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**St. Paul's Hospital Millennium Medical College**

**GRADUATE STUDY PROGRAM**

**SCHOOL OF PUBLIC HEALTH**

**GESTATIONAL WEIGHT GAIN AND HYPERTENSION IN  
PREGNANCY AND ASSOCIATED FACTORS AMONG WOMEN  
ATTENDED ANC FOLLOW UP IN ADDIS ABABA, ETHIOPIA  
2024: A FACILITY-BASED CROSS-SECTIONAL STUDY.**

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Gestational weight gain and hypertension in pregnancy and associated factors among women attended ANC follow up in Addis Ababa, Ethiopia 2024: a facility-based cross-sectional study

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## Abbreviations and Acronyms

A.A.: Addis Ababa

ACOG: American College of Obstetricians and Gynecologists

ANC: Antenatal Care

AOR: Adjusted Odds Ratio

BMI: Body Mass Index

BSc: Bachelor of Science

CI: Confidence Interval

COR: Crude Odds Ratio

EPI: Expanded Program of Immunization

GDM: Gestational Diabetes Mellitus

GWG: Gestational Weight Gain

HDP: Hypertensive Disorders of Pregnancy

IOM: Institute of Medicine

IUFD: Intrauterine Fetal Death

LBW: Low Birth Weight

LMICs: Low- and Middle-Income Countries

LMP: Last Menstrual Period

MUAC: Mid-Upper Arm Circumference

NSAID: Nonsteroidal Anti-inflammatory Drug

OR: Odds Ratio

PIH: Pregnancy-Induced Hypertension

SD: Standard Deviation

SESS: Standard Error of the Mean

SPSS: Statistical Package for the Social Sciences

WHO: World Health Organization

## **Abstract**

**Background:** Hypertensive Disorders of Pregnancy (HDP) is the hypertensive disorder that represents an increase in blood pressure during pregnancy. Gestational weight gain (GWG) could act as a potentially influencing factor in the development of Hypertensive Disorders of Pregnancy (HDP). Studying the effects of GWG on HDP has special relevance in view of maternal morbidity and mortality risks.

**Objective:** To assess the prevalence of gestational weight gain and hypertension in pregnancy and associated factors among women attending ANC follow up in Addis Ababa, Ethiopia.

**Method:** The study conducted in Addis Ababa from February to March 2025, was an institution-based cross-sectional study in ANC follow-up at governmental health centers. It involved 290 mothers selected through a multistage sampling technique from 5 health centers, yielding a 97.64% response rate. Data collection utilized primary and secondary sources, including patient records. Analytical methods included descriptive analysis and binary logistic regression to examine hypertension in pregnancy.

**Result:** From 290 participants 44 (14.5%) were developed hypertension. The study revealed that the rate of excessive GWG was 29.3% (n=87), while 18.5% (n=55) were underweight considering their weight gain. This excessive GWG rate is higher than findings from similar studies in Ethiopia, including one in Gondar, which reported over-adequate weight gain at 13.35%.. Multinomial logistic regression suggested inadequate GWG may marginally protect against PIH (AOR 0.239) compared to excessive GWG, with a noted association of younger maternal age (30-39) with lower PIH incidence.

**Conclusion:** The majority of respondents (71.4%) reported inadequate weight gain, 6.2% of the women were diagnosed with PIH. Key factors influencing GWG included spouses' education, maternal pre-pregnancy weight, and gestational age, with excessive GWG associated with higher maternal weight and earlier gestational age. For PIH, maternal age 20-39 was a significant predictor, along with factors like food intake and pre-pregnancy BMI.

# **1. Introduction**

## **1.1 Background**

Hypertensive Disorders of Pregnancy (HDP) is the hypertensive disorder that represents an increase in blood pressure during pregnancy, which includes chronic hypertension, preeclampsia, eclampsia, and gestational hypertension. These complications involve major health concerns for both the expectant mother and her child and have the possibility of leading to long-term health issues in the mother, such as cardiovascular illnesses, as well as unfavorable outcomes for the newborn, including low birth weight and preterm delivery, all of which are causes of major maternal and fetal morbidity and mortality worldwide (1,2). Hypertensive disorders of pregnancy (HDP) remain a leading cause of maternal and neonatal morbidity and mortality globally, significantly impacting public health systems. In sub-Saharan Africa, including Ethiopia, the burden is particularly high due to late diagnosis and limited access to specialized care. Recent data indicates that maternal nutrition and weight management are critical determinants of these outcomes (3). Recommendations of a healthy weight gain during pregnancy are based on guidelines given by the Institute of Medicine that provides pre-pregnancy body mass index as a fundamental denominator (4).

Excess gestational weight gain is at an increased risk of HDP, gestational diabetes mellitus, and delivery complications like caesarean sections and macrosomia has been associated with excessive GWG (3,5). On the other hand, inadequate GWG may lead to adverse outcomes such as low birth weight and preterm delivery (6). The mixture of existing and new lifestyle in Africa provided the unique opportunity to study the effect of GWG over hypertension. The rapid urbanization of many African countries has resulted in significant change in food and physical activity profile of their population (7,8). In fact, in Ethiopia, maternal health services are burdened with resource limitations, inconsistent quality of health services, and wide health disparities between different socioeconomic groups (9).

## **1.2. Statement of Problems**

Pregnancy-induced hypertension disorders are among the leading causes of illness and death globally for both mothers and perinatal. Inequality can lead to adverse pregnancy outcomes, hypertension being a public health problem of great concern. Though guidelines of gestational weight gain have been put in place, a large proportion of pregnant women exceed or do not achieve the set standards (2). Gestational weight gain (GWG) is a critical factor influencing maternal and fetal health outcomes. In Ethiopia, where maternal and child health indicators remain suboptimal, understanding the patterns of weight gain during pregnancy is essential. Excessive or insufficient weight gain has been linked to complications such as gestational hypertension, which poses significant risks for both mothers and their infants. This condition, characterized by elevated blood pressure during pregnancy, can lead to severe health issues, including preeclampsia, eclampsia, and other cardiovascular problems(10). Despite the high prevalence of hypertension during pregnancy in Ethiopia, there is limited research on the relationship between GWG and its associated factors(11). Women attending antenatal care (ANC) often receive insufficient guidance regarding healthy weight gain, leaving a gap in both knowledge and practice. Various factors, such as socioeconomic status, nutritional knowledge, pre-existing health conditions, and lifestyle choices, can influence GWG and hypertension but remain poorly understood within the Ethiopian context (12). Abnormal GWG may significantly affect long-term health in mothers and children besides affecting the short-term outcomes of health in pregnancy (13). Moreover, the lack of standardized guidelines for GWG tailored to the Ethiopian population complicates the situation further(14,15). Therefore this study intends to explore the relationship between gestational weight gain and hypertension during pregnancy among women attending ANC in Addis Ababa, along with associated socio-demographic and clinical factors. Addressing this problem is essential for developing targeted interventions that promote healthy pregnancies and improve overall maternal and infant health outcomes in the study area.

### **1.3. Justification of the Study**

The health of mothers and infants is a significant public health concern, especially in developing countries like Ethiopia, where maternal morbidity and mortality rates remain alarmingly high. Understanding the factors that contribute to maternal health is vital for designing effective interventions. This study offers several justifications. Hypertension in pregnancy is a leading cause of maternal and neonatal morbidity. By examining the interrelationship between gestational weight gain and hypertension, this research could provide insights to help mitigate these risks, ultimately improving maternal and infant health outcomes. While many studies have been conducted globally on gestational weight gain and its effects, there is a scarcity of research focusing on Ethiopian women. This study aims to fill this gap by providing data specific to the Addis Ababa context, which may differ significantly from other regions due to cultural, socioeconomic, and dietary factors. The findings will offer healthcare providers valuable insights into the weight management needs of pregnant women. This can enhance the quality of care during ANC visits, empowering health professionals to provide tailored advice on weight gain and nutritional support. The outcomes from this study can inform policymakers and health program planners about the importance of implementing guidelines for gestational weight gain that are culturally appropriate and applicable to Ethiopian women. Such guidelines could lead to improved health education and resources aimed at reducing complications related to weight gain and hypertension. This study will serve as a critical foundation for further research into maternal health issues in Ethiopia. By documenting the association between gestational weight gain and hypertension, subsequent studies can explore more specific factors, interventions, and outcomes.

The current study will expand knowledge on the contribution of GWG in the development of pregnancy-related hypertension and subsequently provide data to create services that was of use in the future not only to healthcare facilities and the healthcare system but also to policymakers and other researchers. Making comparisons between Addis Ababa and other places, the study hopes to make a major contribution to enhancing maternity and outcomes for the health of the fetus.

## 2. Literature review

Hypertensive disorders of pregnancy (HDP), which include gestational hypertension and preeclampsia, are significant contributors to maternal morbidity and mortality worldwide. These pathologies, characterized by elevated blood pressure after 20 weeks of pregnancy, can lead to severe outcomes for both mothers and fetuses if left untreated. The relationship between gestational weight gain (GWG) and HDP has been increasingly recognized, as GWG is implicated in maternal metabolic health and cardiovascular adaptations during pregnancy. Hypertensive disorders of pregnancy, encompassing gestational hypertension and preeclampsia, are major complications and contribute to the morbidity and mortality of women all over the world (40). A study conducted in 2021 indicated a rise in HDP cases, growing from 16.3 million in 1990 to 18.08 million in 2019—a growth rate of 10.92% (41,42). Risk factors associated with certain communities have been associated with this factor as older moms, those who have preexisting medical illnesses, and low-income stockings are more prone to this disease condition (43). In realization in the medical field, though, HDP is still the leading cause of maternal death and morbidity worldwide, contributing to the need for effective management and prevention strategies (44).

### 2.1. Prevalence of pregnancy related Hypertensive Disorders

globally, approximately 1 billion people suffer from hypertension, leading to 9 million deaths annually and representing one of the biggest contributors to the global disease burden(45). The epidemiology of HDP varies significantly across regions, with certain populations, such as those of Black ethnic origin, and individuals with high body mass index (BMI), past histories of preeclampsia, and chronic renal disease, exhibiting higher susceptibility(46).

Several factors contribute to high rates of HDP in Africa. It has been recorded that Africa has one of the global highest rates of hypertensive disorders in pregnancy (HDP). Adverse outcomes for the mothers and pregnancies, particularly in the low-income living in rural areas and being female (45). The prevalence of HDP is quite variable across the continent. Preeclampsia, eclampsia, chronic hypertension in pregnancy, and gestational hypertension accounted for 8% of

the pooled prevalence of hypertensive diseases. In particular, most studies found that the following factors were associated with a higher risk of developing hypertensive disorders of pregnancy (47). Null parity, extreme ages, obesity, a family history of hypertension, previous history of hypertensive disorders of pregnancy in multipara women, personal or family history of chronic hypertension or diabetes mellitus, high energy diet, gestational diabetes, mental stress during pregnancy, long inter pregnancy interval, lower socioeconomic status and inadequate antenatal supervision (48). Ethiopia has noteworthy challenges regarding maternal health; reports indicate the rates of morbidity and mortality are high among mothers, including HDP (49). The burden of maternal health in Ethiopia is being fueled by geographic barriers, weak health systems, and limited socioeconomic status. Creating successful maternal health policies and treatments requires an understanding of Ethiopia's unique epidemiology and risk factors (50). Pregnant women from low-income African households frequently encounter obstacles so a strategy to address these issues including developing community-based maternal health initiatives, educating healthcare professionals, and enhancing the health infrastructure is needed (51).

## 2.2. Factors affecting hypertensive disorders during pregnancy

### 2.2.1 Socio-demographic characteristics

More so, socio-demographic characteristics have a significant role in the prevalence and severity of hypertension disorders in pregnancy, such as the low mother's educational level, maternal age, socioeconomic status, and family history of HDP. HDP tends to be related to socioeconomic position in terms of general health literacy, nutrition, and access to prenatal care. It has greater prevalence in women with low household incomes and less education, primarily eclampsia and prenatal hypertension (52,53). The other vital factor is maternal age. Adolescent and advanced maternal ages put them at a higher risk for hypertensive diseases in pregnancy conditions. Adolescent mothers are vulnerable because of the normal immaturity of their bodies; on the other hand, mothers past the age of 35 are at increased risk because of the maternally degenerative vascular changes associated with aging and a greater probability of pre-existing chronic diseases (54,55).

