmHg after 20 weeks of gestation, measured two times six hours apart by trained data collectors and with or without proteinuria. Pregnancy induced hypertension includes gestational hypertension, pre-eclampsia, and eclampsia, superimposed preeclampsia on chronic hypertension (36, 37).

Psychological stress: To be said, the pregnant woman has psychological stress if psychological stress measurement of 9 items means score of single woman greater than that of the total mean score.

Antenatal service: is a service given for pregnant women from conception to delivery at health facilities.

Alcohol intake: IF the women drink alcohol found in beer, wine, and liquor of one bottle per day.

Physical exercise: If pregnant mother doing scheduled physical exercise regularly during current pregnancy one of the followings: waking, swimming, running and low impact aerobics.

Smoking: is the inhalation of the smoke of burning tobacco encased in cigarettes and to be a smoker if she smokes more than 100pies of cigarette in her lifetimes (38).

Chronic hypertension: A Blood pressure of 140/90mmHg or more that either predates pregnancy or develops before 20 weeks gestation (35, 36).

Gestational hypertension: BP 140/90 mm Hg for first time during pregnancy, no proteinuria and BP returns to normal less than 12 weeks' postpartum (36,37).

Mild Pre-eclampsia: Two readings of diastolic blood pressure 90-110mmHg, 4-6 hours apart, after 20 weeks of gestation and with proteinuria of >300mg/l in 24 hours or up to 2+ and with/without oedema (36, 37).

Severe Pre-eclampsia: Diastolic blood pressure is equal or greater than 110mmHg after 20 weeks of gestation. There may be severe headache, blurred vision, epigastric pain, hyper-reflexia, oliguria (urinary output equal or less than 400mls/24hours), proteinuria (protein equal or greater than 5g/24 hours; dipstick 3+) and increased weight (equal or more than 1000g/week and the patient is conscious (6, 23, 39).

Eclampsia: Mother is with signs and symptoms of severe preeclampsia and convulsions or coma (6, 23, 39).

Gestational age: The duration of gestation. It is measured from the first day of the last menstrual period and is expressed in completed weeks (6, 36).

Maternal death: The death of a woman while pregnant or within 42 completed days of termination of pregnancy irrespective of duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or by its management but not due to accidental or incidental causes (39,40).

Prevalence: quantifies the proportion of individuals in a population who have a disease at a specific time and provides an estimate of the probability (risk) .The formula for calculating prevalence is number of existing cases of a disease at a given point in time × 100 divided by total population (41,42).

Systolic blood pressure*:* is the peak pressure or force of blood against arterial walls at the point of ventricular contraction and is reflective of cardiac output (23, 43).

Diastolic blood pressure: is the force of blood against arterial walls when cardiac muscles are relaxed immediately prior to the next heart beat (23, 37) and is reflective of vascular resistance (44, 45).

Diversified diet: To be say pregnant women get diversified diet if the sum of responses are greater than or equal to four (≥50%) from the total of seven food groups(fruits, vegetables, protein sources like legumes and meat, cereals ,milk and milk product, fat and oils and directionally calories in a week(46).

4.8. Data collection techniques and Instruments

4.8.1. Data collection Instruments

The data was collected using pre-tested semi- structured questionnaire adapted and customized from validated questionnaire (35, 47, 48). Questionnaires were first adapted in English then translate to Afan Oromo and Amharic by expert and translated back to English to see consistency of the question. The questionnaire contains sections for assessing socio-demographics characteristic, prevalence of PIH, history of obstetric conditions, medical and family history, personal risk factors and health facility utilization. The questions and statements were grouped and arranged according to the particular objectives that they could address.

4.8.2. Data collectors

Seven data collectors who were four diploma midwives and three nurses in qualification and four supervisors who were BSC nurses by qualification and who were fluent in speaking, writing and reading Afan Oromo and Amharic language were recruited purposefully from their respective facilities for which they care to maintain the quality of the data. One day training was given for data collectors and supervisors.

4.8.3. Data Collection Procedure

Data were collected through face to face interview and reviewing of medical record or reports of the mother using pretested structured questionnaire by trained data collectors. Blood pressure readings were taken while the woman was seated in the upright position using a mercury sphygmomanometer apparatus and for referred women; BP and protein urea at time of diagnosis was taken.

4.9. Data Processing and Analysis

EPI data Statistical software version 3.1 and Statistical Package for Social Sciences (SPSS) software version 20.0 were used for data entry and analysis. After organizing and cleaning the data, frequencies and percentages were calculated to all variables that are related to the objectives of the study. Variables with P- value of less than 0.25 in bivariate analysis were entered into the multivariable regression. Odds ratio with 95 % confidence interval was used to examine associations between dependent and independent variables. P. value less than 0.05 was considered as statistically significant. Moreover, logistic regression analysis was done for controlling of confounding so that the separate effects of the various factors associated with pregnancy induced hypertension could be assessed. Results were summarized and presented by tables, charts and narrative forms.

4.10. Data Quality

The quality of the data was assured by using validated pretested questionnaires. Prior to the actual data collection; content validity was checked by expert, pretest was done on 5% of the total study eligible subjects and have similar characteristics at Agaro hospital and health center which were not included in the analysis of the actual study and based on findings necessary amendments were made. The questions used to measure psychological stress adapted from validated questionnaire then after modification of the questions the reliability of the questions were tested, cronbach's alpha test was 0.70.

Data collectors were trained for one day intensively on the study instrument and data collection procedure that includes the relevance of the study, objective of the study, confidentiality of the information, informed consent and interview technique. The data collectors were worked under close supervision of the supervisors to ensure adherence to correct data collection procedures, supervisors and investigator checked the filled questionnaires at the end of data collection every day for completeness. And every morning the principal investigator and data collectors conducted morning session to solve if there was any faced problem as early as possible and to take corrective measures accordingly. Moreover, the data were carefully entered and cleaned before the beginning of the analysis.

4.11. Ethical Considerations

The study was not involved any experiment on human subjects. However this study was obtained written ethical clearance from Jimma University of college of health science Institutional Review Board. Permission letter was obtained from the department for the cooperativeness of the health institutions. Permission was obtained from respective health institutions, the town health administrative informed and consent was obtained from individual respondent. All the interviews with subjects were made with strict privacy after getting written informed consent from the respondents and assuring the confidential nature of the responses by not writing names on the study tools and completed sheets were kept securely. The right of the respondents to refuse answering for few or all of the questions were also be respected.

4.12. Dissemination Plan

The result of this study is little use if not communicated to others. Therefore, findings of this study will be presented to Jimma University scientific community, copy of the final report will be handed to post graduate studies office, Department of Nursing and Midwifery and Involved institution. Also efforts will be made to present to concerned body in the study site and further efforts will be made to publish in national or international peer reviews journals.

CHAPTER FIVE: RESULT

A total of 356 pregnant women attending antenatal service were enrolled after fulfilling the inclusion criteria, out of them 5 pregnant women refused to complete the questions, which makes the response rate of 98.6%.

1. Socio-Demographic Characteristics of respondents

From the total of 351 pregnant mothers participated in the study 272 (77.5%) were from antenatal clinic and the rest were from pregnant women admitted to maternity ward, 87(24.8%) were referred from different health facilities to the health facilities on which the study was conducted.

As to age of the study subjects, 119 (33.9%) were between age 25 and 29 years and the mean age of pregnant women were 24.83 with SD±4.85, 210 (59. 8%) of them were from urban and the rest were from rural areas. About 252 (71.8 %) of them were Oromo by ethnicity followed by Amhara 42 (12%).

Regarding religion, majority 242 (68.9%) were Muslim and as to marital status, educational level, occupation, average monthly family income and family size of the study participants showed that 341 (97.2%) were married, 158 (45.0%) of them had primary education, 257 (73.2%) of them were housewife, 232 (66.1%) of them were in the middle income and 143 (40.7%) of them had family size of 1-2, respectively (Table 1).

Table 1: Distribution of the study participants by their socio- demographic characteristics at Jimma public health facilities, south west Ethiopia, March, 2015.

Variables		Frequency (n=351)	percent
Age of women	<20	88	25.1
	20-24	78	22.2
	25-29	119	33.9
	30-34	48	13.7
	≥35	18	5.1
Address of women	Rural	141	40.2
	Urban	210	59.8
Ethnic group	Oromo	252	71.8
	Amhara	42	12
	Yem	26	7.4
	Tigre	6	1.7
	Others*	25	7.1
Religion	Muslim	242	68.9
	Orthodox	81	23.1
	Protestant	27	7.7
	Catholic	1	0.3
Marital status	Married	341	97.2
	Other **	10	2.85
Educational status	None (Illiterates)	117	33.3
	Primary school(1-8)	158	45
	Secondary school(9-10)	38	10.8
	preparatory school(11-12)	5	1.4
	Diploma	17	4.8
	Degree and above	16	4.6
Occupational status	House wife	257	73.2
	Governmental employee	33	9.4
	NGO employee	6	1.7
	Self	52	14.8
	Labour work	3	0.9
Family size	1-2	143	40.7
	3-4	132	37.6
	≥5	76	21.7
Average family income	<793 (low income)	73	20.8
	793-2805 (middle income)	232	66.1
	>2805 (high income)	46	13.1

Others*= Gurage, dawuro, kafa, walayita

Other **=single, divorced, windowed

2. Prevalence pregnancy induced hypertension

The prevalence of pregnancy induced hypertension among pregnant women attending antenatal service was 36(10.3%).The minimum, maximum and mean of systolic blood pressure were 80mmHg, 190mmHg and 110.78mmHg ±17.10, respectively and the minimum, maximum and mean of diastolic blood pressure were 50mmHg,140mmHg and 71.85mmHg ±13.04 respectively. The result of proteinuria ranges from negative to 3+ (Figure 3).