### 2.3. Weight Gain in Pregnancy

The study included three groups of individuals: those with chronic hypertension, gestational hypertension, and normal pregnancy. Gestational weight gain has a significant effect on the maximum blood pressure readings in normal pregnancies, as well as in women with chronic hypertension (56). It was demonstrated by a study that probabilities of blood pressure alteration in the middle and late period of gestation increased by 26% and 31%, respectively, for every 200 gm per week of GWG up to 18 weeks of pregnancy. A heavier pregnancy weight is also a factor of preeclampsia and gestational hypertension. In study comparing women's weighted 90 kg or less before pregnancy with women weighted greater than 90kg before pregnancy the risk of developing gestational hypertension was increased by 80% and the risk of preeclampsia by 71% with every 10 kg prepregnancy weight. The odds ratios for gestational hypertension and preeclampsia correspondingly 1.24 and 1.61 for women who weighed more than 90 kg before getting pregnant (57).

### 2.4. Maternal Health Condition

HDP risk is markedly yeasted among those with associated prior medical conditions and primary gravida, nullled parity, a positive history of abortion, twin pregnancies, a lack of ANC follow-up, a positive pre-existing hypertension, a positive family history of hypertension, and a positive history of DM mellitus (58). In addition, there emerges an increased unfavorable trend among women experiencing abruption of placentae or superimposed preeclampsia.

Assessment should occur at the first prenatal appointment, or optimally before conception, for women with chronically hypertensive states (59). Familial history is another predictor. Also, some risk factors associated with preeclampsia and eclampsia are pregnancy, obesity, personal or family history, chronic disease, anemia for pregnancy, and non-attendance of antenatal visits (60). Women with a history of chronic hypertension at delivery had increased pooled rates of preterm birth before 37 weeks' gestation, caesarean section delivery, birth weight  $\leq 2500$  g, neonatal unit admission, and perinatal death (61).

### 2.5. Maternal Physiological factor and Factors related to lifestyle

Inappropriate body mass proportion to height is one of risk factors for maternal complications during pregnancy. Gestational hypertension principally was found to be related with pre-

pregnant overweight women (62). The proportion of excessive gestational weight gain and the development of gestational hypertension were positively and highly related (63).

Compared to future pregnancies, first pregnancies are linked to an increased risk of preeclampsia, possibly because of immunological characteristics (64). However, multifetal gestation, that is, carrying twins or more, increases the risk for HDP because of the larger placental mass, which increases the need for blood flow and raises the risk of hypertension and maternal vascular resistance (65). Lifestyle risks and their very strong contributions to hypertensive disorders in pregnancy are related to food choices, levels of physical activity, and psychological stress (66). Consuming most of the food with high salt content, low levels of fruit and vegetables, and excess calories predisposes individuals to an increased HDP risk and higher GWG. On the other hand, it has been demonstrated that a balanced diet rich in minerals such as calcium and magnesium diminishes the incidence of HDP (67). Again, smoking was associated with a decreased HDP except in the Asian trials (68). Another critical factor is physical activity. On the other hand, moderate exercise, if practiced regularly during pregnancy, helps keep physiological weight gain at bay and is protective against preeclampsia and gestational hypertension (69).

## 2.6 Pregnancy associated factor

One of the important factors causing hypertension in expecting mothers is placental anomalies and vascular dysfunction. This is because the placenta secretes a range of hormones and cytokines that regulate the maternal blood pressure. Inadequate trophoblastic invasion and spiral artery remodeling in the process of abnormal placentation lead to low placental perfusion and hypoxia, which causes systemic inflammatory reactions and endothelial dysfunction. The described pathophysiological changes may contribute to clinical manifestations of preeclampsia, such as proteinuria and hypertension (70).

## 2.7. Conceptual framework

The conceptual framework outlines the relationship among key variables influencing hypertensive disorders of pregnancy (HDP) with a focus on gestational weight gain (GWG). The framework aids in visualizing the connections between socio-demographic factors, maternal health conditions, lifestyle influences, and physiological factors, highlighting their impact on GWG and HDP.

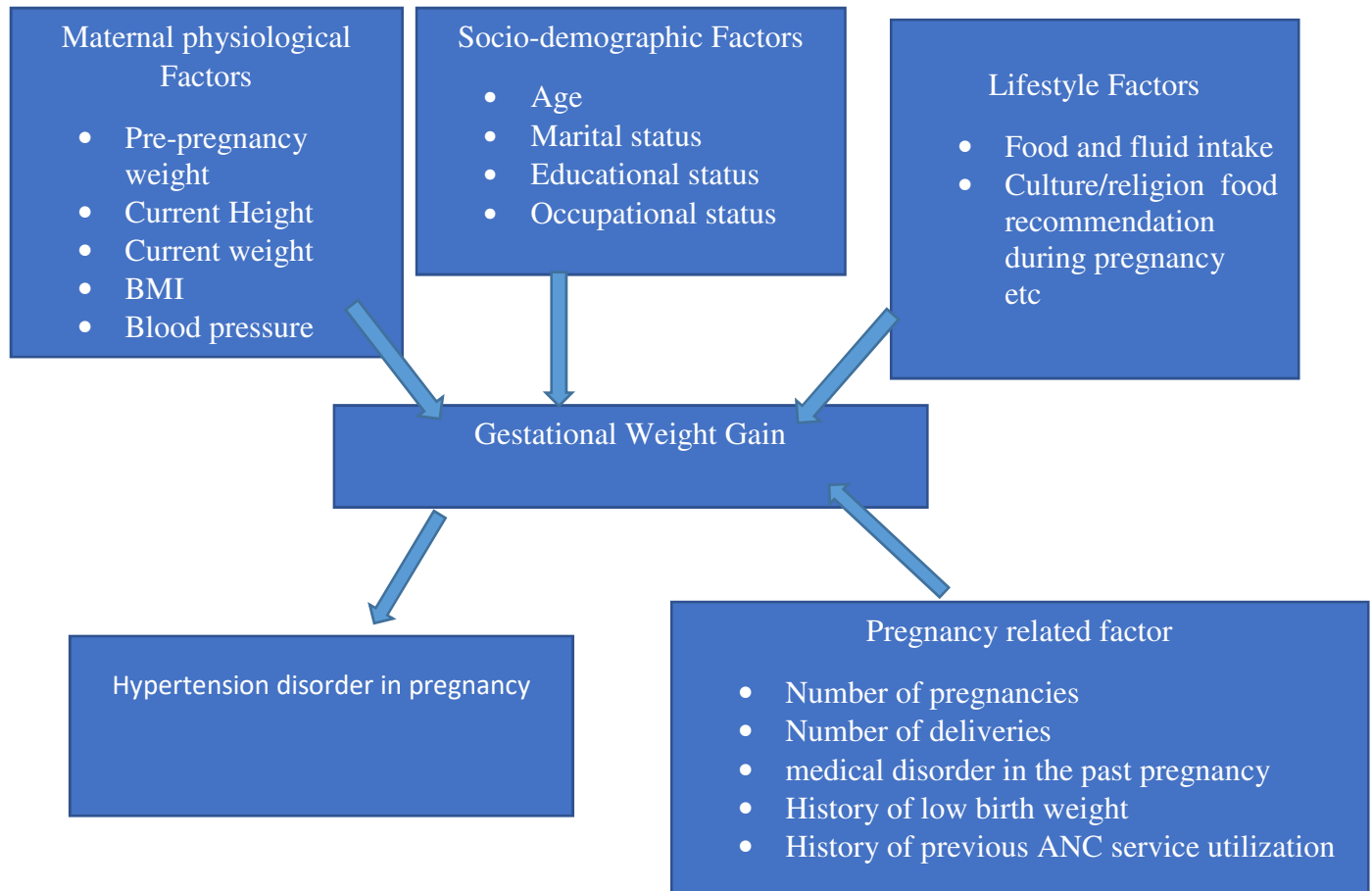


*Figure 1-conceptual framework developed from different literature on gestational weight gain and hypertension in pregnancy among women in Addis Ababa: a cross-sectional study(48,69)).*

### **3. Objectives of the study**

#### **3.1. General Objective**

- ❖ Assessment of the prevalence of gestational weight gain (GWG) and hypertension in pregnancy, as well as the analytical relationships between GWG categories and hypertension, among women attending antenatal care (ANC) follow-up in selected health centers Addis Ababa, Ethiopia.

#### **3.2. Specific Objectives**

##### **1. Primary Objective:**

- ❖ To determine the prevalence of gestational weight gain categories (adequate, inadequate, and excessive) among women attending ANC follow-up, and to analyze the association between these categories and the incidence of hypertension during pregnancy.

##### **2. Secondary Objectives:**

- ❖ To determine the prevalence of hypertension in pregnancy among women attending ANC follow-up.
- ❖ To identify factors associated with adequate and inadequate gestational weight gain among women attending ANC follow-up.
- ❖ To identify factors associated with hypertension in pregnancy among women attending ANC follow-up.

## **4. Methods**

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

The study was conducted in Addis Ababa. It is the capital city of Ethiopia and at the same time the principal diplomatic headquarters of Africa. According to the UN report of 2021, Addis Ababa is estimated to have had a total population of 5,228,000 people. It lies at the center of the country at 9.0192° of N latitude and 38.7525° of E longitude. Its average altitude lies at an elevation of 2,355 metres (7,726 ft) above sea level and it occupies a total of 540 sq. km of land area. According to Minister of health annual report of 2017 the number of functional governmental health centers is 96 (71). This study was conducted in primary health centers. The study was conducted from February- March 2025 G.C on the selected health institutions.

### **4.2. Study design**

An institution-based cross-sectional study design was conducted to assess the prevalence of Gestational weight gain and hypertension disorder of pregnancy.

### **4.3. Source and study population**

#### **4.3.1 Source population**

All women who are attending ANC follow-up in governmental health centers in Addis Ababa, Ethiopia.

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

The study population was consisting of pregnant women attending antenatal care (ANC) at selected healthcare facilities in Addis Ababa, Ethiopia.

#### 4.4. Inclusion and exclusion criteria

##### Inclusion criteria

- Pregnant women with complete data on weight gain
- Women who received ANC follow up within Addis Ababa.
- Women who started ANC with in the  $\leq 16$  week first trimester and have their baseline data recorded of third trimester.

##### Exclusion criteria

- Pregnant women with multiple pregnancies.
- Women with pre-existing medical conditions that may significantly impact elements of studying pregnancy outcomes.
- Women with Eclampsia and other emergency's
- Women with history of chronic hypertension.

#### 4.5. Sample size determination

In this study, the sample size will determine by using the single population proportion formula using hypertension disorder in pregnancy  $P=6.07$  prevalence (39). with a 5% margin of error, 10% non-response rate, and the required sample size is calculated as follows.

$$n = \frac{(Z\alpha/2)^2 p (1-p)}{d^2}$$

Where Assumption:

$Z\alpha/2 = Z$  value at 95% CI = 1.96

$P$  =estimated proportion

$d$  =Margin of error tolerable is 5% = 0.05

$P = 6.07\%$

d= Margin of sampling error tolerated- 5% (0.05)

$\alpha$  = Level of significance 5%

$$N = \frac{(z\alpha/2)^2 * p(1-p)}{d^2}$$

$$N = \frac{1.96^2 * 0.0607(1-0.0607)}{0.05^2}$$

$$N = \frac{3.92 * 0.0607(0.9393)}{0.0025}$$

$$N = \frac{3.92 * 0.05701551}{0.0025}$$

$$N = \frac{0.2235007992}{0.0025}$$

$$N = 89.40031968 \approx 90$$

N= 90 with non-respondent of 10 %(9) = 99, with design effects of 99\*3= 297

#### 4.6. Sampling technique

Random sampling method was used to select the study participants in this study. Health centers was selected by using simple random sampling from 11 sub-cities which is a total of 97 health centers using miniwebtool.com web site randomly included 4 sub city that randomly selected 5 health centers. Sample size for each health center was allocated according to population size which is number of ANC service given by the health center in resent year. The total sample size was distributed to each health center using proportional allocation to size, and then in each health center, the studied data was selected by using a systematic random sampling technique. The sampling interval k was calculated by dividing the study population by the allocated sample size of the health center. This interval was used to select study subjects in each health center. The first participant was selected which was the first to attend in to ANC in the day of data collection. Finally, in each health center, women who meet the inclusion criteria was selected at regular intervals until the required sample size is obtained. If the selected participant is not volunteer was conceded as non-respondent.

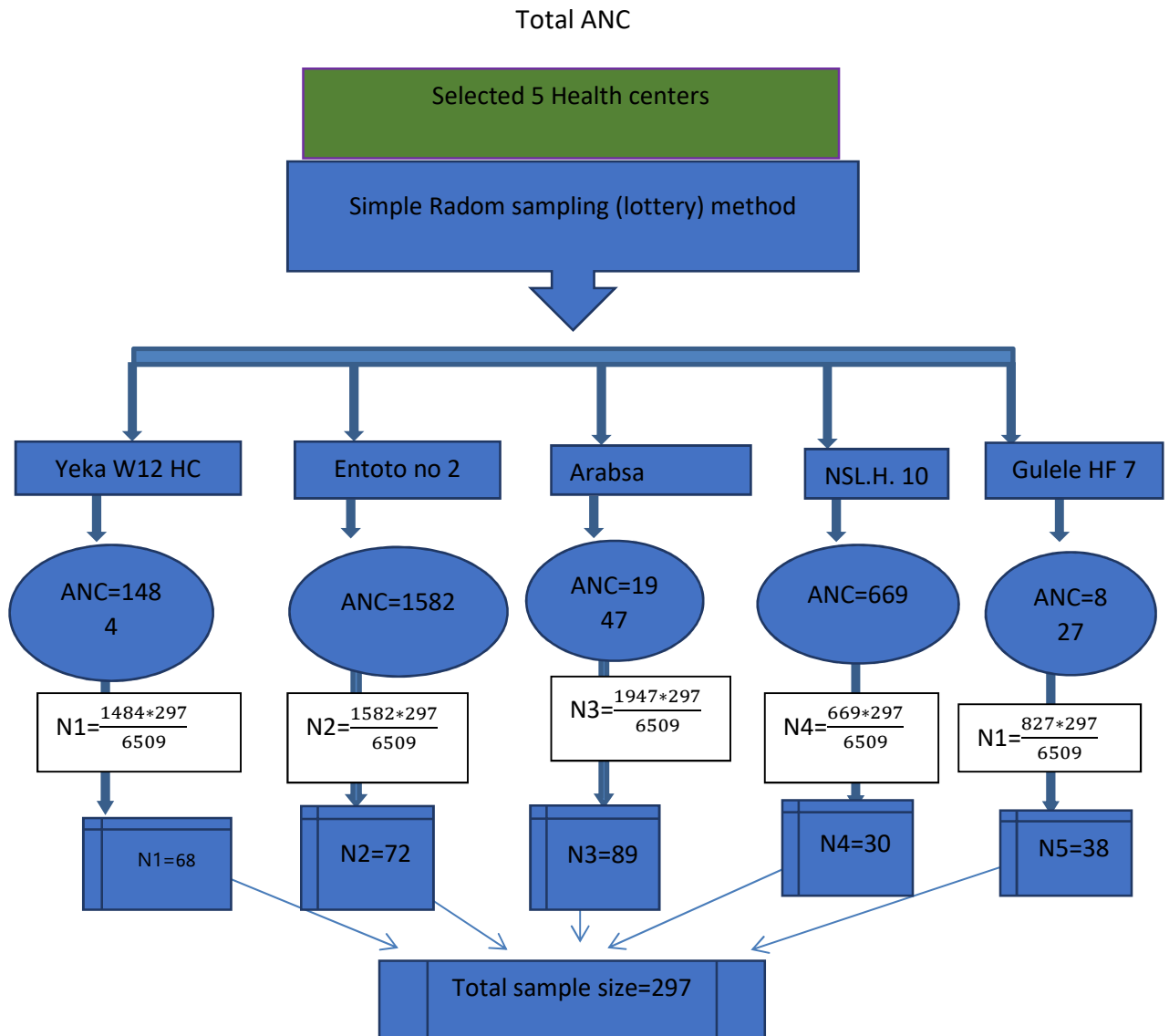


*Figure 2-Schematic presentation of sampling procedure on gestational weight gain and hypertension disorder in pregnancy in Addis Ababa the sampling process of health centers.*

#### 4.7. Data collection tools and techniques

##### Data Collection Tools and Techniques

Data for this study was collected through both structured interviews and secondary data sources. These sources include patient records, referral pads, centralized registration systems, and relevant reports maintained by the healthcare facilities involved. Trained data collectors were conduct face-to-face interviews with participants to gather information on socio-demographic factors, lifestyle, and health history. The collected data will be recorded directly on mobile devices using EPI Info, a software application designed for data collection, not merely for entry. Information from patient records and relevant health reports will be accessed to supplement data collected from interviews. A team comprising three BSc Health Officers, along with one BSc Health Officer as the supervisor, will be responsible for data collection. The team will receive thorough training on the study objectives, ethical considerations, and data collection methodologies. The questionnaire was adapted from various literature sources and the Minister of Health (MOH) Ethiopia's integrated antenatal, labor, delivery, newborn and postnatal care card. This ensures that it is culturally appropriate and aligned with national guidelines. Weight will be measured during each ANC visit, and pre-pregnancy weight will be recorded at the first visit ( $\leq 16$  weeks gestation). Standardized electronic scales will be employed to ensure accuracy, with measurements taken under controlled conditions (e.g., women wearing light clothing and no shoes). Height will be measured using a stadiometer, again at the first ANC visit, ensuring that all measurements follow institutional protocols for accuracy. GWG was calculated by subtracting the recorded pre-pregnancy weight from the weight at the most recent ANC visit. The categorization into adequate, inadequate, and excessive weight gain will follow the IOM 2009 guidelines, which specify total weight gain ranges based on pre-pregnancy Body Mass Index (BMI):

Underweight (BMI < 18.5): 12.5 – 18 kg

Normal weight (BMI 18.5 - 24.9): 11.5 – 16 kg

Overweight (BMI 25 - 29.9): 7 – 11.5 kg

Obese (BMI  $\geq 30$ ): 5 – 9 kg

Inadequate GWG: Below the recommended ranges. Excessive GWG: Above the recommended ranges. Information on pre-pregnancy weight is crucial for accurately categorizing GWG according to the IOM guidelines. The primary dependent variable for this study is gestational hypertension (PIH), as it directly relates to the health outcomes of interest. Gestational weight gain (GWG) will serve as a secondary variable, contributing to understanding its relationship with PIH.(71).

#### 4.8. Study variables

##### Dependent Variable

- Gestational hypertension
- Gestational weight gain

##### Independent Variable

- ✓ Socio-demographic factor (Age, marital status, educational status, spouse's educational status, occupational status, spouse's occupational status, Number of people currently living in your house and income.)
- ✓ Pregnancy related factor (Total number of pregnancies, Number of deliveries, Number of currently alive children, medical disorder in the past, medical disorder in the past pregnancy, history of low birth weight, history of previous ANC service utilization, family history of chronic diseases, personal history of chronic diseases, history of pregnancy complications and complications during current pregnancy.)
- ✓ Maternal Physiological factor (Pre-pregnancy weight, Current Height, Current weight, BMI category pre-pregnancy and Blood pressure.)
- ✓ Factors related to lifestyle (Food intake, fluid intake, fruits and vegetables intake, meat and eggs intake, culture/religion foods recommendation during pregnancy, culture/religion foods recommendation to avoid during pregnancy, Previous history of substance abuse (including alcohol drinking or smoking) and regular physical activity.)

- ✓ Maternal Health Condition (Number of ANC visits, Gestational age at first ANC visit, Current gestational age, nutritional advice, medical disorder in the current pregnancy, currently history medication for hypertension and history of hypertension symptoms)

#### 4.9. Operational definition

- Adequate gestational weight gain :- GWG is in the adequate weight range according to IOM is
  - ❖ 12.5 – 18 kg for underweight
  - ❖ 11.5 – 16 kg for normal BMI
  - ❖ 7 – 11.5 kg for overweight and
  - ❖ 5 – 9 kg for obese.
- Inadequate gestational weight gain :- GWG which is a range of under the recommended GWG according to IOM that is
  - ❖ < 12.5kg for underweight
  - ❖ <11.5 kg for normal BMI
  - ❖ <7 kg for overweight and
  - ❖ <5 kg for obese.
- Excessive gestational weight gain :- GWG which is a range of above the recommended GWG according to IOM that is
  - ❖ >18 kg for underweight
  - ❖ >16 kg for normal BMI
  - ❖ >11.5 kg for overweight and
  - ❖ >9 kg for obese.
- Hypertension disorder of pregnancy is Chronic hypertension, Gestational hypertension, Preeclampsia/eclampsia and Chronic hypertension with superimposed preeclampsia/eclampsia (70).
- Gestational hypertension: - SBP  $\geq$ 140 mm Hg and/or DBP  $\geq$ 90 mm Hg after 20 week of gestation in a woman who was at baseline normotensive (73).
- preeclampsia: - SBP  $\geq$ 140 mm Hg and/or DBP  $\geq$ 90 mm Hg after 20 week of gestation in a woman who was at baseline normotensive and develops proteinuria

or thrombocytopenia, increased transaminase levels, renal insufficiency, pulmonary edema, or new-onset headache (target organ involvement) (73).

- Eclampsia: - when a person with preeclampsia develops seizures (convulsions) during pregnancy. (73)

#### 4.10. Data management

Before data collection appropriate instructions and one-day training was given to the data collectors and the supervisors on techniques of data collection, instruments, and how to maintain ethical issues. The questionnaire was first developed in English on the EPI info and administrated on the electronic device of data collectors that was used for the data collection procedure.

#### 4.11. Data quality control

Data collectors and supervisor was trained for data collection and one day for theoretical practice for pretest. The questionnaire was pre-tested on 5% of the sample from a similar population outside the study area under Yeka sub city in wereda 10 before the actual data collection. Pre-test data collection and analysis will demonstrate whether modifications in the tool are done appropriately, based on pre-test findings, so that the understandability and clarity of the tool are improved. During data collection to ensure the quality of the data supervisor and investigators will closely supervise the data collection procedure daily. The review was made in the filled form checking the completeness of the questionnaire on the devices. Data was entered daily and missing data was identified. Incorrectly filled or missing major content of data will not be included in the study.

#### 4.12. Data analysis

Data entry was conducted using EPI-data Version 7.2, with subsequent exportation to SPSS Version 20 for comprehensive analysis. The data cleaning process was including checking for errors and inconsistencies to ensure data integrity. Descriptive statistics will provide an overview of maternal socio-demographic characteristics and other background information. Frequencies with percentages will describe categorical data, while means with standard deviations or medians with interquartile ranges will summarize continuous variables. Odds ratios (with a 95%

confidence interval) will evaluate the relationships between dependent and independent variables. Binary logistic regression will be employed for variables with two outcomes (e.g., presence or absence of PIH), while multinomial logistic regression will be used for those with more than two categories of outcomes (e.g., GWG categories). Variables to be included in multiple logistic regression will be based on a combination of statistical significance ( $p \leq 0.2$ ) and epidemiological relevance, informed by existing literature. This approach strengthens the model by incorporating theoretically important confounders. Reverse causality between GWG and PIH will be approached by ensuring temporal precedence in the data collection, where GWG is documented through ANC visits before the diagnosis of PIH. This will help clarify whether changes in GWG precede or follow the onset of PIH. Model assumptions for logistic regression will be assessed, including checking for linearity of the continuous variables with the logit of the outcome, and examining multicollinearity, particularly between pregnancy BMI and GWG. Variance inflation factor (VIF) will be calculated to evaluate collinearity. BMI will be categorized using standard adult cutoffs for adults, with a critical justification based on established guidelines. However, the analysis will remain cautious of the potential discrepancies this may introduce when interpreting association with GWG. The validity of this approach will be discussed in the results section. Variables with p-values less than or equal to 0.05 will be considered statistically significant. The final results be compiled and presented using tables, graphs, and descriptive narratives to facilitate easy interpretation

#### 4.13. Ethical Consideration

Ethical clearance was sought from St. Paul's Hospital Millennium Medical College School of Public Health Research and Ethics Committee. The supportive staff was informed of the purpose of the study. All the collected data will only be used for research. A letter from Addis Ababa Regional Health Bureau was obtained and given for every sub-city and health center which the data was collected from.

#### 4.14. Plan for dissemination of the study

The findings of this study was distributed to concerned bodies such as St Paul Millennium Medical College school of public health, Addis Ababa health Bureau and further attempts was made to publishing it national and international journals.