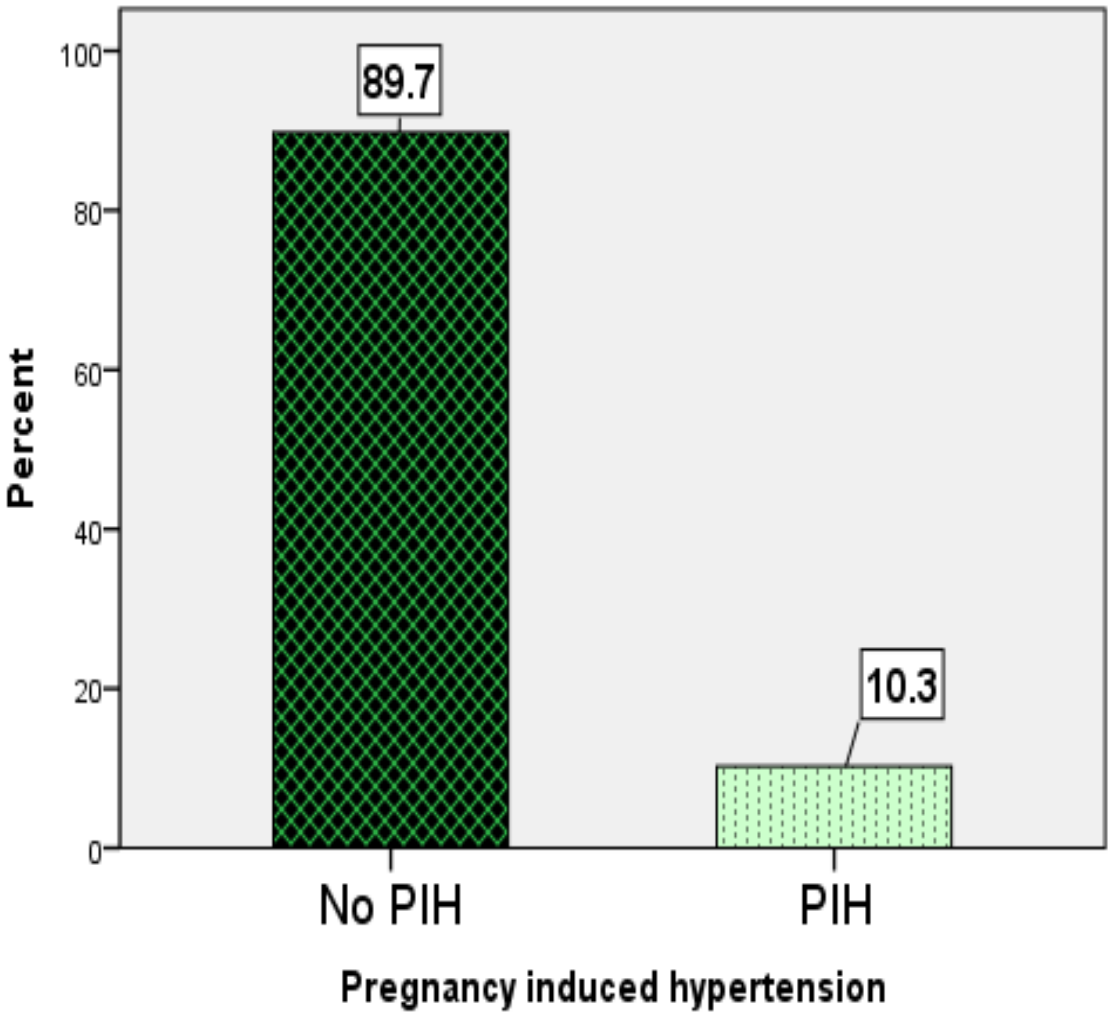

Figure 3: Distribution of Prevalence of pregnancy induced hypertension among pregnant women attending antenatal service at Jimma Town Public Health facilities, Southwest Ethiopia, March, 2015.

Out of the total of 36 pregnant women who had pregnancy induced hypertension, 11(30.6%) were gestational hypertension,12 (33%) were severe preeclampsia,11(30.6%) were mild preeclampsia and 2 (5.6%) were eclampsia and only 2(0.6) pregnant women had history of elevated blood pressure before gestational age was 20 weeks and all of them developed in to preeclampsia. Among women had pregnancy induced hypertension 23 (63.9%) were preeclampsia and all are presented on figure below (Figure 4).

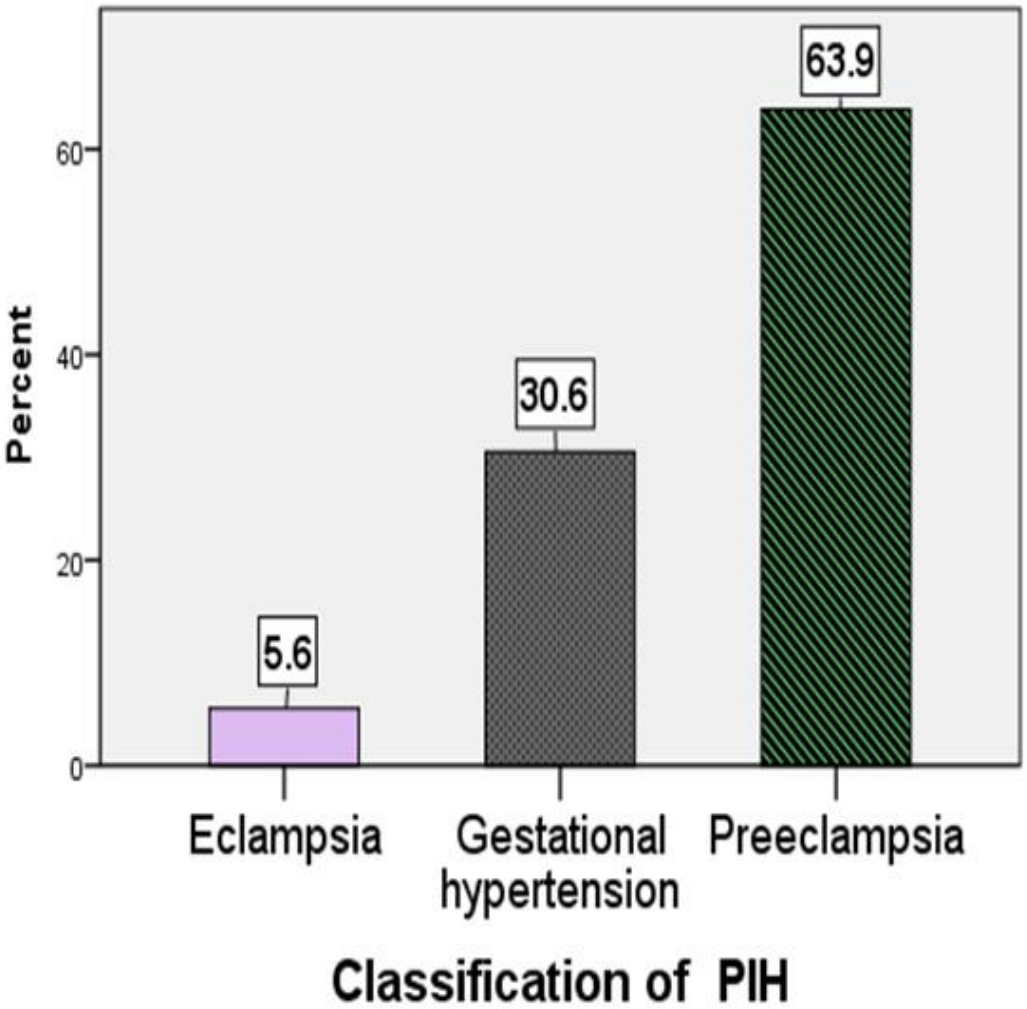

Figure 4. Distribution of PIH by types among pregnant women attending antenatal service at Jimma Town Public Health facilities, Southwest Ethiopia, March, 2015.

3. Variables related obstetric conditions

Out of the total pregnant women participated in study, 264 (75.2%) of pregnancy were wanted and 210 (59.8%) of pregnancy were multigravida. Regarding to parity of the women, 178 (50.7%) of them had parity of 1-4 and majority 321(91.5%) of gestational age were less than 37 weeks. Only 5(1.4%) of pregnant mothers attending antenatal service had previous history of PIH and none of them had history of gestational diabetic mellitus and only 26(7.4%) of the pregnancy were multiple pregnancy (Table 2).

Table.2: Frequency distribution of factors related to obstetric conditions among pregnant mothers attending antenatal care at Jimma Town Public Health facilities, Southwest Ethiopia, March, 2015.

Variables		**Frequency (n=351)**	**percentage**
	Wanted	264	75.2
Pregnancy status	Unwanted	25	7.1
	Mistimed	39	11.1
	Planned	23	6.6
Gravida	Primigravida	141	40.2
	Multigravida	210	59.8
Parity	0	157	44.7
	1-4	178	50.7
	≥5	16	4.6
Gestational age	<37	321	91.5
	37-42	28	8.0
	>42	2	.6
History of previous	Had	5	1.4
PIH	Not had	346	98.6
Multiple pregnancy	Yes	26	7.4
	No	325	92.6

4. Medical and family history related variables/factors.

Medical and family histories of illness are predisposing factor, out of the total 5(1.4%) had history of chronic hypertension and 41 (11.7%) of them had family history of chronic hypertension, 24 (6.8%) of them had family history of pregnancy induced hypertension commonly from women's relatives. Regarding kidney diseases 88 (25.1%) of the respondents had history of kidney diseases during current pregnancy and only 3 (0.9%) of them had history of diabetic mellitus as well as only 29 (8.3%), 21(6.0%) of them had history of rheumatic arthritis and asthma respectively (Table 3).