## 5. Results

### Socio-demographic and economic characteristics of the respondents

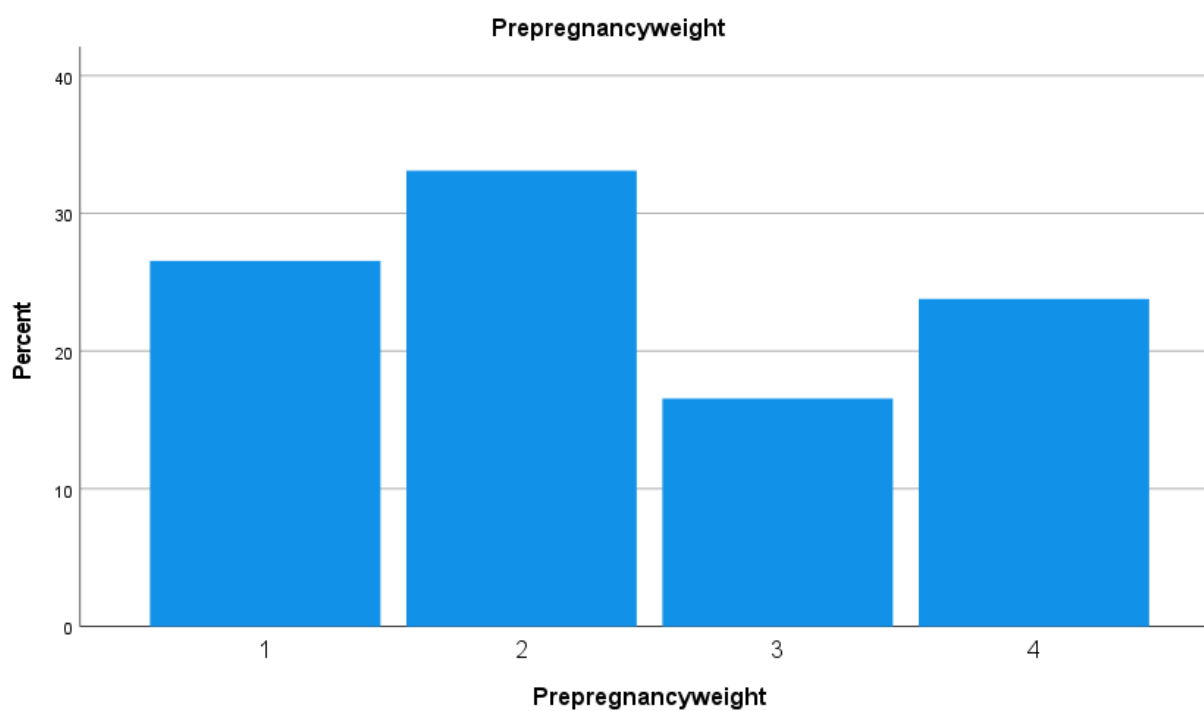
A total of 290 out of 297 mothers participated in the study, yielding a response rate of 97.64%. Among the respondents, the majority, 197 (33.8%), were aged 20–29 years. Regarding marital status, 207 (71.38%) were married, while 116 (40%) had a primary school education. The majority of respondents (134 or 46.2%) were housewives, and 177 (61.03%) reported a monthly income of 5001-10000 Ethiopian birr. The husbands' occupations included 113 (39%) who were government employees. Additionally, 218 (75.17%) of the respondents reported a family size of less than or equal to 5.. (See table below)

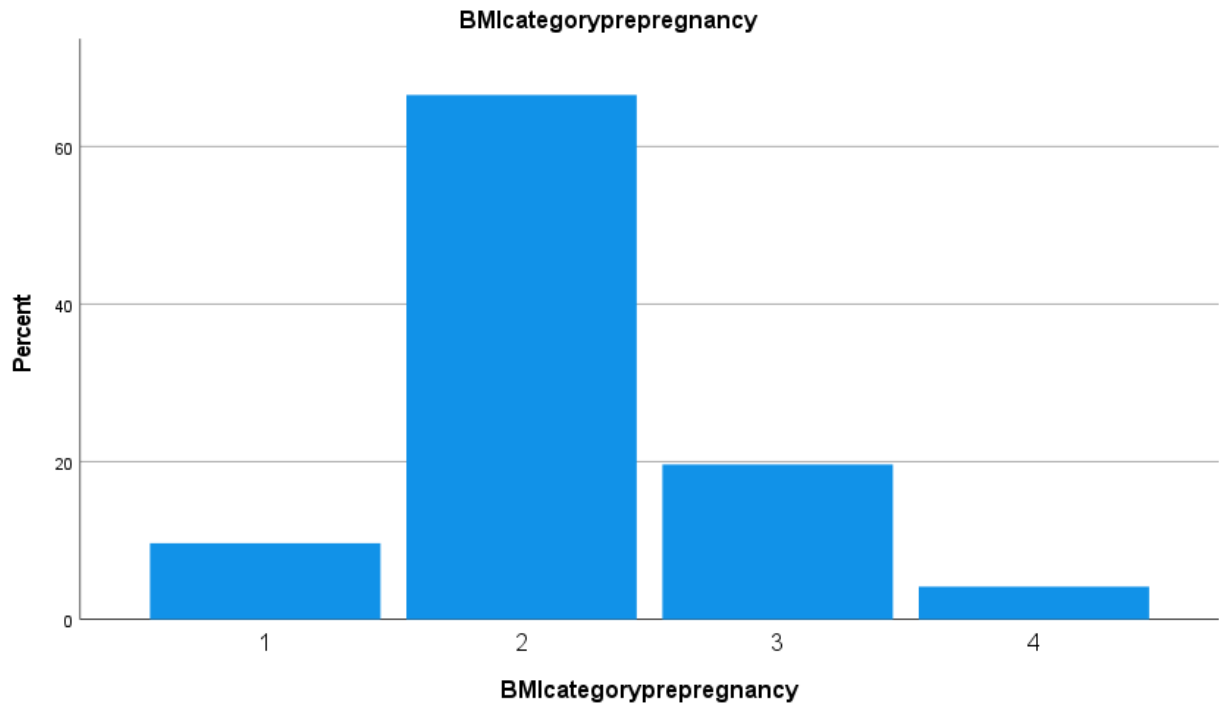
*Table 1-Socio-demographic and economic characteristics of the mothers who visited the Health Centers in A.A.*

| Variables | Category | Frequency(n) | Percent (%) |
|-----------|----------|--------------|-------------|
|-----------|----------|--------------|-------------|

|                           |                     |     |       |
|---------------------------|---------------------|-----|-------|
| Age                       | Lessthan20          | 12  | 4.14  |
|                           | 20-29               | 207 | 71.38 |
|                           | 30-39               | 65  | 22.41 |
|                           | Greater than 40     | 6   | 2.09  |
| Marital Status            | Unmarried           | 5   | 1.7   |
|                           | Married             | 284 | 97.9  |
|                           | Divorced            | 1   | 0.3   |
| Mothers Educational level | No formal education | 28  | 9.7   |
|                           | Primary school      | 116 | 40    |
|                           | Secondary school    | 90  | 31    |
|                           | Collage and above   | 56  | 19.3  |
| Spousal Educational level | No formal education | 13  | 4.5   |
|                           | Grade 1-8           | 79  | 27.2  |
|                           | Grade 9-12          | 104 | 35.9  |
|                           | Collage and above   | 94  | 32.4  |
| Mothers Occupation        | Housewife           | 134 | 46.2  |
|                           | Farmer              | 1   | 0.3   |
|                           | Government Employee | 39  | 13.4  |
|                           | Private Employee    | 49  | 16.9  |
|                           | Merchant            | 12  | 4.1   |
|                           | Student             | 6   | 2.1   |
|                           | Daily Laborer       | 49  | 16.9  |
|                           | Farming             | 46  | 15.9  |

|                    |                         |     |       |
|--------------------|-------------------------|-----|-------|
| Spousal Occupation | Government Employee     | 113 | 39    |
|                    | Private Employee        | 44  | 15.2  |
|                    | Merchant                | 70  | 24.1  |
|                    | Daily Laborer           | 17  | 5.9   |
| Monthly income     | <=5000                  | 29  | 10    |
|                    | 5001-10000              | 177 | 61.03 |
|                    | >=10001                 | 84  | 28.97 |
| Family size        | Less than or equal to 5 | 218 | 75.17 |
|                    | Greater than 5          | 72  | 24.83 |





### Prevalence of Gestational weight gain among women attending ANC follow up

Gestational weight gain in pregnancy showed as inadequate GWG 207 (71.4%), adequate GWG 68(23.4%) and excessive GWG 15 (5.2%). Health professionals were the main source of advice on weight gain during pregnancy for 81% (235) of mothers. However, 219 mothers or 75.5% of the total were unaware of the appropriate weight gain. Despite this the majority of mothers demonstrated a high level of awareness about the risks of both excessive (73.1%) and inadequate (59.7%) gestational weight gain from given response.

Table 2- Prevalence of inadequate, adequate and excessive gestational weight gain among women attending ANC follow up who visited the Health Centers in A.A.

| Variables | Category   | Frequency(n) | Percent (%) |
|-----------|------------|--------------|-------------|
|           | Inadequate | 207          | 71.4        |

|                                                                     |           |     |       |
|---------------------------------------------------------------------|-----------|-----|-------|
| Gestational weight gain                                             | Adequate  | 68  | 23.4  |
|                                                                     | Excessive | 15  | 5.2   |
| Pre-pregnancy weight                                                | Q25=49kg  | 77  | 26.55 |
|                                                                     | Q50=55kg  | 96  | 33.10 |
|                                                                     | Q75=60kg  | 80  | 27.59 |
|                                                                     | >60 kg    | 37  | 12.76 |
| Weight during pregnancy                                             | Q25=58kg  | 86  | 29.66 |
|                                                                     | Q50=62kg  | 60  | 20.69 |
|                                                                     | Q75=70kg  | 77  | 26.55 |
|                                                                     | >70kg     | 67  | 23.10 |
| Weight gained in current pregnancy                                  | Q25=5kg   | 81  | 28.03 |
|                                                                     | Q50=7.7kg | 65  | 22.49 |
|                                                                     | Q75=10kg  | 74  | 25.61 |
|                                                                     | >10kg     | 69  | 23.88 |
| Received advice about GWG                                           | Yes       | 235 | 81.03 |
|                                                                     | No        | 55  | 18.97 |
| Knows to gain weight during pregnancy                               | Yes       | 71  | 24.48 |
|                                                                     | No        | 219 | 75.52 |
| mother's assumed adequate weight gain in kilograms during pregnancy | 2kg       | 1   | 0.34  |
|                                                                     | 3 kg      | 8   | 2.76  |
|                                                                     | 4 kg      | 9   | 3.10  |
|                                                                     | 5 kg      | 3   | 1.03  |
|                                                                     | 7 kg      | 7   | 2.41  |
|                                                                     | 10 kg     | 30  | 10.34 |
|                                                                     | 15 kg     | 4   | 1.38  |
|                                                                     | 20 kg     | 9   | 3.10  |
| Knows about the risk of inadequate gestational weight gain          | Yes       | 173 | 59.66 |
|                                                                     | No        | 117 | 40.34 |

|                                                           |                                 |     |       |
|-----------------------------------------------------------|---------------------------------|-----|-------|
| Risk of inadequate gestational weight gain identified     | Low birth weight                | 57  | 19.66 |
|                                                           | Intrauterine growth restriction | 11  | 3.79  |
|                                                           | Preterm baby                    | 19  | 6.55  |
|                                                           | All                             | 86  | 29.66 |
| Knows about the risk of excessive gestational weight gain | Yes                             | 212 | 73.10 |
|                                                           | No                              | 78  | 26.90 |
| Risk of excessive gestational weight gain identified      | Diabetes                        | 18  | 6.21  |
|                                                           | Hypertension                    | 39  | 13.45 |
|                                                           | All                             | 155 | 53.45 |

### **Prevalence of pregnancy induced hypertension among women attending ANC follow up**

The prevalence of pregnancy-induced hypertension among research participants was found to be 6.2%, as 18 out of 290 pregnant women received a diagnosis of hypertension during pregnancy by having SBP  $\geq 140$  mm Hg and/or DBP  $\geq 90$  mm Hg after 20 week of gestation. 93.8% (n = 272) did not develop hypertension. This demonstrates that while most pregnant women remained normotensive, a sizable minority acquired pregnancy-induced hypertension, which calls for

continued prenatal monitoring and early detection to prevent related issues for the mother and the baby.

*Table 3 pregnancy-induced hypertension among women who visited the Health Centers in A.A.*

| Variables    | Category | Frequency(n) | Percent (%) |
|--------------|----------|--------------|-------------|
| Hypertension | Yes      | 44           | 14.8%       |
|              | No       | 246          | 85.2%       |

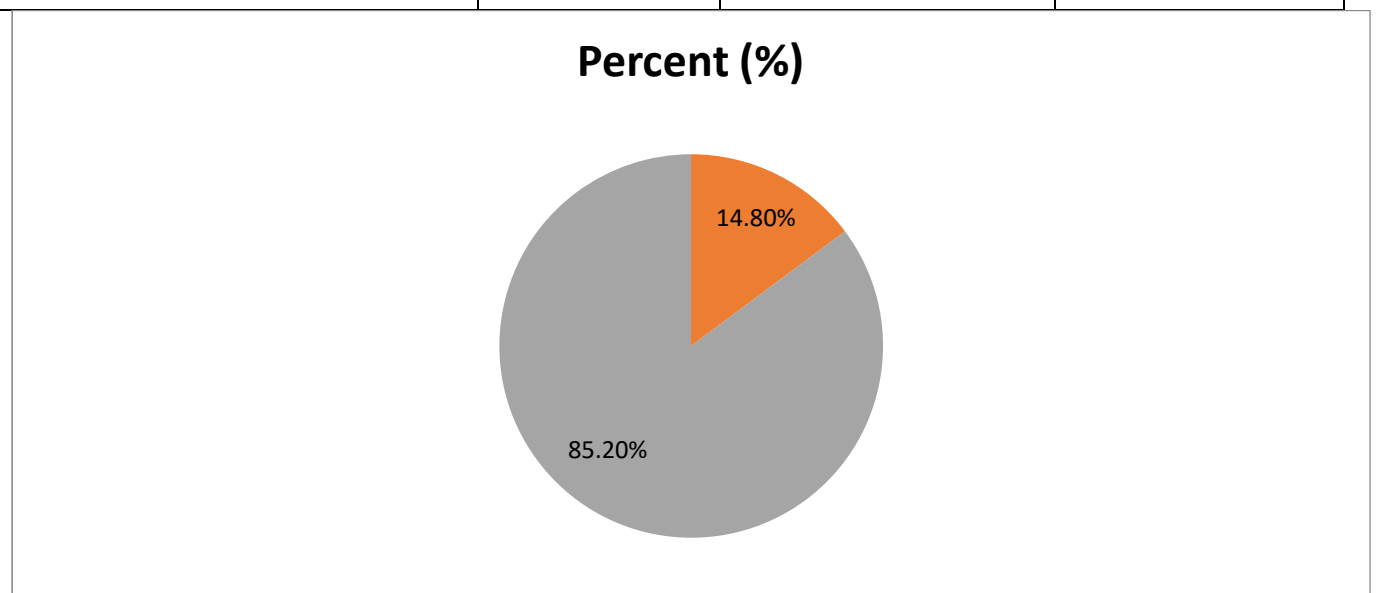


*Figure 3 Prevalence of pregnancy induced hypertension among women who visited the Health Centers in A.A*

The prevalence of PIH among study participants was 14.8% (n=44). The study found that the prevalence of Excessive GWG was 29.3% (n=87), while 18.5% (n=55) were underweight in their weight gain.

#### **Factors associated with gestational weight gain among women attending ANC follow up**

A multivariate multinomial logistic regression model was used to input variables that might have a connection ( $p < 0.05$ ) with the Gestational Weight Gain (GWG) outcome (Inadequate, Adequate, or Excessive). Because the three-category GWG outcome cannot be examined using

bivariate techniques, this model was required. The main objective was to use Inadequate GWG as the reference group to find independent predictors of attaining Adequate GWG or Excessive GWG. In the multivariate analysis, five factors—the spouse's educational level, previous medical illnesses, current weight, current gestational age, and problems during the current pregnancy—demonstrated a statistically significant correlation ( $p < 0.05$ ) with at least one GWG outcome.

**Sufficient GWG versus Insufficient GWG Predictors** When comparing adequate GWG to insufficient GWG, the three variables with significant adjusted relationships were the spouse's educational level, prior medical conditions, and present pregnancy issues. Concerning the Educational Standing of a Spouse: Mothers whose partners finished elementary school were less likely to attain adequate GWG (AOR 0.58, 95% CI (0.35, 0.96)) when compared to mothers whose partners were illiterate. This outcome implies that the Adequate category has an inverse relationship or that less education for the partner may help prevent inadequate weight gain.

**Family Background of NCD (with Diabetes Mellitus):** In contrast to mothers without this history, mothers with this history were much more likely (more than twice as likely) to achieve Adequate GWG (AOR 2.30, 95% CI (1.28, 4.12)).

**Complications during the current pregnancy:** Mothers who reported no complications were less likely than mothers who had complications to attain Adequate GWG (AOR 0.65, 95% CI (0.43, 0.99)).

**Factors that Predict Excessive vs Insufficient GWG** When comparing excessive GWG to the insufficient reference, present gestational age and weight were strong indicators. Current maternal weight and excessive GWG were found to be strongly and statistically significantly correlated. Mothers in the  $>62$  to  $\leq 70$  kg weight group were nearly six times more likely than those in the reference weight category ( $\leq 58$  kg) to experience Excessive GWG (AOR 5.92, 95% CI (3.50, 9.99)). This supports the idea that having a greater current weight is a significant, independent risk factor for going beyond GWG recommendations. The associations between the other higher weight groups were comparable, although somewhat less strong. Furthermore, weight is a major factor in non-inadequate results, as seen by the strong positive correlation between the  $>58$  to  $\leq 62$  kg group and Adequate GWG (AOR 4.15, 95% CI (2.55, 6.77)). With mothers in this group having 1.75 times higher likelihood of having excessive GWG compared to those with insufficient GWG (AOR 1.75, 95% CI (1.13, 2.70)), the current gestational age, if it is less than or equal to 30 weeks, is a significant and positive predictor of excessive GWG. This indicates that the stage of pregnancy is independently linked to the buildup

of extra weight. This suggests excess weight accumulation is independently correlated with the stage of pregnancy. A similar, slightly higher, association was found for current gestational age >30 to ≤34 weeks (AOR 1.95, 95% CI (1.11, 3.42)), further supporting the time-dependent nature of excessive weight gain.

## **Factors associated with pregnancy induced hypertension among attending ANC follow up**

### **Bivariate Analysis**

Variables were selected for the multivariable multinomial logistic regression model based on a bivariate analysis. At a threshold of  $p < 0.25$ , any independent variable that showed a strong or moderate link to the outcome, Gestational Hypertension (GH), was included. It was critical to conduct this initial screening in order to prevent the final model's potency from being diluted by insignificant predictors. The following seven factors satisfied this bivariate criteria and were hence added to the last multivariable model for modification: pre-pregnancy BMI category, pre-pregnancy weight, age, food intake, fruit intake, GWG (gestational weight gain), and gestational age at the first ANC (antenatal care) visit. The remaining variables, such as food intake, vegetable consumption, the amount of ANC visits, and meat and egg consumption.

In Multinomial logistic regression revealed that, despite the overall low significance of Gestational Weight Gain (GWG) ( $p=0.233$ ), excessive GWG was a crucial benchmark; in particular, women with insufficient weight gain ( $GWG=1$ ) had a 76.1% lower risk of PIH (AOR 0.239) compared to those in the excessive category. Additionally, bivariate analysis revealed a strong correlation between hypertension and excessive GWG ( $p=0.001$ ). Maternal age proved to be an exceptional predictor, with women under 20 and those between 20 and 29 showing

significantly higher odds of PIH compared to those 40 and older ( $p < 0.001$ ), indicating a greater vulnerability in younger cohorts despite estimation issues in the AOR. Furthermore, a family history of chronic illness and physical inactivity (51.5% of respondents) were strongly correlated with PIH ( $p=0.005$  and  $p=0.012$ , respectively). These dangers were made worse by bad dietary practices, such as insufficient fruit and vegetable intake ( $p=0.041$ ), emphasizing that PIH in this context is a multifactorial illness with its origins in excessive physical weight gain, younger maternal age, and sedentary lifestyle challenges.

*Table 4 Factors associated with pregnancy induced hypertension among women who visited the Health Centers in A.A.(multinomial analysis)*

| Explanatory Variables | No<br>PIH | PIH | COR,95%(CI) | AOR,95%(CI) | P-value |
|-----------------------|-----------|-----|-------------|-------------|---------|
| Pre pregnancy weight  |           |     |             |             |         |
| Underweight           | 76        | 1   |             | 0.15        | 0.21    |
| Normal                | 91        | 5   | 0.239       | 0.41        | 0.133   |
| Overweight            | 46        | 2   | 0.303       | 0.27        | 0.0047  |
| Obese                 | 59        | 10  | 0.078       | .           | .       |
| Food intake           |           |     |             |             |         |
| 3 times/day           | 94        | 3   |             | 0.33        | 0.047   |
| 4 times/day           | 124       | 12  | 0.33        | 1.11        | 0.24    |
| 5 times/day           | 54        | 3   | 0.574       | .           | .       |
| Fruits intake         |           |     |             |             |         |
| Two times             | 111       | 12  |             | 2.77        | 0.218   |
| Four times            | 25        | 1   | 2.703       | 1.25        | 0.046   |
| Do not eat            | 112       | 4   | 3.027       | 0.87        | 0.062   |
| Other Specify         | 24        | 1   | 2.595       | .           | .       |
| GWG                   |           |     |             |             |         |
| Inadequate            | 199       | 8   |             | 0.239       | 0.048   |

|                                    |    |   |       |      |       |
|------------------------------------|----|---|-------|------|-------|
| Adequate                           | 62 | 6 | 0.415 | 0.39 | 0.078 |
| Excessive                          | 11 | 4 | 0.111 | .    | .     |
| Gestational age at first ANC visit |    |   |       |      |       |
| <= 9.475                           | 70 | 2 |       | 3.18 | 0.172 |
| >9.475 and<=12.000                 | 77 | 3 | 0.733 | 2.8  | 0.159 |
| >12.000 and <= 14.200              | 60 | 7 | 0.245 | 0.81 | 0.725 |
| Greater than 14.200                | 65 | 6 | 0.31  | .    | .     |

## Discussion

This study examined how common gestational weight gain (GWG) and pregnancy-induced hypertension (PIH) are, along with the factors that are linked to these issues among women attending ANC follow-up in Addis Ababa. The results show a significant public health challenge, as nearly one-third of the participants had excessive weight gain and a large number

developed hypertensive disorders. The study revealed that the rate of excessive GWG was 29.3% (n=87), while 18.5% (n=55) were underweight considering their weight gain. This excessive GWG rate is higher than findings from similar studies in Ethiopia, including one in Gondar, which reported over-adequate weight gain at 13.35%. However, it is still lower than trends in high-income countries like Canada (48.7%) and China (46.5%–53.6%)(75) . Furthermore, inadequate, adequate, and excessive weight growth were reported by 28.7%, 49.6%, and 21.7% of pregnant women in Iran's southwest, respectively. (76) This tendency deviates dramatically from worldwide trends and accepted guidelines in middle- and high-income environments, where excessive GWG often poses the bigger risk. According to a Canadian poll, 48.7% of pregnant women put on extra weight.(77) Another study found that 46.5% to 53.6% of Chinese pregnant women had high GWG.(78) The high proportion of inadequate GWG in some sub-Saharan African populations is comparable with the upper range of poor nutritional outcomes reported in other LMICs, where food insecurity and maternal workload .(79)

Given that 44 out of 290 pregnant women were diagnosed with hypertension during pregnancy, the prevalence of pregnancy-induced hypertension among research participants was 6.2%. There was no development of hypertension in 93.8% (n = 272). Pregnancy-induced hypertension was found to be 19.4% prevalent in Zimbabwe.(82) and a study found that 13.4% of women in Hadiya Zone developed PIH. (83) Although this study is comparatively smaller, the systemic review found that the pooled prevalence of pregnancy-related hypertensive disorders in Ethiopia was 6.07%.(84)

A primary focus of this research was the relationship between weight accumulation and vascular health. Multinomial logistic regression identified excessive GWG as a critical benchmark for risk. Notably, women with inadequate weight gain (GWG=1) demonstrated a 76.1% lower risk of developing PIH (AOR 0.239, p=0.078) compared to those in the excessive category. This marginal protective effect suggests that lower weight accumulation may mitigate the hemodynamic stress typically associated with PIH. These results are further bolstered by the bivariate analysis, which confirmed that excessive GWG is strongly and significantly associated with hypertension ( $p < 0.001$ ). This is consistent with international literature, where excessive weight gain is frequently cited as an independent driver of hypertensive disorders due to increased systemic inflammation and cardiac demand.(86)

Current maternal weight and excessive GWG were found to be strongly and statistically significantly correlated in this study. Mothers in the >62.00 and ≤ 70.00 categories were nearly six times more likely to experience Excessive GWG than Inadequate GWG when compared to the reference weight category (≤ 58.00). This confirms that a higher current weight is a significant independent risk factor for exceeding GWG guidelines (AOR 5.92, 95% CI (3.50, 9.99)). Similar, albeit slightly weaker, associations were found for other categories of elevated weight. The strong positive correlation between >58.00 and ≤ 62.00 and Adequate GWG (AOR 4.15, 95% CI (2.55, 6.77)) indicates that weight is a significant driver across both non-reference outcomes.