Table 3: Distributions of medical and family history risk factors among pregnant women attending antenatal service at Jimma Town Public Health facility, Southwest Ethiopia, March, 2015.

Variables		Frequency =351	Percent
History of chronic hypertension	Had	5	1.4
	Not had	346	98.6
Family history of chronic hypertension	Had	41	11.7
	Not had	310	88.3
Family history of PIH	Had	24	6.8
	Not had	327	93.2
History of DM	Had	3	0.9
	Not had	348	99.1
History of kidney diseases	Had	88	25.1
	Not had	263	74.9
History of rheumatic arthritis currently	Had	29	8.3
	Not had	322	91.7
Currently history of asthma.	Had	21	6.0
	Not had	330	94.0

5. Variables related to personal risks

All of the respondents (351) attending antenatal service did not smoke cigarette but 35(10%) of the family members smoke cigarette mostly the husbands (94.3%) and only about 19 (5.4%) of pregnant women had any alcoholic drink in the past two years. Among alcohol drunker, majority 15 (78.9 %) were drink before the pregnancy and the rest were drink before and during the pregnancy.

Out of the total study participants, 308(87.7%) of the pregnant women were used caffeine (coffee & tea) drinks .Among the users 263(85.4%) were commonly coffee users and 45 (14.6%) were commonly tea users. From the total (351) pregnant mother attending antenatal service, 318 (90.6%) of them had mid upper arm circumference≥21cm and 33(9.4%) were <21cm.

Regarding sleeping pattern of women during current pregnancy, more than half 209(59.5%) of them sleep 7-8 hours per night, 52(14.8%) were sleep ≤6hours and 90 (25.6%) were sleep ≥9 hours per night and 104 (29.6) had a nap at day time.

Among pregnant women attending antenatal service only 31 (8.8%) of women were doing scheduled regular physical exercise during their current pregnancy. Based on the nine items used to assess psychological stress, 140(39.9%) of pregnant women attending antenatal service had psychological stress. Regarding getting diversified diet only 27 (7.7%) did not get diversified diet (Table 4).

Table 4: Distribution of the study subjects by their personal risk factors among pregnant women attending antenatal service at Jimma town public health facilities, southwest Ethiopia, March, 2015

Variables		Frequency	Percent
Any family members who smoke cigarette	Yes	35	10.0
	No	316	90.0
Whom family members smoke cigarette(n=35)	Husband	33	94.3
	Other*	2	5.7
Pregnant mother drink alcohol in past two years.(n=351)	Yes	19	5.4
	No	332	94.6
Time of alcohol consumption(n=19)	Before px	15	78.9
	Before and during px	4	21.1
Frequency of alcohol consumption (n=19)	daily	2	10.5
	every two day	17	89.5
Amount of alcohol consumption averagely per day (n=19)	One bottle	10	52.6
	Two bottle	9	47.4
Caffeine (coffee & tea) use (n=351)	Yes	308	87.7
	No	43	12.3
The commonly pregnant women used caffeine(n=308)	Coffee	263	85.4
	Tea	45	14.6
The amount coffee consumption in cup per day (n=263)	1-2	156	59.3
	>3	107	40.7
Psychological stress during current pregnancy (n=351)	Not stressed	211	60.1
	Stressed	140	39.9
Diversified diet during current pregnancy (n=351)	Not get	27	7.7
	Get	324	92.3
Mid upper arm circumference in centimeter (n=351)	<21cm	33	9.4
	≥21cm	318	90.6
Sleep pattern in hours per night(n=351)	≤ 6	52	14.8
	7-8	209	59.5
	≥9	90	25.6
Mothers took nap per day (n=351)	Yes	104	29.6
	No	247	70.4
Perform scheduled physical exercise during current pregnancy (n=351)	Yes	31	8.8
	No	320	91.2

PX=pregnancy

Other*= Children, Relatives, Any other person live with family members

6. Variables related to health facility utilization

According to this study 240 (68.4%) of pregnant mother utilized health facility for ANC follow up before data collection period and 81(23.1%) of pregnant mothers were attended first visit of their routine ANC follow up and rest were attended ANC more than two times. Regarding to utilizing health facilities for other health problem rather than current pregnancy, only 58 (16.5%) were utilized health facilities for gynecology, surgical and medical problems.

Table 5: Utilization Health facility of pregnant women attending antenatal service at Jimma Town Public Health facilities, Southwest Ethiopia, March, 2015.

Variables		Frequency (n=351)	Percent
Had ANC follow up before data collection period. (n =351)	Yes	240	68.4
	No	111	31.6
Number routine ANC follow up (n=240)	1(1st visit)	81	23.1
	2-4(repeat visit)	159	45.3
Number non-routine ANC follow up (n=71)	1-2	61	85.9
	>=3	10	14.1
Utilizing health facility for other health problem.(n=351)	Yes	58	16.5
	No	293	83.5

7. Association between dependent and independent variables

The bivariate logistic regression analysis was done to see the association between dependent and independent variable and also to identify the variables candidate for multivariable logistic regression.

Among the variables candidate for multivariable logistic regression, which were analyzed with bivariate logistic regression; age ,family size, gestational age, multiple pregnancy, positive history of chronic hypertension, diversified diet and antenatal care follow up before data collection period had statistically significant association with pregnancy induced hypertension.

Family history of pregnancy induced hypertension, family history of chronic hypertension ,kidney diseases, number of routine antenatal care follow up and psychological stress had strong statistical association with pregnancy induced hypertension but residence, occupational status, average family income, alcohol intake, sleep pattern, taking nap at day time, non-routine ANC follow up and utilization of health facilities for other health problem which was not related to current pregnancy did not statistically significant association (Table 6).

Table 6: Bivariate logistic analysis result for variables associated with pregnancy induced hypertension and variables candidate for multivariable logistic regression among pregnant women attending antenatal service at Jimma Town Public Health facilities, Southwestern Ethiopia, March 2015.

Variables candidate for Multivariable logistic regression		**β**	**P**	**COR (95% CI)**
Age of mother		0.076	0.028*	1.10(1.01-1.15)
Residence	Rural	0.570	0.107	1.768(.89-3.53)
	Urban			1.00
Occupation	House wife	-0.841	0.052	0.43(.19-1.01)
	Employee*	0.112	0.840	1.12(.38-3.31)
	Self			1.00
Family income	Low income	-.576	0.187	0.56(.24-1.32)
	Middle income	.681	0.177	1.98(.735-5.310)
	High income			1.00
Family size	1-2			1.00
	3-4	-.017	0.971	0.98(.40-2.40)
	≥5	1.082	0.011*	2.95(1.28-6.80)
Gestational age	<37			1.00
	≥37	1.198	0.008*	3.31(1.38-8.04)
Multiple pregnancy	Yes	1.325	0.006*	3.38(1.46-9.69)
	No			1.00
History of chronic hypertension	Yes	2.655	0.004*	14.23(2.29-88.23)
	No			1.00
Family history of	Yes	1.915	<0.001**	6.79(3.12-14.77)

chronic hypertension	No			1.00
Family history of PIH	Yes	2.536	<0.001**	12.63(5.12-31.10)
	No			1.000
Kidney diseases	Yes	1.513	<0.001**	4.54(2.23-9.24)
	No			1.00
Alcohol intake	Yes	0.916	0.122	2.5(0.78-7.99)
	No			1.00
Diversified diet	Get			1.00
	Not get	1.270	0.008*	3.56(1.40-9.13)
Sleep pattern	≤6hours	0.167	0.735	1.18(0.45-3.11)
	7-8 hours	-0.618	0.127	0.54(0.24-1.19)
	≥9hours			1.00
Nap at day time	Had	-0.595	0.099	0.551(.272-1.118)
	Not had			1.00
ANC follow up before data collection period	Yes			1.00
	No	-0.916	0.048*	.400(.161-0.991)
Number routine ANC follow up	1(first visit)			1.00
	2-4(repeat)	-1.374	<0.001**	.25(0.11-0.57)
Utilization of health facility	Yes	0.761	0.060	2.14(0.97-4.72)
	No			1.00
Psychological stress	Not stressed			1.00
	Stressed	1.847	<0.0001**	6.34(2.80-14.39)

* Statistically significant **P<0.05**

** Highly statistically significant **P<0.001**

Employee*: A mother who employed in government and non-governmental organization

Utilization of health facilities: Getting any health service from health facilities for health problem rather than current pregnant problems.

NB: Those Variables their p-value greater than or equal to 0.25 were not including in the above table and not entered into multivariable logistic regression.

However in multivariable logistic regression analysis factors contributing pregnancy induced hypertension were identified; address, positive family history of chronic hypertension, positive family history of pregnancy induced hypertension, kidney diseases during current pregnancy and psychological stress had statistically significant association with pregnancy induced hypertension.

Pregnant women from a rural residence were 5.31times more likely to report as having pregnancy induced hypertension when compared to those of pregnant women from urban residence (AOR=5.31, 95%CI= (1.52-18.57), p=0.009), those who had family history of chronic hypertension were 9.903 times more likely developing pregnancy induced hypertension when compared with pregnant women hadn't family history of chronic hypertension (AOR=19.9 at 95% CI= (2.31-42.44**)**,p=0.002) and those pregnant women who had family history of pregnancy induced hypertension were 9.13 times more likely to develop pregnancy induced hypertension than those did not have family history of chronic hypertension(AOR=9.13 at95%CI= (2.33-35.78),p=0.002).

As this study showed being having kidney diseases during pregnancy were 3.97 times more likely to develop pregnancy induced hypertension as compared with pregnant mothers did not have kidney diseases during pregnancy (AOR=3.97 at 95%CI=(1.36-11.56),p=0.012) and being psychologically stressed during pregnancy increases the like hood of pregnancy induced hypertension by 5.79 times. (AOR= 5.79, 95%CI= (1.66-20.25, P=0.006) when compared to those pregnant women who did not have psychological stress during pregnancy (Table 7).