Current gestational age ≤ 30.00 was found to be a significantly positive predictor of excessive GWG. Mothers in this category were 1.75 times more likely to experience excessive GWG than mothers with inadequate GWG. This suggests that there is an independent correlation between the accumulation of excess weight and the variable's definition of the stage of pregnancy (AOR 1.75, 95% CI (1.13, 2.70)). A similar, albeit slightly stronger, association for Current gestational age > 30.00 and ≤ 34.00 (AOR 1.95, 95% CI (1.11, 3.42)) further supported the time-dependent nature of excessive weight accumulation. Another study revealed that 36.8% of the women had gestational weight gain (GWG) above the range, and 10.8% of the women had pre-pregnancy obesity (body mass index (BMI) ≥ 30 kg/m<sup>2</sup>).<sup>(89)</sup>

Multivariate logistic regression analysis was used in the study to determine whether they actually had a connection to PIH. GWG=1 (Insufficient) With 76.1% fewer odds of developing PIH than those in the highest gain category, women in the lowest GWG category demonstrated a marginal protective effect against PIH. GWG=2 (Sufficient) When compared to the excessive GWG group, women in the middle GWG category also had a lower likelihood of having PIH (AOR 0.399, 95% CI (0.078, ∞)), although this difference was not statistically significant (p=0.269). According to other studies, pre-pregnancy obesity (compared to normal BMI) was linked to a higher odds ratio of GH (AOR = 4.94; p < 0.001), as were excessive GWG and other confounders.<sup>(90)</sup>

Maternal age emerged as the most extreme predictor in this study. Compared to women aged 40 and above, those in the younger cohorts (<20 and 20–29 years) showed significantly higher odds of developing PIH (\$p < 0.001\$). While the Adjusted Odds Ratios (AORs) were exceptionally

large indicating potential estimation challenges due to sample distribution—the trend clearly points to a heightened biological or socio-economic vulnerability among younger pregnant women. This contradicts some global trends that emphasize risks in advanced maternal age, suggesting that in this specific urban Ethiopian context, adolescent and young adult pregnancies require more rigorous cardiovascular monitoring..(91) However, compared to women who did not give birth during adolescence, nearly 40% of the women in this group had an adjusted probability of having hypertension in adulthood, which was 2.3 percentage points higher(92)

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

### **Strength of the Research**

The study used a tool developed by Institute of Medicine (US) and National Research Council (US) Committee to Reexamine IOM Pregnancy Weight Guidelines. And also, the questionnaire integrated a question from tool used in ANC (minister of health Ethiopia integrated antenatal, labor, delivery, new born and postnatal care). And the study had good response rate.

## **Limitations**

Information on temporal causality cannot be established because the study is cross-sectional. A portion of the data is self-reported and susceptible to recall bias, which could compromise the accuracy. Owing to its institution-based design, the study may overestimate the amount GWG adequacy, minimize hypertension occurrence and it may not be representative of the community as a whole because breastfeeding women who visit public health centers may relatively well because they are aware of the risks associated with GWG and hypertension.

## **Conclusion**

This study concludes that the prevalence of Pregnancy-Induced Hypertension (PIH) is 14.8% among women attending ANC follow-up in Addis Ababa, a figure that highlights a significant maternal health challenge. The research establishes that PIH in this context is a multifactorial condition driven by a combination of physiological, demographic, and lifestyle factors. Factors which are associated with that are Excessive weight gain is a primary driver of hypertension.

Conversely, women with inadequate weight gain showed a 76.1% lower risk of PIH, confirming that excessive physical weight accumulation is a major modifiable risk factor. Younger maternal age (specifically under 30 years) is a remarkably strong predictor of PIH in this population, suggesting that younger cohorts are biologically or socio-economically more vulnerable to vascular complications. A high prevalence of physical inactivity (51.5%) and poor dietary habits (infrequent fruit and vegetable intake) are significantly associated with increased hypertensive risk. These behaviors are often rooted in cultural beliefs and urban time constraints. A family history of chronic diseases remains a significant non-modifiable risk factor that compounds the effects of lifestyle choices.

## **Recommendation**

- Because this study revealed that the majority of women had insufficient gestational weight increase, the Addis Ababa City Health Office and other pertinent organizations should vigorously educate mothers about the significance of prenatal weight gain.
- Health experts engaged at public health centers must give women with nutritional counselling on health weight gain and the relevance of consuming them in adequate level.
- In order to identify high-risk mothers and take prompt action to increase effective measurements, ANC services should start early.
- Health policy experts in Addis Ababa are creating an intervention to help mothers with pregnancy-induced hypertension and improper gestational weight gain.

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## Annex

### Participant Information Sheet and Informed Voluntary Consent Form.

#### Participant Information Sheet

My name is \_\_\_\_\_ who is a data collector for Frezewd Negash, a student at St. Paul's Hospital Millennium Medical College. She is a student who partially fulfills the requirements for the master's degree. She will conduct a research project with a title of "Prevalence of Gestational Weight Gain and Hypertension disorder in Pregnancy among Women Attended ANC follow-up in Addis Ababa". Kindly, take few minutes to describe both the overall scope of the study and your selection process.

Project Title: Prevalence of Hypertension and Gestational Weight Gain among Pregnant Women Who Attended ANC Follow-Up in Addis Ababa City.

General Objective: This paper will try to establish the prevalence of hypertension and gestational weight gain of women who attended for ANC follow-up in Addis Ababa, Ethiopia.

Objectives: Since gestational weight gain potentially detects possible complications on the mother and the child, the parameter is a very important one in antenatal care. A good percentage of pregnant women in Ethiopia, especially in Addis Ababa, do not gain adequate weight, which exposes them to a very high risk of suffering gestational hypertension and preeclampsia. The purpose of this study is to provide up-to-date data regarding GWG and HDP among women, filling in the information gaps and working toward the health of the mother and the well-being of the fetus. Such results can help health organizations, physicians, and legislation agents to outline targeted interventions and evidence-based policies that could improve prenatal care and, consequently, the quality of maternal health services as a whole.

Confidentiality: I am very dedicated, and I take this opportunity to strongly assure you that the information you provide, say Your responses on the questionnaires, and the information will not be recorded in connection with your name or other details identifying you. The information was taken as private and for the purpose of research alone. The researchers was the only people utilizing the information, and it will not be released to a third party.

Methods: Am here today in seeking the data reporting the prevalence of hypertension and gestational weight gain among pregnant mothers who attended the ANC. Data collection duration lasts for thirty to forty minutes. You are among the expectant mothers at this health

centre whom I have selected randomly to participate in this study. The data collectors will assess your record and conduct the face-to-face interviews in carrying out the research. I was testing you for sociodemographic characteristics and also questions about putting on weight.

**Study Risks and Benefits:** There are no known benefits to participating in this study nor are there any risks associated with answering the questions. However, you will help to further advance our understanding of the factors that affect at least this region, with respect to the occurrence of inadequate gestational weight gain. either directly or indirectly. There is practically no risk associated with participating in this research project; it will only take a couple of minutes of your time and will not interfere with your social life or personal interests.

**Rights:** You are free to abstain from the study at any time or decline to answer questions causing discomfort. At any point in the research, you can just stop whenever you like. Your decision to withdraw or refuse participation will in no way affect your receiving of other benefits in the future, medical care, or any other sphere of your social life.

**Address for correspondence:** Please contact the following address if you have any queries regarding the study or anything else associated with it.

**Principal Investigator:** Frezewd Negash, +251933005112 or frezewdnegash@gmail.com

Do you have any questions for me right now regarding the research?

**Declaration of the Volunteer or Consent Form** I am aware of the study's objectives. The material above has either been read or has been read to me. I've had the chance to ask inquiries about it and any queries that My inquiries have received satisfactory responses. I willingly give my agreement to participate in this study, and I am aware that doing so will not have any impact on my future social life or health treatment. I may withdraw from the study at any moment.

I sincerely appreciate your participation.

| Part I: Sociodemographic Factors |                                            |                                                                                                                                                  |      |
|----------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Code                             | Variables                                  | Response                                                                                                                                         | Skip |
| A.Q1                             | Age in years                               | _____                                                                                                                                            |      |
| A.Q2                             | What is your marital status?               | 1. Unmarried<br>2. Married<br>3. Divorced<br>4. Widowed<br>5. Other Specify                                                                      |      |
| A.Q3                             | What is your educational status?           | 1. Illiterate<br>2. Primary education<br>3. Secondary education<br>4. College and above<br>5. Other Specify                                      |      |
| A.Q4                             | What is your spouse's educational status?  | 1. Illiterate<br>2. Primary education<br>3. Secondary education<br>4. College and above<br>5. Other Specify                                      |      |
| A.Q5                             | What is your occupational status?          | 1. Housewife<br>2. Farming<br>3. Government Employee<br>4. Private Employee<br>5. Merchant<br>6. Student<br>7. Daily Laborer<br>8. Other Specify |      |
| A.Q6                             | What is your spouse's occupational status? | 1. Farming<br>2. Government Employee<br>3. Private Employee                                                                                      |      |

|                                       |                                                                                          |                                                                                                                                                                                                                                                                                       |                                    |
|---------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|                                       |                                                                                          | 4. Merchant<br>5. Student<br>6. Daily Laborer<br>7. Other Specify                                                                                                                                                                                                                     |                                    |
| A.Q7                                  | How many people are currently living with you in your house?                             | _____                                                                                                                                                                                                                                                                                 |                                    |
| A.Q8                                  | How much is your family income per month in Eth birr?                                    | _____                                                                                                                                                                                                                                                                                 |                                    |
| A.Q9                                  | What factors have affected your access to antenatal care services during your pregnancy? | 1. Lack of transportation<br>2. Financial constraints<br>3. Distance to healthcare facility<br>4. Limited availability of healthcare services<br>5. Lack of information about services<br>6. Other (please specify):<br>_____<br>7. I have not faced any challenges in accessing care | Can select more than one           |
| Part II: Weight Gain During Pregnancy |                                                                                          |                                                                                                                                                                                                                                                                                       |                                    |
| Code                                  | Variables                                                                                | Response                                                                                                                                                                                                                                                                              | Skip                               |
| B.Q1                                  | Is your pre-pregnancy weight known?                                                      | 1. Yes 2. No                                                                                                                                                                                                                                                                          | Filled from patient medical record |
| B.Q2                                  | If yes, what was your pre-pregnancy weight?                                              | _____ kg                                                                                                                                                                                                                                                                              |                                    |

|       |                                                                        |                                                                                          |                                    |
|-------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------|
| B.Q3  | Is your weight during pregnancy known?                                 | 1. Yes2. No                                                                              | Filled from patient medical record |
| B.Q4  | If yes, what is your weight gain?                                      | _____ kg                                                                                 | Filled from patient medical record |
| B.Q5  | How much weight have you gained during this pregnancy?                 | _____ kg                                                                                 |                                    |
| B.Q6  | Have you been given advice about weight gain during pregnancy?         | 1. Yes2. No                                                                              |                                    |
| B.Q7  | If so, from whom?                                                      | 1. Health professionals<br>2. Family members<br>3. Media<br>4. Other Specify             |                                    |
| B.Q8  | Do you know how much weight you are supposed to gain during pregnancy? | 1. Yes2. No                                                                              |                                    |
| B.Q9  | If yes, how much weight (in kg)?                                       | _____                                                                                    |                                    |
| B.Q10 | Source of information                                                  | 1. Health care providers during ANC<br>2. Family members<br>3. Media<br>4. Other Specify |                                    |
| B.Q11 | Do you know the risk of inadequate gestational weight gain?            | 1. Yes<br>2. No                                                                          |                                    |
| B.Q12 | If yes, what are these risks?                                          | 1. Low birth weight<br>2. Intrauterine growth restriction                                | Can select more than one           |

|                                     |                                                              | 3. Preterm baby<br>4. All<br>5. Other Specify                                       |                          |
|-------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|
| B.Q13                               | Do you know the risk of excessive gestational weight gain?   | 1. Yes<br>2. No                                                                     | If no skip<br>B.Q12      |
| B.Q14                               | If yes, what are these risks?                                | 1. Diabetes<br>2. Hypertension<br>3. Cardiac diseases<br>4. All<br>5. Other Specify | Can select more than one |
| Part III: Maternal Health Condition |                                                              |                                                                                     |                          |
| Code                                | Variables                                                    | Response                                                                            | Skip                     |
| C.Q1                                | Total number of pregnancies                                  | _____                                                                               |                          |
| C.Q2                                | Number of deliveries                                         | _____                                                                               |                          |
| C.Q3                                | Number of currently alive children                           | _____                                                                               |                          |
| C.Q4                                | Do you have any medical disorder in the past pregnancy?      | 1. Yes<br>2. No                                                                     | If no, go to<br>C.Q6     |
| C.Q5                                | If yes, what was the medical disorder in the past pregnancy? | 1. Diabetes Mellitus<br>2. Hypertension<br>3. Heart disease<br>4. Other Specify     | Can select more than one |
| C.Q6                                | Do you have a history of low birth weight?                   | 1. Yes<br>2. No                                                                     |                          |
| C.Q7                                | Do you have a history of previous ANC service utilization?   | 1. Yes<br>2. No                                                                     |                          |