Table 7: Multivariable logistic regression analysis result for variables associated with pregnancy induced hypertension among pregnant women attending antenatal service at Jimma Town Public Health facilities, Southwestern Ethiopia, March 2015.

Variables/ factors		Pregnancy induced hypertension		COR(95%CI)	AOR(95%CI)
		Yes	No		
Age of women (continuous)				1.07(1.01-1.15)	O.98(0.86-1.12)
Address	Urban	17(8.1%)	193(91.9%)	1.00	1.00
	Rural	19(13.5%)	122 (86.5%)	1.77(0.89-3.53)	5.31(1.52-18.57)**
Occupational status	house wife	20 (7.8%)	237(92.2%)	0.43(.19-1.01)	0.31(0.082-1.15)
	Employee *	7 (17.9%)	32 (82.1%)	1.12(0.38-3.31)	0.88(0.13-6.05)
	Self	9 (16.4%)	46 (83.6%)	1.00	1.00
Monthly income	Low income	9 (12.3%)	64 (87.7%)	0.56(.24-1.32)	0.41(0.07- 2.38)
	Middle income	17 (7.3%)	215(92.7%)	1.98(.76-5.31)	0.36(0.080- 1.60)
	High income	10(21.7%	36 (78.3%)	1.00	1.00
Family size	1-2	11 (7.7%)	132 (92.3%)	1.00	1.00
	3-4	10 (7.6%)	122 (92.4%)	0.98(.40-2.40)	1.29(0.34-4.96)
	≥5	15(19.7%)	61 (80.3%)	2.95(1.28-6.80)	2.17(0.54-8.80)
Gestational Age	<37	31 (9.7%)	290 (90.3%)	1.00	1.00
	>=37	5 (16.7%)	25 (83.3%)	3.31(1.37-8.04)	3.07(0.75-12.57)
Multiple pregnancy	Yes	7 (26.9%)	19 (73.1%)	3.38(1.46-9.69)	1.69(0.41-7.07)
	No	29 (9.0%)	296 (91%)	1.00	1.00
History of chronic hypertension	Yes	3 (60%)	2 (40%)	14.2(2.29-88.23)	2.33(0.11-48.07)
	No	33 (9.5%)	313(90.5%)	1.00	1.00
Family history of chronic hypertension	Yes	14(34.1%)	27(65.9%)	6.79(3.12-14.77)	9.90(2.31-42.44)**
	No	22(7.1%)	288 (92.9%)	1.00	1.00
Family history of	Yes	12(50.0%)	12 (50.0%)	12.63(5.12-31.1)	9.13(2.33- 35.78)**

PIH	No	24(7.3%)	303(92.7%)	1.00	1.00
Kidney diseases	Yes	20(22.2%)	68 (77.3%)	4.54(2.23-9.24)	3.97(1.36-11.56)*
	No	16 (6.1%)	247(93.9%)	1.00	1.00
Alcohol intake	Yes	4(21.1%)	15 (78.9%)	2.5(0.78-7.99)	1.84(0.27-12.68)
	No	32 (9.6%)	300 (90.4%)	1.00	1.00
Diversified diet	Get	29 (9.0%)	295(91.0%)	1.00	1.00
	Not get	7 (25.9%)	20 (74.1%)	3.56(1.39-9.13)	1.57(0.40 -6.24)
Sleep pattern	≤6hours	8 (15.4%)	44(84.6%)	1.18(0.45-3.11)	2.54(.56-11.52)
	7-8 hours	16 (7.7%)	193 (92.3%)	0.539(.244-1.191)	0.524(0.16-1.69)
	≥9hours	12(13.3%)	78 (86.7%)	1.00	1.00
Had a nap at day time	Yes	15(14.4%)	89 (85.6%)	1.00	1.00
	No	21 (8.5%)	226 (91.5%)	0.55(0.27-1.12)	1.41(0.44-4.52)
ANC follow up	Yes	30(12.5%)	210 (87.5%)	1.00	1.00
	No	6 (5.4%)	105 (94.6%)	0.400(.161-0.991)	2.88(0.31-26.88)
No routine ANC follow up	1(first visit)	18(22.2%)	63(77.8%)	0.25(0.11-0.57)	0.23(0.03-1.72)
	2-4(repeat)	12(7.5%)	147(92.5%)	1.00	1.00
Utilization of health facility	Yes	10(17.2%)	48 (82.8%)	2.14(0.97-4.72)	1.08(0.320-3.65)
	No	26 (8.9%)	267(91.1%)	1.00	1.00
Psychological stress	Not stressed	8 (3.8%)	203 (96.2%)	1.00	1.00
	Stressed	28 (20.0%)	112 (80.0%)	6.34(2.80-14.39)	5.79(1.66-20.26)**

ANC follow up: If the pregnant women had ANC follow up before data collection period.

Utilization of health facilities: Getting any health service from health facilities for health problem rather than current pregnant service.

Employee* =Governmental and NGO employee

***** =Statistically Significant (P<0.05)

**=high statistically significant (p<0.01)

CHAPTER SIX: DISCUSSION

Hypertensive disorders of pregnancy are an important cause of severe morbidity, long-term disability and death among both mothers and their babies (49).

In this study, the prevalence of pregnancy induced hypertension among pregnant women attending antenatal service was 36 (10.3%).This might be increases the morbidity and mortality of the mother and fetus. If appropriate preventive measures not taken for the risky of pregnant women, in long run it might be ranked as first cause of maternal mortality.

This finding was slightly higher than global prevalence of pregnancy induced hypertension which ranges between 5-10% (49), systematic review study conducted in Nigeria which ranges 2%to 10% (28), the study conducted in Iran which was 9.8% (23), the study conducted in India (27), Port Elizabeth(12) and Ethiopia (Tikur Anbessa hospital (11) and Jimma University specialized hospital (29)) which were 7.8%, 6.69%, 5.3% and 8.5% respectively.

This gap might be because of different in the study period, study design, sample size which was large, study area. In addition to this, the gap might be due to current health policy which focuses on implementation of focused ANC and exempted service for maternal care increases the health care seeking behaviour of pregnant women which increases detection of the case. The other reason was an increment of non-communicable diseases in our country increase the prevalence of pregnancy induced hypertension. The studies conducted at Tikur Anbessa hospital and Jimma University specialized hospital was only focused on pregnant women who were admitted for deliveries.

On other hand the prevalence of this study was lower than what has been reported in the studies conducted in Brazil (21) and South Africa (16) which were 13.9 % and 12% respectively. This gap might be because of different in the study period, study design, sample size, geographical difference of the study and health seeking behaviors of the pregnant women in the area.

This study also revealed the associated factors of pregnancy induced hypertension; residence, positive family history of chronic hypertension, positive family history of pregnancy induced hypertension, kidney diseases and psychological stress are statistically significant association.

Being in a rural residence in this study was increased risk of developing pregnancy induced hypertension about five times more than that of the urban residence .This finding was in line with the study conducted at Jimma university specialized hospital which showed rural residence were more suffered with pregnancy induced hypertension**(**29).And other theories support this finding, most of mother live in rural area has low socioeconomic status, poor lifestyle management and low health seeking behavior, which are the predisposing factor for pregnancy induced hypertension but inconsistent with the study conducted in Ghana(20**)**.

The discrepancy might be due to the difference in the study area, health polices of the country, lifestyle of urban women of Ghana and health seeking behavior Ghana's rural community.

According to this study, those women with positive family history of chronic hypertension and positive family history of pregnancy induced hypertension had about ten and nine times respectively greater odds of developing pregnancy induced hypertension as compared those who hadn't. This finding was supported with the study conducted in Pakistan (15), Ghana (20) and New York (50) and also text book of current diagnosis and treatment in obstetrics and gynecology (2). This might have occurred due to genetic factors that contribute to the physiologic predisposition of pregnancy induced hypertension. However positive history chronic hypertension had statistically significant association with PIH in bivariate analysis but failed to show association in multivariable logistic regression analysis. The relationship of pregnancy induced hypertension and history of chronic hypertension are the established fact starting long ago but the absence of association in this study could be as a result of small sample size, otherwise there is no tangible evidence to deny the relationship.

As this study showed being having kidney diseases during pregnancy increases the likely hood of pregnancy induced hypertension by 3.97times.This finding was similar with the study conducted in the United Kingdom (22) and Netherlands and New York (50) which showed that preexisting renal diseases were statistically significant association with pregnancy induced hypertension and other theories support that renal physiological function had direct relationship with cardiovascular system (2).

According to this study, being psychologically stressed during pregnancy increases the like hood of pregnancy induced hypertension by 5.79 times. This result was consistent with study conduct in New York (24) and also this finding supported with study conducted in Sri Lanka with slightly different (25).

The non-communicable diseases are increasing from time to time, specially pregnancy induced hypertension is the most common cause of maternal morbidity and mortality which was in the increased trend (18).This study findings also support an increments of this disorder when compared with previous studies done Ethiopia(11,29).As to this study was identified the predisposing factors ,those the risk women for pregnancy induced hypertension should supplemented with calcium ,low dose of asprin to prevent it and early detection and treatment mandatory to reduce complication and mortality secondary pregnancy induced hypertension.

This cross-sectional study has possible limitations that may arise from pregnant women readiness and ability to provide every information about themselves and their family correctly based on which PIH was measured and; recall and social desirability bias may be introduced during data collection from the pregnant women as they were self-referred.
However; measure has been taken to minimize these limitations were using questions targeted information. The others limitation of this study was few variables have small observation which causes lower precision, so it was carefully interpreted and also unavailable standard classification of income in in Ethiopia is other limitation. Moreover, the use of pretested questionnaire, inclusion of all public health institutions in Jimma town and data collection from both in patient and ANC unit were other strengths of this study.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

Based on this study's findings, the following are concluded:

The prevalence of pregnancy induced hypertension among pregnant women attending antennal service was high. Among pregnancy induced hypertension, preeclampsia was the most common especially among those pregnant women admitted to maternity ward.

The rural residence, positive family history of chronic hypertension, positive family history of pregnancy induced hypertension, chronic renal diseases (kidney diseases) and psychological stress during pregnancy were the associated factors with pregnancy induced hypertension.

7.2 Recommendation

Based on the findings of this study, the following recommendations were forwarded:

1. The town health office and health institutions should give an attention for early detection and prevention pregnancy induced hypertension because the prevalence was slightly increased
2. Since majority reproductive age group women live in rural area are at risk for developing pregnancy induced hypertension, the town health office and health institutions should focus for early detection, prevention and treatment of pregnancy induced hypertension at rural community level.
3. Those pregnant mothers who have positive family history of chronic hypertension and positive family history of pregnancy induced hypertension should closely monitored during their pregnancy and preventive actions should be taken.
4. Early detection and treatment of renal diseases reduce the probability of developing pregnancy induced hypertension, so the health institutions should focus early ANC visit to reduce the possible occurrence of pregnancy induced hypertension secondary to kidney diseases.
5. The town health office and health facilities should focus on psychological treatment during pregnancy and pregnant mother must be free from psychological stress**.**
6. Further prospective cohort studies on large scales at community level are recommended identify other associated factors of pregnancy induced hypertension**.**

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ANNEXES

Annexe I: Information sheet

Jimma University

College of health Sciences

Department of Nursing and Midwifery

You are invited to participate in research study to be conducted by post graduate student in maternity nursing speciality. Please be patient while the interviewer read the following statement to you and ask any unclear question before you agree to participate.

Title: Pregnancy induced hypertension and associated factors among pregnant women attending antenatal service at Jimma Town Public Health facilities, South West Ethiopia

Objective: To assess prevalence of Pregnancy induced hypertension and associated factors among pregnant women attending antenatal service at Jimma Town Public Health facilities, South West Ethiopia, 2015.

Participation Procedures and Guidelines

1. The information you provide was kept completely anonymous. Your information will be kept confidentially
2. The interview will take about 20 minutes to complete; however, if you don't want to participate in the study you have full right.

Benefits and Risks of participating in the study

- Your participation in this study does not involve any risks.
- You also might experience some benefit from participating in this study .These benefits might be positive feeling from helping with an important research study and your response will assist in development of protocol on prevention and intervention of pregnancy induced hypertension.
- No incentive was given for participants in the study

Rights to Refuse or Withdraw

- Your participation is **voluntary** and there is no penalty for you not wanting to participate. This means that you are free to stop at any point or to choose not to answer any particular question or all the questions.

INFORMED CONSENT

Greeting and self-introduction and informed consent

Greeting: - Good morning/afternoon. I am_____

This interview is aimed at getting pertinent information concerning **pregnancy induced hypertension and its associated factors** .Your participation in this interview will have **paramount importance** for the improvement of services for pregnancy induced hypertension. You can refuse to participate or withdraw from the interview at any stage whenever you feel like. Your refusal to participate will not have any effect on the services you receive. The information you give will be used for writing a master's thesis for graduate student in maternity at Jimma University. Here, I want to assure you that any information obtained from you will **remain confidential** and even there is no need of **writing your names** or any personally identifiable information.

Do you agree to Participate?

- If Yes , can you please sign up for me here_____
- If No,thank you stop here

Name and sign of the consenting interviewer ----------

Result of the interview:

- ☐ Completed
- ☐ Partially completed

Supervisor name & Sign ----------

Name of Investigator :**Tesfaye Abera**

Address: **phone-0938658481 or 0946251613**

Email-tesfeabera2013@gmail .com

1. Date of interview_____ Questionnaire code _____

2. Card no: _____ Unit_____

3. Referral: 0.No, 1. Yes: If Yes, from_____

Part A: Questions on Socio-demographic characteristics

No.	Variables(questions)	Response categories		Skip/Remark
101	Age	_____ (in years)		
102	Address	1. Rural	2.Urban	
103	Ethnic group	1. Oromo 2. Amhara 3. Yem 4. Tigre 5. Other specify_____		
104	Religion	1. Muslim 2. Orthodox 3. Protestant 4. Catholic 5. Other specify _____		
105	Marital status	1. Married 2. Single	3.Divorced 4.Widowed	
106	Occupation	1. House wife 2. Governmental Employee 3. NGO Employee 4. Self 5. Other specify_____		
107	Educational status	1. None 2. Primary (1-8) 3. Secondary school (9-10) 4. Preparatory school (11-12) 5. Diploma 6. Degree and above		

108	Average Monthly family Income	_____(in ETB)	
109	Family size	_____(in number)	

Part B: Questions related to pregnancy disorders or complications

No.	Variables	Response categories		Skip to/remark
201	Measurements of **BP** and **proteinuria** level: For ANC clients at time of data collection period and at time of diagnoses for admitted women.	Systolic BP _____mmHg Diastolic BP _____mmHg Proteinuria level_____g/24hours or Dipstick test_____		supported by record review
202	Based on the response of Q201, does she has pregnancy induced hypertension.	1.Yes	0.No	If no skip to Q 301
203	If your answer for Q202 is yes , what are the types of PIH	1. Gestational hypertension 2. Mild preeclampsia 3. Sever preeclampsia 4. Eclampsia		supported by record review
204	If your answer for Q202 is yes, Have you had hypertension before gestational age less than 20 weeks?	1.Yes	0.No	supported by record review

Part C: Questions related to obstetric condition of women.

No.	Variables	Response categories		Skip to/Remark
301	Status of the pregnancy	1. Wanted 2. Unwanted	3.Mistimed 4.planned	
302	Gravidity	_____ (in number)		
303	Parity	_____ (in number)		
304	Gestational age	_____ (in weeks)		
305	If your pregnancy is multigravida, do you have previous history of PIH?	1.Yes	0.No	
306	If your pregnancy is multigravida, do you have previous history of gestational Diabetic mellitus?	1.Yes	0.No	
307	Is the pregnancy multiple? Based on physical examination, chart review and ultrasound findings.	1.Yes	0.No	

Part D: Questions related to medical and family history of the women.

No.	Variables	Response categories		Skip to/remark
401	Do you have history of chronic hypertension?	1.Yes	0.No	
402	Do you have family history of chronic hypertension?	1.Yes	0.No	
403	Do you have family history of pregnancy induced hypertension?	1.Yes	0.No	If no skip to Q405
404	If your answer for Q303 is yes, From whom relatives had history of pregnancy induced hypertension?	1.From your mother 2.From your father 3.both		
405	Do you have history of diabetic mellitus?	1.Yes	0.No	
406	Do you have family history of diabetic mellitus?	1.Yes	0.No	
407	Do you have history of kidney diseases during current pregnancy or told to you?	1.Yes	0.No	
408	Do you have history of rheumatic arthritis during current pregnancy or told to you?	1.Yes	0.No	
409	Do you have history of asthma during current pregnancy?	1.Yes	0.No	

Part E*: Questions related to personal* risk *factors of the women.*

No.	Variables	Response categories		Skip to/remark
501	Have you smoked any cigarettes in the ***past 2 years*?**	1.Yes	0.No	If no skip to **Q 504**
502	If your answer for Q501 is yes, what is the status of your smoking?	1.Current smoker 2. Former smoker		
503	If your answer for Q 501 is Yes, how many cigarettes did you smoke on an average per day?	_____packet/pies		One packet contain 20 cigarettes &underline the choice

504	Are there any family members who smoke cigarette?	1.Yes	0.No	If no→Q506
505	If your answer for Q504 is Yes, who family member smoke?	1.Husband 2.Children 3.If other specify……		
506	Have you had any alcoholic drinks in the ***past 2 years*****?**	1.Yes	0.No	If no →Q409
507	If your answer for Q506 is yes, when did you drink alcohols?	1.Before the pregnancy 2.During pregnancy 3.Before and during pregnancy		
508	If your answer for Q506 is yes, how often?	1.Daily 2.Two days weekly		
509	How many alcoholic drinks did you drink in an average per day?	_____(in bottle/unit)		
510	Have you had any caffeine?	1.Yes	0.No	If no→Q514
511	If your answer for Q510 yes,which caffeine do you use **commonly**?	1.Coffee 2.Tea 3.If other specify.....		
512	If coffee, how much did you drink in average per day?	----------in cup		
513	If tea, How much did you drink in average per day?	----------in cup		
514	Have you had diversified diet during current pregnancy per a week of the following foods or food groups? 1.Fruits 2.Vegetables 3.Protein sources like legumes and meats 4.cereals 5.Milk and milk products 6.Fat and oils 7.Directionally calories like soft drinks	1.Yes 1.Yes 1.Yes 1.Yes 1.Yes 1.Yes 1.Yes	0.No 0.No 0.No 0.No 0.No 0.No 0.N	

516	Women MUAC measurement	_____ (cm)		
517	Are you doing scheduled physical exercise regularly during current pregnancy? Like walking, swimming, running, low impact aerobics.	1.Yes	0.No	
518	How many hours did you sleep per night?	_____	in hours	
519	Did you have a nap at day time?	1.Yes	0.No	
520	If your answer for Q518 is yes, how many times did you take a nap?	_____	in hours	

Part F: Questions related to psychological stress: Circle the number that best indicates the degree to which each statement has applied to you during current pregnancy.