|       |                                                               |                                                                                                                                                                 |                          |
|-------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| C.Q8  | Do you have a family history of chronic diseases?             | 1. Yes<br>2. No                                                                                                                                                 |                          |
| C.Q9  | If yes, what was the disease?                                 | 1. Diabetes<br>2. Hypertension<br>3. Cardiac diseases<br>4. Other Specify                                                                                       | Can select more than one |
| C.Q10 | Do you have a personal history of chronic diseases?           | 1. Yes<br>2. No                                                                                                                                                 |                          |
| C.Q11 | If yes, what was the disease?                                 | 1. Diabetes<br>2. Hypertension<br>3. Cardiac diseases<br>4. Other Specify                                                                                       | Can select more than one |
| C.Q12 | Do you have previous history of pregnancy complications?      | 1. Low birth weight<br>2. Intrauterine growth restriction<br>3. Preterm baby<br>4. Diabetes<br>5. Hypertension<br>6. Cardiac diseases<br>7. Other Specify       | Can select more than one |
| C.Q13 | Have you experienced any complications during this pregnancy? | 9. Low birth weight<br>10. Intrauterine growth restriction<br>11. Preterm baby<br>12. Diabetes<br>13. Hypertension<br>14. Cardiac diseases<br>15. Other Specify |                          |
| C.Q14 | Have you experienced any of the following conditions during   | 1. Previous abortion<br>2. Twin pregnancy                                                                                                                       | Can select more than one |

|                                        |                                                                                      |                                                                                                             |                                          |
|----------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                                        | pregnancy?                                                                           | 3. Obesity<br>4. Anemia<br>5. Other Specify.....                                                            |                                          |
| Part IV: Maternal Physiological Factor |                                                                                      |                                                                                                             |                                          |
| Code                                   | Variables                                                                            | Response                                                                                                    | Skip                                     |
| D.Q1                                   | Pre-pregnancy weight (kg)                                                            | _____                                                                                                       |                                          |
| D.Q2                                   | Current Height (cm)                                                                  | _____                                                                                                       |                                          |
| D.Q3                                   | Current weight (kg)                                                                  | _____                                                                                                       |                                          |
| D.Q4                                   | BMI category pre-pregnancy                                                           | 1. Underweight (<18.5)<br>2. Normal weight (18.5-24.9)<br>3. Overweight (25-29.9)<br>4. Obese ( $\geq 30$ ) | If pre pregnancy BMI is unknown use MUAC |
| D.Q5                                   | Blood pressure readings                                                              | First trimester: _____<br>mmHg<br>Second trimester: _____<br>mmHg<br>Third trimester: _____<br>mmHg         |                                          |
| D.Q6                                   | Have you been informed or diagnosed as overweight during your antenatal care visits? | 1. Yes<br>2. No                                                                                             |                                          |
| Part V: Factors Related to Lifestyle   |                                                                                      |                                                                                                             |                                          |
| Code                                   | Variables                                                                            | Response                                                                                                    | Skip                                     |
| E.Q1                                   | How many times do you eat each day?                                                  | 1. 3 times/day<br>2. 4 times/day<br>3. 5 times/day<br>4. Other Specify                                      |                                          |
| E.Q2                                   | Which fluid do you drink most?                                                       | 1. Milk<br>2. Coffee/Tea<br>3. Alcohol                                                                      | Can select more than one                 |

|      |                                                                                         |                                                                                        |  |
|------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--|
|      |                                                                                         | 4. Other Specify                                                                       |  |
| E.Q3 | Soda or juice consumption per week                                                      | 1. Two times<br>2. Three times<br>3. Four times<br>4. Do not drink<br>5. Other Specify |  |
| E.Q4 | How many times do you eat fruits per week?                                              | 1. Two times<br>2. Three times<br>3. Four times<br>4. Do not eat<br>5. Other Specify   |  |
| E.Q5 | How many times do you eat vegetables per week?                                          | 1. Two times<br>2. Three times<br>3. Four times<br>4. Do not eat<br>5. Other Specify   |  |
| E.Q6 | How many times do you consume meat and eggs per week?                                   | 1. Meat: _____ times<br>2. Eggs: _____ times<br>3. Do not eat                          |  |
| E.Q7 | In your culture/religion, which foods are recommended to eat during pregnancy?          | _____                                                                                  |  |
| E.Q8 | In your culture/religion, which foods are recommended to avoid during pregnancy?        | _____                                                                                  |  |
| E.Q9 | Previously diagnosed with known substance abuse (including alcohol drinking or smoking) | 1. Yes<br>2. No                                                                        |  |

|                                    |                                                                                              |                                                                                                                                                                                                                                                                                                                                             |                                    |
|------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| E.Q10                              | Do you engage in regular physical activity?                                                  | 1. Yes<br>2. No                                                                                                                                                                                                                                                                                                                             |                                    |
| E.Q11                              | If yes, specify the type and frequency of physical activity                                  |                                                                                                                                                                                                                                                                                                                                             |                                    |
| E.Q12                              | Which of the following factors have influenced your lifestyle choices during your pregnancy? | 1. Food choices and dietary preferences<br>2. Levels of physical activity (e.g., exercise or movement)<br>3. Psychological stress (e.g., emotional or mental stress)<br>4. Lack of time for physical activity<br>5. Difficulty managing stress<br>6. Influence of family or community health beliefs<br>7. Other (please specify):<br>_____ | Can select more than one           |
| Part VI: Pregnancy-Related Factors |                                                                                              |                                                                                                                                                                                                                                                                                                                                             |                                    |
| F.Q1                               | Number of ANC visits                                                                         | _____                                                                                                                                                                                                                                                                                                                                       |                                    |
| F.Q2                               | Gestational age at first ANC visit                                                           | _____ weeks                                                                                                                                                                                                                                                                                                                                 | Filled from patient medical record |
| F.Q3                               | Current gestational age                                                                      | _____ weeks                                                                                                                                                                                                                                                                                                                                 | Filled from patient medical record |
| F.Q4                               | Did you receive nutritional                                                                  | 1. Yes                                                                                                                                                                                                                                                                                                                                      |                                    |

|       |                                                                                                                        |                                                                                                                                                                 |                                                      |
|-------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
|       | advice?                                                                                                                | 2. No                                                                                                                                                           |                                                      |
| F.Q5  | How many times did you get nutritional advice?                                                                         | _____                                                                                                                                                           | If question F.Q3 is yes                              |
| F.Q6  | Who gave the nutritional advice?                                                                                       | 1. Physician<br>2. Nurse/midwife<br>3. Other Specify                                                                                                            | If question F.Q3 is yes                              |
| F.Q7  | Any medical disorder in the current pregnancy?                                                                         | 1. Yes<br>2. No                                                                                                                                                 |                                                      |
| F.Q8  | What are the medical disorders in the current pregnancy?                                                               | 1. Diabetes Mellitus<br>2. Hypertension<br>3. Cardiac disease<br>4. Nausea and vomiting<br>5. Hyperemesis Gravidarum<br>6. Loss of appetite<br>7. Other Specify | Can select more than one                             |
| F.Q9  | Are you currently taking medication for hypertension?                                                                  | 1. Yes<br>2. No                                                                                                                                                 |                                                      |
| F.Q10 | Are you experiencing any of the following symptoms?                                                                    | 1. Headache<br>2. Visual disturbances<br>3. Swelling of hands or face<br>4. Sudden weight gain<br>5. Proteinuria (protein in urine)                             |                                                      |
| F.Q11 | Duration of pregnancy (weeks)                                                                                          | _____ weeks                                                                                                                                                     |                                                      |
| F.Q12 | Do you have any other comments or concerns regarding your pregnancy?                                                   |                                                                                                                                                                 |                                                      |
| F.Q13 | Have you ever been diagnosed with any placental abnormalities (e.g., placental abruption, placenta Previa) or vascular | 1. Yes<br>2. No                                                                                                                                                 | Filled from patient medical record or patient verbal |

|       |                                                                                                                                                                |                 |                                                             |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------|
|       | issues during a previous pregnancy?                                                                                                                            |                 | answer                                                      |
| F.Q14 | Have you ever been diagnosed with any placental abnormalities (e.g., placental abruption, placenta Previa) or vascular issues during a your current pregnancy? | 1. Yes<br>2. No | Filled from patient medical record or patient verbal answer |

Amharic version of questionnaire

ለነብስ - ጡር ሴቶች የተዘጋጀ የታሳታፊ መረጃ ሰነድ እና የፈቃድ መስጫ ቅጽ

የታሳታፊ መረጃ ሰነድ

እንደ ምን አደሩ/ዋሉ ስሜ -----ይባላል፡፡ እኔ ለፍሬዘወድ ነጋሽ የመረጃ ሰብሳቢ ነኝ፤ እርሷም በቅዱስ ጳውሎስ ሆስፒታል ሚሊኒየም ሚዲካል ኮልጅ ተማሪ ናት፡፡ እሳም ለማስተርስ ዲግሪ ትምህርት መርሃ ግብር ማጠናቀቂያ እንዲሆን “ በአዲስ አበባ ውስጥ የቅድመ ወሊድ የሕክምና ክትትል አገልግሎት በምትከታተል ነብስ-ጡር እናት ላይ የሚስተዋል በእርግዝና ጊዜ የሚከሰት የክብደት መጨመር እና የደም ግፊት ችግር መጠን” በሚል ርዕስ ላይ ምርመር እየሰሩ ይገኛሉ፡፡ ስለጥናቱ ያለዎትን አጠቃላይ እይታ እና እርስዎ እንዴት እንደተመለመሉ ትኩረት ሰጥተው እንዲያዳምጡ በትህትና እጠይቃለሁ፡፡

የፕሮጀክቱ ርዕስ፡ “ በአዲስ አበባ ውስጥ የቅድመ ወሊድ የሕክምና ክትትል አገልግሎት በምትከታተል ነብስ-ጡር እናት ላይ የሚስተዋል በእርግዝና ጊዜ የሚከሰት የክብደት መጨመር እና የደም ግፊት ችግር መጠን”

የጥናቱ ዓላማ፡ የዚህ ጥናት አላማ “ በአዲስ አበባ ውስጥ የቅድመ ወሊድ የሕክምና ክትትል አገልግሎት በምትከታተል ነብስ-ጡር እናት ላይ የሚስተዋል በእርግዝና ጊዜ የሚከሰት የክብደት መጨመር እና የደም ግፊት ችግር መጠን”

የጥናቱ ጠቀምታ

በእርግዝና ጊዜ የሚከሰት የክብደት ለእናት እንክብካቤ አስፈላጊ መስፈርት ስለሆነ፤ ለእናትና ህፃኑ የሚኖረውን እድገት እንዲገነባ ይረዳል። በኢትዮጵያ ብዙ እርጉዝ ሴቶች በተለይም በአዲስ አበባ በአግባቡ የሚጠበቁትን ልክ ክብደት እንደሌላቸው መረጃዎች ያሳያሉ። ይህም የደም ግፊት ችግሮችና በእናትና በህፃኑ ላይ የሚያስከትሉትን የህመም እና ሞት ያስከትላል። በተጨማሪም ጥናቱ በነብሰጡር ሴቶች ላይ ስለሚስተዋል በቂ ያልሆነ በእርግዝና ጊዜ የሚከሰት የክብደት መጨመር ችግር አሳሳቢነት ደረጃ እና ተያያዥ ምክንያቶች በተመለከተ ጠቃሚ መረጃዎችን ለፖሊስ አውጪዎች፣ የጤና ፕሮግራም አቅድ አውጪዎች እና የጤና ክብካቤ አገልግሎት ሰጪዎች ለመስጠት የታለመ ነው።

የሚስጢር አጠባበቅ፡ የእርስዎ ስም እና ሌሎች የማንነት ማሳያ መረጃዎች በቃለ መጠይቆቹ ውስጥ የማይካተቱ መሆናቸውን እና እርስዎ የሚሰጡት መረጃዎች በሚስጢር የሚያዙ ሲሆን ከጥናቱ ዓላማ ውጪ ለሌላ ምንም አይነት ዓላማ ጥቅም ላይ የማይውሉ መሆናቸውን አጥብቄ አረጋግጣለሁ። እርስዎ የሚሰጡን ማንኛውም መረጃ በጥናቱ ቡድን ብቻ ጥቅም ላይ የሚውል ሲሆን ሌላ ሶስተኛ ወገን በማንኛውም መንገድ ይፋ አይደረግም ወይም ተላልፎ አይሰጥም።