DESCRIPTION	never	sometimes	often
Are you not feeling calm?	0	1	2
Are you feeling hurried (do not seem to have enough time)?	0	1	2
Do you have physical aches and pain?	0	1	2
Do you feel worried?	0	1	2
Are you feel confused and lack of concentration?	0	1	2
Are you feeling full of energy and keen?	0	1	2
Are you feeling a great weight on your shoulders?	0	1	2
Do you have difficulty controlling your reactions, emotions, moods, or gestures?	0	1	2
Are you feeling stressed?	0	1	2

Part G: Questions related health facility utilization.

601	Do you have ANC follow up before data collection period?	1.Yes	0.No	
602	If your answer for Q601 is yes ,number of routine prenatal checkups	_____		
603	If your answer for Q601 is yes, number of non-routine prenatal checkups	_____		
604	Do you utilize health facility for other health problem during current pregnancy?	1.Yes	0.No	

Thank you!!!

GAAFILEEE AFAN OROMOON QOPHAA'E
Yuunivarsiitii Jimmaatti Kolleejjii Saayinsii Fayyaa fi Hawwaasummaa
Mumee Barnootaa Narsii fi midwiferii

Gaaffileen kun hodhoolii dhulfaa, hordofii ulfa bufaatalee fayyaa fi hospitaaloota magaala Jimma keessati fudhaacha kan jiraaniif kan qophaa'eedha. Qorannoon Kun Kan geggeeffamuf sababaa dhibbaan dhigaa ulfa wajiin wal qabaate dhufuu fi sadarkaa amma dhukkubni kun irra jiru beekuufdha.

Maqaa nama odeeffannoo sasaabuu _____

Guyyaa _____/_____/_____

Koodii gaaffii _____

Guca walii galtee

Akkam bultan/ooltan? Maqaan koo _____ jedhama. Ani Tasfaayee Abarraa kan qorannoo digirii lammaffaa argachuuf isaan barbaachisu Yuunivarsiitii

Jimmaa, kolleejjii saayiinsii fayyaatti mumee barnoota Nersummaatti hojjechaa jiran waliinan hojjedha. Qorannon kun kan xiyyeefatu Sababa dhibbaan dhigaa yeroo ulfaa dhufuu fi sadarkaa amma in irraa jiru beekudha.

Atis kan gaafatamtu gaaffilee kana wajjin walqabatanii jiran dha. Sababa ati qorannoo kana irratti hirmaateef tajaajilli ati argachuu qabdu sitti hin hir'atu. Maqaa kee barreessuun hin barbaachisu akkasumas odeeffannoon ati naaf laattu iccitiidhaan qabama.

Gaaffiileen kun daqiiqa kudha shanii hanga digdammati fudhachuu danda'a. Gaaffilee gaafatamtu deebisuus ta'e yoo sitti hin tolu ta'e yeroo barbaaddetti addaan kutuuf mirga guutuu

qabda; haa ta'u malee qorannoo kana keessaatti qooda fudhachuun kee bu'aa hedduu qaba. Qorannoo kana keessatti hirmaachuuf fedhii qabdaa?

☐ 1. Eeyyee

☐ 2. Lakkii

Kutaa I: **Odeeffannoo hawwaasummaa**
Koodii hadhoolii _____kaardii dhukkubsaata _____

Kutaa tajaajila_____

Guyyaa odeeffannoon sassaabame _____/_____/_____

Rifeeraliidhaa? 1.Eeyyee 2. Lakki _____

lakk	**Jijjiiramtoota**	**Gartuulee deebii**	**Irra darbi/Yaada**
101	Umriiin kee meeqaa?	_____ waggaan	
102	Bakka jireenya	1. Magaala 2. Badiyyaa	
103	Qomoo ykn Sanyii	1. Oromoo 2. Amarraa 3.Yeemii 4.Tigree 5.Kan biroo yoo ta'ee ibsi_____	
104	Amantaan kee maal dhaa?	1. Musliima 2. Ortodookisii 3. Piroteestaantii 4. Kattoolikii 5. Kan biroo yoo ta'ee ibsi_____	
105	Haala heerummaa	1.Kan heerumte 2.Kan hin heerumne 3.Kan walhiikite 4.Kan qopha qophaa jiraatan	
106	Haala hojii	1.Hojii mana keessaa qofa 2.Hojii mootummaa 3.Hojii miti mootummaa 4.Hojii dhunfa 5.Kanbirooyoota'e ibsi_____	
107	Haala barumsaa	1. Kan hin barane 2. Sadarkaa tokkoffaa 3. Sadarkaa lammaffaa 4. Dipilooma 5. Digrii fi isaa oli	

108	Galii matii kan ji'aa waliigalaan	_____birri	
109	Dheerina "MUAC"	_____sentimeetiraan	
110	Baay'ina matii	_____lakk.	

Kutaa .II.Gaafii waa'ee rakkoolee ulfa wajjiin walqabaatan

lakk.	Jijjiiramtoota	Gartuulee deebii	Irra darbi/Yaada
501	Amma dhibbee dhibbaa dhigaa ulfaan dhufu ni qabdii?Dabaalataan ragaan yaala ishee ilaalamee	0.Lakki 1.Eeyyee	
502	Yoo deebiin lakkofsa **501** eeyyee ta'e ,dhibbaa dhigaa fi pirootiiniin fincaan keessa hangam ta'aa?	dhibbaa dhigaa Siyistooli _____mmHg Dhibbaa dhigaa dastooliik_____mm Hg Pirootin fincaan keessa _____g/24hrs ykn dipistiki testi----------	
503	Yoo deebin lakkofsa **501** eeyyee ta'e, gosa dhibbaa dhigaa addaan baasuu?	1.Dhibbaa dhigaa jesteeshinaal 2.Mildi piriikilaamsiyaa 3.Piriikilaamsiyaa 4.Ikilaamsiyaa	
504	Yoo deebin lakkoofsa **501** eeyyee ta'e , kanaan dura fi osoo ulfi kee torbaan digdammaa hin ta'iin dhibbaa dhigaa ni qabdaa?	0. Lakki 1. Eeyyee	

Garee III: Gaafii waa'ee ulfaa ilaalatu

lakk	Jijjiiramtoota	Gartuulee deebii		Irra darbi/Yaada
301	Haala ulfaa	1.barbaadamet/fedhiin 2.Osoo hin barbaadin 3. Yeroo maalee 4.karooran		
302	Hamma ulfaa	Lakkoofsaan_____		
303	Hamma deesse	Lakkoofsaan_____		
304	Dheerina ulfaa ykn umurii ulfaa	_____torbaaniin		
305	Yoo ulfi kee kan lammaffaa fi isaa olii ta'e kaan dura dhibbaan dhigaa kan ulfaan dhufu si muddateeraa?	0.Lakki	1.Eeyyee	
306	Yoo ulfi kee kan lammaffaa fi isaa olii ta'e kaan dura dhukkubni sukkarraa kan ulfaan dhufu si muddateeraa?	0. Lakki	1.Eeyyee	
307	Ulfichi lakuudhaa?	0. Lakki	1.Eeyyee	

Garee .IV: Gaafii dhukkuba keessa fi dhukkuba sanyiin dhufaan

lakk	Jijjiiramtoota	Gartuulee deebii		Irra darbi/Yaada
401	Dhukkuba dhibbaa dhigaa duraan ni qabdaa?	0.Lakki	1.Eeyyee	
402	Dhukkuba kallee ni qabdaa?	0.Lakki	1.Eeyyee	
403	Dhukkubba buusa nyaata (rheumatic arthritis) ni qabdaa?	0.Lakki	1.Eeyyee	
404	Dhukkubba sukkarraa ni qabdaa?	0.Lakki	1.Eeyyee	
405	Dhukkubba asiimii ni qabdaa?	0.Lakkii	1.Eeyyee	
406	Sanyii kee keessa kan dhukkubba dhibba dhigaa kan ulfaan dhufu muddateeru jiraa?	0.Lakki	1.Eeyyee	
407	Yoo deebiin kee kan Lakk.306 Eeyyee ta'e karaa kaminii?	1.Karaa hadhaa 2.Karaa abbaa 3.Karaa lammannuu		
408	Sanyii kee keessa kan dhukkubba sukkarra dhukkubsateeru jiraa?	0.Lakki	1.Eeyyee	
409	Sanyii kee keessa kan dhukkubba dhibbaa dhigaa dhukkubsateeru jiraa?	0.Lakki	1.Eeyyee	

Kutaa V .Gaafii waa'ee haala jireenyaa

lakk	Jijjiiramtoota	Gartuulee deebii		Irra darbi/Yaada
501	Waggota lamaan darbaan keessati tamboo(sigarraa) ni xuxaa?	0. Lakki	1.Eeyyee	Lakki yoo ta'e darbi lakkofsa 406
502	Deebin kee lakkofsa.501 eeyyee yoo ta'e,haali itti xuutu maal fakkaata?	0.Amma iyyuu xuxaa jira 1.Amma hin xuutu duraan malee		
503	Deebin kee lakkofsa.501 eeyyee yoo ta'e,guyyaati tamboo hammam xuxaa?	Pakeetii_____		
504	Matii kee keessa kan tamboo xuxuu/tu jiraa?	0.Lakki	1.Eeyyee	
505	Deebin kee lakkofsa 504 eeyyee yoo ta'e ,gartuu matii kee kamtii?	1.Abba mana 2.Ijjolee mana keessa 3.Nama kan biroo wajjiin jiraatan		
506	Waggota lamaan darbaan kana keessati dhugaatii alkoolii(dhugaati nama macheessu) dhugdaa?	0.Lakki	1.Eeyyee	
507	Deebin lakkofsa 506 eeyyee yoo ta'ee yeroo kam dhugaa jirtaa?	1.Ulfa dura 2.Yeroo ulfa kanaa		

		3.Ulfa duraa fi ammas		
508	Hamaamiin deddebiite dhugdaa?	1.Guyyaan 2.Torbaaniti guyyaa lama 3.Torbaanit guyyaa sadii 4.Torbaaniti guyyaa afuri 5.Torbaaniti guyyaa shan fi isaa oli.		
509	Guyyaatti dhugaati waligaalan hangam dhugdaa?	_____qaruuran		
510	Dhugaatii kan akka kafiini (buna fi shayee) ni dhugdaa?	0. Lakki	1.Eeyyee	
511	Kafiini isa kam caalatti dhugdaa?	1.Buna 2.Shayee		
512	Guyyaati kafiini kana hangam dhugdaa?	1.buna_____ siniin 2.Shayee_____ burcuuqon		
513	Ulfa amma kana irratti nyaata madaalama ykn gosoota nyaata armaan gadi torbaan keessati ni argaata? 1. Fuduraa …….. 2. Kuduraa……... 3. Madda pirootinii(legumesi fi foonii)…. 4. Midhaan dheedhii …… 5. Anaanii fi bu'aa anaanii……. 6. Comaa fi zayiitii…… 7. Darekishiinal kalooris (dhugaati lalaafa)	 0.Lakki 0.Lakki 0.Lakki 0.Lakki 0.Lakki 0.Lakki 0.Lakki	 1.Eeyyee 1.Eeyyee 1.Eeyyee 1.Eeyyee 1.Eeyyee 1Eeyyee 1.Eeyyee	
514	Deebin kee kan lakkofsa 513 keessaafur ol lakki ta'e isa kam caalati fayyadamtaa?	1. Kan biqilaa irraa argamu 2. Kan Bineensota irraa argamu		
515	Yeroo ulfaa kee amma kana sochii qamaa karoorfame ni hojeeta kan akka adeemsa, figichaa,bishaan dakuu fi yooga.	0.Lakki	1.Eeyyee	
516	Halkaan tokkoti sa'ti meeqa raaftaa?	_____sa'atiin		
517	Guyyaa ni raftaa?ykn Nap ni fudhataa?	0.lakki	1. Eeyyee	
518	Deebin kee lakkofsa 517 eeyyee yoo ta'e sa'aati meeqa?	_____sa'ati		

Kutaa VII: Gaafii waa'ee dhiphinna sammuu ilaalatu
Fillannoo isa sirrii ta'eeti maruu

DESCRIPTION	Gonkuma	Al tokko tokko	Yeoo hundaa
	0	**1**	**2**
Tasgaabii dhabuun ni sitti aga'amaa?	0	1	2
Dhiphiina yeroo ni qabdaa hojii kee faana?	0	1	2
Dhukkubbii qaama ni qabdaa?ykn siti aga'amaa?	0	1	2
Sodaa ni qabdaa?	0	1	2
Xiyyeeffannoo fi hubbannoo ni dhabdaa?	0	1	2
Wanti si ariisu fi si ho'isu(emotional)si godhu jiraa?	0	1	2
Gatiitti kee ykn irree kee irrati kan sitti ulfaatu siti ni dhaga'amaa?	0	1	2
Miira kee ykn namuusa kee to'achuun sitti ni ulfataa?	0	1	2
Dhiphachuun ni sitti aga'amaa?	0	1	2

Kutaa: VII Gaafii waa'ee itti fayyadama mana yaala ilaalatu.

lakk.	**Jijjiiramtoota**	**Gartuulee deebii**	**Irra darbi/Yaada**
601	Ulfa amma kana irraatti,hordoofii ulfaa mana yaalatti gochaa jirtaa?	0.Lakki 1.Eeyyee	
602	Deebiin kee lakkoofsa **601** eeyyee yoo ta'e al meeqa ilaalamteeta?	Lakkoofsaan_____	
603	Deebiin kee lakkoofsa **601** eeyyee ta'e yeroo beelama kee ala meeqa deemtee?	Lakkofsaan_____	
604	Rakoo fayyaa kee ulfaan alaatiif mana yaala deemtee beektaa?	0.Lakki 1.Eeyyee	

GALAATOMA!!!!

ጅማዩኒቨርሲቲ የህብረተሰብ ጤና እና የህክምና ሳይንስ ኮሌጅ

በእርግዝና ጊዜ የሚፈጠር የደም ግፊትና መንስኤዎች ለማጥናት መጠየቅ

የፍቃደኛነት መግለጫ ፎርም

ጤና ይስጥልኝ፡፡ የእኔ ጥናት በእርግዝና ጊዜ የሚፈጠር የደም ግፊትና መንስኤዎችን ማጥናት ነዉ፡፡ ስለዚህ እርስዎ ጥያቄዎችን በግልፅነትና በቅንነት ለመመለስ እንዲተባበሩ በትትህና አጠይቃለሁ፡፡ በእዚህ ጥናት አላማ በእርግዝና ጊዜ ለሚፈጠር የደም ግፊት ዘርፈ ብዙ አገልግሎት ለማበርከት ያመች ዘንድ ለሚዎሰዱ እርምጃዎች እቅድ ለማዉጣት ነዉ ፡፡ እርስዎ የሚሰጡት መልስ ከማንኛዉም አካል በሙሉ ሚስጥርነት እንደሚጠበቅና የእርስዎ ስም በመጠየቁ ላይ እንደማይዘገብ እገልፃለሁ፡፡የእርስዎ በዚህ መጠየቅ መሳተፍ በሙሉ ፍላጐትዎ ላይ የተመሰረተ ነዉ፡፡ ጥያቄዎችን ሙሉ በሙሉና የማይፈልጉትን ጥያቄ ካለ ያለመመለስ መብት አለዎት፡፡ ነገር ግን እረሰዎ የሚሰጡን መረጃዎች ለዚህ ጥናት አላማ መሳካት ጠቃሚ ድርሻ አለዉ፡፡

መልሶቹን ለመመለስ ፍቃደኛ ነዎት? አዎ ካሉ ስምምነተዎን በፊርማ ያረጋግጡልኝ፡፡ ፊርማ_____. ለትብብርዎ በጣም አመሰግናለሁ፡፡

መረጃ ሰብሳቢ ስምና ፊርማ_____የተቆጣጣሪ ስምና ፊርማ_____መረጃዉ የተሞላበት ቀን___/ __ / **የመጠየቁ መለያ ቁጥር (*Code n*º) _____**

ክፍል- ሀ አጠቃላይ የግለሰቡ ሁኔታ የተመለከተ መረጃ

ተ.ቁ	ጥያቄዎች	ኮድ ክፍፍል/መልሶች		ይለፍ ወደ
101	እድሜ	_____ዓመት		
102	መኖሪያ	1. ከተማ	2. ገጠር	
103	ብሄረሰብ	1. ኦሮሞ 2. አማራ 3. የም 4. ትግሬ 5. ሌላ ካለ ይገለፅ_____		
104	ሀይማኖት	1. ሙስሊም 2. ኦርቶዶክስ 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ ካለ ይገለፅ_____		
105	የትዳር ሁኔታ	ያገቡች ያላገቡች	1. የፈታች 2. የሞተባት	
106	መደበኛ ስራ	1. የቤት እመቤት 2. የመንግስት ሰራተኛ 3. መንግስታዊ ያልሆነ ድርጅት ሰራ 4. የግል ስራ /የራስ 5. ሌላ ካለ ይገለፅ_____		
107	የትምህርት ደረጃ	1. የለም 2. አንደኛ ደረጃ((1-8) 3. ሁለተኛ ደረጃ((9-10) 4. መሰናዶ ት/ቤት (11-12) 5. ዲፕሎማ 6. ድግሪና ከዚያ በለይ		
108	አማካይ የቤተሰብ የወር ገቢ	_____ ብር		
109	የቤተሰብ ብዛት	_____(በቁጥር)		

ክፍል -ለ ከእርግዝና ጋር የተገናኙ ዉስብስብ ችግሮች የተመለከቱ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	ኮድ ክፍፍል/መልሶች		ይለፍ ወደ
201	መረጃ በሚሰበሰብበት ወቅት ለእረግዝና ክትትል የተመዘገቡ ደንበኞች የደም ግፊትና ፕሮቲን መጠን	ሲስቶሊክ(SBP) _____mmHg ዲያሲስቶለክ(DBP)_____mmHg የፕሮቲን መጠን _____ግ/24ሰዓት ወይም ዲፕስቲክ ቴስት (Dipstick test)_____		ከመዝገብ በማስደገፍ/በማየት
202	በጥያቄ 201 መሰረት፣ከእርግዝና ጋር የተገናኘ የደም ግፊት አላት?	1.አዎ	0.የለም	የለም ካሉ ወደ ተ. ቁ 301 ይለፍ
203	ለጥያቄ 202 አዎ ከሆነ ከየትኛዉ የእርግዝና የደም ግፊት ይመደባል?	1. የእረግዝና ደም ግፊት 2. መጠነኛ ፕሪኢክላምሽያ 3. ከፍተኛ ፕሪኢክላምሽያ 4. ኢክላምሽያ		ከመዝገብ በማስደገፍ/በማየት
204	ለጥያቄ 202 አዎ ከሆነ ከ20 ሳምንት በፊት የርግዝና ጊዜ የደም ግፊት ነበረብሽ?	1.አዎ	0.የለም	ከመዝገብ በማስደገፍ/በማየት

ክፍል -ለ የጽንስና የእርግዝናን ሁኔታ የተመለከቱ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	ኮድ ክፍፍል/መልሶች		ይለፍ ወደ
301	የእርግዝና ሁኔታ	1. በፍላጎት 2. ያለፍላጎት	3.በፍላጎት ነገር ግን ግዜዉን ያልጠበቀ 4.በታቀደ ጊዜ መሰረት	
302	ጠቅላላ እርግዝና(ካአሁኑ ጋር)	_____ (በቁጥር)		
303	ጠቅላላ የተወለዱ(ካአሁኑ ጋር)	_____ (በቁጥር)		
304	የእረግዝና ጊዜ/ የጽንሽ ዕድሜ	_____ (በሳምንት)		
305	ከዚህ በፊት አርግዘዉ ከሆነ፤ እረግዝናን ተከትሎ የተፈጠረ የደም ግፊት በሽታ ነበረ?	1.አዎ	0.የለም	
306	ከዚህ በፊት አርግዘዉ ከሆነ፤ በእርግዝና ወቅት ተከሰተ የስኳር በሽታ ነበር?	1.አዎ	0.የለም	
307	ጽንሱ ካአንድ በለይ ነዉ? የእርግዝናዉን ምርመራ፤ መረጃ ፤ አልትራሳዉንድ ዉጤት መሰረት ያደረገ	1.አዎ	0.የለም	

ክፍል -መ የስነደቄና በቤተሰብ የነብረዉን ሁኔታ ተመለከቱ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	ኮድ ክፍፍል/መልሶች		ይለፍ ወደ
401	ለብዙ ጊዜ የ ቆየ የደም ግፊት ኖሮብሽ ያዉቃል?	1.አዎ	0.የለም	
402	ከቤተሰብ ለብዙ ጊዜ የ ቆየ የደም ግፊት ያለበት አለ?	1.አዎ	0.የለም	
403	ከቤተሰብ ዉስጥ በእረግዝና ወቅት የሚፈጠረ የደም ግፊት በሽታ ያለበት ሰዉ አለ?	1.አዎ	0.የለም	የለም ካሉ ወደ ተ. ቁ 405 ይለፍ
404	ለጥያቄ ተ. ቁ 403 አዎ ከሆነ, እረግዝናን ተከትሎ የተፈጠረ የደም ግፊት በሽታ ከሄትኛዉ የቤተሰብ ወገን ነዉ?	1.ከእናት ወገን 2.ካአባት ወገን 3.ከሁለቱም ወገን		
405	የስኳር በሽታ ታመሽ ነበር?	1.አዎ	0.የለም	
406	ከቤተሰብ ዉስጥ የስኳር በሽታ የታመመ ነበር?	1.አዎ	0.የለም	
407	በአሁኑ እረግዝና የኩላሊት በሽታ ታመሽ/ በሀኪም ተነግሮሽ ያዉቃል?	1.አዎ	0.የለም	
408	በአሁኑ እረግዝና የመገጣጠሚያ ህመም ታመሽ/ በሀኪም ተነግሮሽ ያዉቃል?	1.አዎ	0.የለም	
409	በአሁኑ እረግዝና የአስም ህመም ታመሽ ያዉቃል?	1.አዎ	0.የለም	

ክፍል -ሠ *የሴቶች ግላዊ ተጋላጭነት በሀሪያት የተመለከቱ ጥያቄዎች*

ተ.ቁ	ጥያቄዎች	ኮድ ክፍፍል/መልሶች		ይለፍ ወደ
501	ላለፉት ሁለት ዓመታት ዉስጥ ሲጋራ አጭሰሽ ታዉቂያለሽ?	1.አዎ	0.የለም	የለም ካሉ ወደ ተ. ቁ 504 ይለፍ
502	ለጥያቄ 501 አዎ ከሆነ፤ ባአሁኑ ሰዓት ያለሽበት ሁኔታ አንዴት ነዉ?	1.አሁን አጨሳለሁ 0. በፊት አጨስ ነበር		
503	ለጥያቄ 501 አዎ ከሆነ፤ በቀን ዉስጥ በአማካይ ምን ያህል ሲጋራ ታጨሻለሽ?	_____ፓኬት		አነድ ፓኬት 20 ሲጋራዎችን ይይዛል
504	ከቤተሰብ ዉስጥ ሲጋራ የሚያጨስ ሰዉ አለ?	1.አዎ	0.የለም	የለም ካሉ ወደ ተ. ቁ 506 ይለፍ
505	ለጥያቄ 504 አዎ ከሆነ፤, ማንዉ የሚያጨሰዉ?	1.ባለቤት 2.ልጆች 3.ሌላ ካለ ይጠቀስ.....		

506	ላለፉት ሁለት ዓመታት ዉስጥ አልኮል ጠጥተሽ ታዉቂያለሽ? ?	1.አዎ	0.የለም	የለም ካሉ ወደ ተ. ቁ 509 ይለፍ
507	ለጥያቄ 506 አዎ ከሆነ፤ መቼ ነዉ አልኮል የጠጣሽዉ?	1.ከእርግዝና በፊት 2.በእርግዝና ወቅት 3.ከእርግዝና በፊትና ወቅት		
508	ለጥያቄ 506 አዎ ከሆነ፤ ስንት ጊዜ ትጠጫለሽ?	1.በየቀኑ 2.በሳምንት ሁለት ቀን		
509	ምን ያህል አልኮል በቀን በአማካይ ትጠጫለሽ?	_____(በጠርሙስ)		
510	የማነቃቂያ መጠጥ/ካፊን ትጠቀሚያለሽ?	1.አዎ	0.የለም	የለም ካሉ ወደ ተ.ቁ514 ይለፍ
511	ለጥያቄ 510 አዎ ከሆነ፤ ባአብዛኘዉ የምትጠቀሚዉ የማነቃቂያ መጠጥ/ ካፊን ምንድ ነዉ?	1.ቡና 2.ሻይ 3.ሌላ ካለ ይጠቀስ		
512	ቡና ካሉ፤ በአማካይ በቀን ምን ያህል ትጠጫለሽ?	----------በስኒ		
513	ሻይ ካሉ፤ በአማካይ በቀን ምን ያህል ትጠጫለሽ?	----------በስኒ		
514	በአሁኑ የእረግዝና ወቅት ከሚከተሉት የተለያዩ የምግብ አይነቶች ዉስጥ በሳምንት የቱን ትጠቀሚያለሽ? 1.ፍራፍሬ 2. ቅጠላቅጠል 3.ስጋና ባቄላ የመሳሰሉ የፕሮቲን ምነጮች 4.አዝርት/እህል 5.ወተትና የወተት ዉጤት 6.ጮማና የዘይት ምግብ 7.ቀጥታ ጉልበት የሚሰጡ እንደ ለስላሳ የመሳሰሉ መጠጦች	1.አዎ 1.አዎ 1.አዎ 1.አዎ 1.አዎ 1.አዎ 1.አዎ	0.የለም 0. የለም 0.የለም 0. የለም 0.የለም 0. የለም 0.የለም	
514	ለጥቄ ተ.ቁ 514 አራትና ከዚያ በለይ የለም ካሉ ፣ በደበኛነት የሚመገቡት መንድነዉ?	1.የእንሰሳት ዉጤት 2.የእጽዋት ዉጤት		
515	የእናቶች MUAC መጠን	_____ (ሴ.ሜ)		

516	በአሁኑ የእረግዝና ወቅት በእግር መጓዝ፤ዉሃ ዋና፤ሩጫና ዮጋ የመሳሰሉ ቋሚ የሰዉነት እንቅስቃሴ ታደርጊያለሽ?	1.አዎ	0.የለም	
517	ባአንድ ለሊት ስንት ሰዓት ትተኛለሽ?	_____	በሰዓት	
518	በቀን ትንሽ የእንቅልፍ እረፍት ትወስጃለሽ ?	1.አዎ	0.የለም	
519	ለጥያቄ 518 አዎ ከሆነ፤ ስንት ሰዓት የእንቅልፍ እረፍት ትወስጃለሽ?	_____	በሰዓት	

ክፍል -ሸ የሳይኮሎጅካል ችግር የተመለቱ ጥያቄዎች: ባአሁኑ የእረግዝና ወቅት የሚሰማትን ስሜት በሚከተሉት መለኪያ በደረጃ በማከበብ አመልክት/ች

ሙሉ መግለጫ	በፍጹም	አነዳነድ ጊዜ	ሁልጊዜ
የተረጋጋ ዓይነት ዉስጣዊ ስሜት አይሰማሽም?	0	1	2
የልተረጋጋ ዓይነት ዉስጣዊ ስሜት ይሰማሻል /የጊዜ እጥረት ያለብሽ ይመስልሻል?	0	1	2
የአካል ህመም/ዉጋት አለሽ?	0	1	2
የፍራቻ ስሜት የሰማሻል?	0	1	2
ግራ የመጋባትና ትኩረት የማጣት ስሜት የሰማሻል?	0	1	2
የጥንካሬ/ የጉልበተኛ ዓይነት ስሜት የሰማሻል?	0	1	2
ከፍተኛ የሆነ ከብደት በትክሻሽ የተሸከምሽ ዓይነት ስሜት የሰማሻል?	0	1	2
ያለሽን ስሜት እንዲሁም ስሜትሽን ባአካለዊ እንቅስቃሴ ለመቆጣጠር ትቸገርያለሽ?	0	1	2
የመጨነቅ ስሜት የሰማሻል?	0	1	2

ክፍል -ረ የጤና ተቋም አገልግሎት መጠቀም የተመለከቱ ጥያቄዎች

601	ይህ መረጃ መሰብሰብ ከመጀመሩ በፊት የእረግዝና ክትትል ነበረሽ?	1.አዎ	0.የለም	
602	ለጥያቄ 601 አዎ ከሆነ፤ ስንት ጊዜ መደበኛ የእረግዝና ክትትል አድረገዋል?	_____		
603	ለጥያቄ 601 አዎ ከሆነ፤ ስንት ጊዜ መደበኛ ያልሆነ የእረግዝና ክትትል አድረገዋል?	_____		
604	ባአሁኑ የእርግዝና ወቅት ከእረግዝና ዉጭ በሆነ የጤና ችገር የጤና ተቋማት አገልገሎት ተጠቅመዋል?	1.አዎ	0.የለም	

አመሰግናለሁ!!!