አሰራር፡ ዛሬ እኔ የቅድመ ወሊድ የሕክምና ክትትል አገልግሎት በምትከታተሉ ነብሰ-ጡር እናት ላይ የሚስተዋል በእርግዝና ጊዜ የሚከሰት የክብደት መጨመር እና የደም ግፊት ችግር ላይ መርጃ ለመውሰድ እዚህ ተግኝቻለሁ። የመረጃ ማሰባሰብ ሥራው ከ30 እስከ 40 ደቂቃ ጊዜ ይፈጃል። እርስዎ ከዚህ ጤናጣቢያ ለዚህ ጥናት በዘፈቀደ ከተመረጡ የነብሰጡር ሴቶች ቡድን መካከል አንዱ ነዎት። የጥናቱ አሰራር ፊትሰራት የሚደረጉ መጠይቆችን እና በመረጃ ሰበሳቢዎች የተዘጋጀውን የእርስዎን መዝገብ መመርመርን ያካትታል። እኔ እርስዎን ስለማህበራዊ እና ሥነሕዝብ መገለጫ ባህርያት የሚመለከቱ ጥያቄዎች እንዲሁም ከስነምግብ እና ከክብደት መጨመር ጋር ተያያዥነት ያለው ጥያቄ አጠይቀዎታለሁ።

የጥናቱ ሥጋት/ጉዳት እና ጠቀሜታዎች፡ እርስዎ በዚህ ጥናት ላይ በመሳተፍዎ እና ጥያቄዎቹን በመመለስዎ በቀጥታ የሚገኙት ምንም ጥቅም ጥቅም የለም። ነገር ግን በዚህ ጥናቱ ትኩረት ባደረገበት ቦታ በቂ ያልሆነ በእርግዝና ጊዜ የሚከሰት የክብደት መጨመር ችግር እንዲከሰት መነሻ የሆኑ ቀጥተኛ ወይም ተዘዋዋሪ ምክንያቶች ለመገንዘብ እንዲቻል እገዛ ያደርጋሉ። በዚህ ጥናት ላይ መሳተፍ ጋር ተያይዞ የሚኖረው ሥጋት በጣም ዝቅተኛ ሲሆን በእርስዎ የግል ጥቅምም ሆነ ማህበራዊ ሕይወትዎ ላይ ተጽእኖ ሊኖራቸው የማይችሉ ጥቂት ደቂቃዎችን ከእርስዎ ጊዜ ላይ መውሰድ ብቻ ነው።

መብቶች፡ እርስዎ በዚህ ጥናት ላይ በፈቃደኝነት የሚሳተፉ ሲሆን በጥናቱ ላይ ላለመሳተፍዎ ሆነ የማይመችዎትን ማንኛውንም ጥያቄ ላለመመለስ መብት አለዎት። በጥናቱ ላይ እየተሳተፉ እያለ ስለተሳትፎዎ ሀሳብዎን ከቀየሩ በማንኛውም ጊዜ ጥናቱን አቋርጠው የመተው መብት አለዎት። እርስዎ በጥናቱ ላይ ላለመሳተፍ ወይም የጀመሩትን ጥናት ለማቋረጥ መወሰንዎ በእርስዎ ማህበራዊ ህይወትዎ ሆነ እርስዎ ወደፊት በሚፈልጉት የሕክምና ክብካቤዎ ሆነ የሚገባዎትን ሌሎች ማንኛውንም ጥቅም ጥቅሞች የማግኘት ሂደት ላይ ምንም አይነት ተጽእኖ አይኖረውም።

የግንኙነት አድራሻ፡ ስለጥናቱ፣ አሰራሩ ወይም ሌላ ከጥናቱ ጋር ተያያዥነት ያለው ማንኛውም ጥያቄ ካለዎት እባክዎን በሚከተለው አድራሻ ያግኙን፡

ዋና ተመራማሪ፡ ፍሬዝወድ ነጋሽ +251933005112 or frezewdnegash@gmail.com

አሁን እርስዎ ስለጥናቱ ሊጠይቁኝ የሚፈልጉ ማንኛውም ጥያቄ አለ?

የበጎ ፈቃደኛው የፈቃድ መስጫ ቅጽ ወይም መግለጫ

እኔ የጥናቱን አላማ ተገንዝበያለሁ። እኔ ከላይ ያሉትን መረጃዎች አንብባለሁ ወይም ተነበውልኛል። እኔ ስለዚህ ጥናት ጥያቄዎች እንዲጠይቅ እድል የተሰጠኝ ሲሆን እኔ የጠየቅኳቸው ማናቸውም ጥያቄዎች እኔ በሚፈልገው መልኩ ምላሽ ተሰጥተውኛል። እኔ በዚህ ጥናት ላይ ለመሳተፍ በፈቃደኝነት ፈቃዴን የሰጠሁ ሲሆን በእኔ የወደፊት ማህበራዊ ሕይወትም ሆነ የህክምና ክብካቤ ላይ በማንኛውም መንገድ ተጽእኖ ሳይኖረው በማንኛውም ጊዜ ጥናቱን ለማቋረጥ መብት ያለኝ መሆኔን እገነዘባለሁ።

ለተሳትፎዎ እጅግ በጣም አመሰግናለሁ።

| ክፍልአንድ--ማሕበራዊና ሁኔታዎች |                             |                |      |
|----------------------|-----------------------------|----------------|------|
| ተ.ቁ                  | ጥያቄ                         | መልስ            | ምርመራ |
| ሀ.ጥ.1                | ዕድሜ                         |                |      |
| ሀ.ጥ.2                | የጋብቻ ሁኔታ                    | 1. ያላገባች       |      |
|                      |                             | 2. ያገባች        |      |
|                      |                             | 3. አግብታ የፈታች   |      |
|                      |                             | 4. ባል የሞተባት    |      |
|                      |                             | 5. ሌላ ካለ ይገለፅ  |      |
| ሀ.ጥ.3                | የትምህርት ደረጃ                  | 1. ያልተማረ       |      |
|                      |                             | 2. 1ኛደረጃ የተማረ  |      |
|                      |                             | 3. 2ኛደረጃ የተማረ  |      |
|                      |                             | 4. ኮሌጅና ከዛ በላይ |      |
| ሀ.ጥ.4                | የትዳር ጓደኛዎ የትምህርት ሁኔታ ምንድነው? | 1. ያልተማረ       |      |
|                      |                             | 2. 1ኛደረጃ የተማረ  |      |
|                      |                             | 3. 2ኛደረጃ የተማረ  |      |
|                      |                             | 4. ኮሌጅና ከዛ በላይ |      |
|                      |                             | 5. ሌላ ካለ ይገለፅ  |      |
| ሀ.ጥ.5                | የእናት ሥራ ሁኔታ                 | 1. የቤት እመቤት    |      |
|                      |                             | 2. የእርሻ ሰራተኛ   |      |
|                      |                             | 3. የመንግሥት ሠራተኛ |      |

|                                             |                                                               |                                                                                                                                                                                            |                    |
|---------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|                                             |                                                               | 4. የግል ተቀጣሪ                                                                                                                                                                                |                    |
|                                             |                                                               | 5. ነጋዴ                                                                                                                                                                                     |                    |
|                                             |                                                               | 6. ተማሪ                                                                                                                                                                                     |                    |
|                                             |                                                               | 7. ቀን ሠራተኛ                                                                                                                                                                                 |                    |
|                                             |                                                               | 8. ሌላካለ ይገለፅ                                                                                                                                                                               |                    |
| ሀ.ጥ.6                                       | የትዳር ጓደኛዎ የሥራ ሁኔታ ምንድነው?                                      | 1. የእርሻ ሰራተኛ                                                                                                                                                                               |                    |
|                                             |                                                               | 2. የመንግስት ሠራተኛ                                                                                                                                                                             |                    |
|                                             |                                                               | 3. የግል ተቀጣሪ                                                                                                                                                                                |                    |
|                                             |                                                               | 4. ነጋዴ                                                                                                                                                                                     |                    |
|                                             |                                                               | 5. ተማሪ                                                                                                                                                                                     |                    |
|                                             |                                                               | 6. ቀን ሠራተኛ                                                                                                                                                                                 |                    |
|                                             |                                                               | 7. ሌላ ካለ ይገለፅ                                                                                                                                                                              |                    |
| ሀ.ጥ.7                                       | በአሁኑ ጊዜ ስንት ሰዎች ከእርስዎ ጋር እየኖሩ ነው?                             | .....                                                                                                                                                                                      |                    |
| ሀ.ጥ.8                                       | የወር ገቢ?                                                       | በኢትዮጵያ ብር -----                                                                                                                                                                            |                    |
| ሀ.ጥ.9                                       | በእርግዝናዎ ወቅት የቅድመ ወሊድ እንክብካቤ አገልግሎት ማግኘትዎን የሚነኩ ነገሮች ምንድን ናቸው? | 1. የመጓጓዣ ተግዳሮት<br>2. የገንዘብ ተግዳሮት<br>3. የጤና ተቋሙ አሩቅ መሆን<br>4. የጤና አገልግሎቶች አቅርቦት ውስንነት<br>5. ስለጤና አገልግሎቶች መረጃ እጥረት<br>6. ሌላ (እባክዎ ይግለጹ):<br>_____<br>7. እንክብካቤ ለማግኘት ምንም ዓይነት ተግዳሮት አላጋጠመኝም። | ከአንድ በላይ መምረጥ ይቻላል |
| ክፍልሁለት፡- ከእርግዝናናወሊድጋርየተያያዙ የክብደት መጨመር መጠይቆች |                                                               |                                                                                                                                                                                            |                    |
| ለ.ጥ.1                                       | ከእርግዝና በፊት ከብደትዎ ይታወቃል?                                       | 1. አዎ                                                                                                                                                                                      |                    |

|       |                                           |                                                        |                    |
|-------|-------------------------------------------|--------------------------------------------------------|--------------------|
|       |                                           | 2. አይደለም                                               |                    |
| ለ.ጥ.2 | አዎ ከሆነ፣ ከእርግዝና በፊት ክብደትዎ ምን ያህል ነበር?      | _____ ኪ.ግ                                              | ካላወቀች ከካርድ ላይ ይሞላል |
| ለ.ጥ.3 | በእርግዝና ወቅት ክብደትዎ ይታወቃል?                   | 1. አዎ<br>2. አይ                                         |                    |
| ለ.ጥ.4 | አዎ ከሆነ፣ የክብደት መጨመርዎ ምን ያህል ነው?            | _____ ኪ.ግ                                              | ካላወቀች ከካርድ ላይ ይሞላል |
| ለ.ጥ.5 | በዚህ እርግዝና ወቅት ምን ያህል ክብደት ጨምረዋል?          | _____ ኪ.ግ                                              | ካላወቀች ከካርድ ላይ ይሞላል |
| ለ.ጥ.6 | በእርግዝና ወቅት ስለ ክብደት መጨመር ምክር ተሰጥቶታል?       | 1. አዎ<br>2. አይ                                         |                    |
| ለ.ጥ.7 | ከሆነ ከማን?                                  | 1. የጤና ባለሙያዎች<br>2. የቤተሰብ አባላት<br>3. ሚዲያ<br>4. ሌላ ይግለጹ | ካላወቀች ከካርድ ላይ ይሞላል |
| ለ.ጥ.8 | በእርግዝና ወቅት ምን ያህል ክብደት መጨመር እንዳለብዎት ያውቃሉ? | 1. አዎ<br>2. አይ                                         |                    |

|                         |                                      |                                                                        |                              |
|-------------------------|--------------------------------------|------------------------------------------------------------------------|------------------------------|
| ለ.ጥ.9                   | አዎ ከሆነ ምን ያህል ክብደት (በኪግ)?            | _____                                                                  | ካላወቁች ከካርድ ላይ ይሞላል           |
| ለ.ጥ.10                  | የመረጃ ምንጭ                             | 1. የጤና ባለሙያዎች<br>2. የቤተሰብ አባላት<br>3. ሚዲያ<br>4. ሌላ ይግለጹ                 | ከአንድ በላይ መምረጥ ይቻላል           |
| ለ.ጥ.11                  | በቂ ያልሆነ የእርግዝና ክብደት መጨመር አደጋን ያውቃሉ?  | 1. አዎ<br>2. አይ                                                         | አይ ከሆነ ወደ ጥያቄ ቁጥር 13 ዝለል     |
| ለ.ጥ.12                  | አዎ ከሆነ፣ እነዚህ አደጋዎች ምንድን ናቸው?         | 1. ዝቅተኛ የልደት ክብደት<br>2. የማህፀን ውስጥ እድገት ገደብ<br>3. ቅድመ ወሊድ<br>4. ሌላ ይግለጹ | ከአንድ በላይ መምረጥ ይቻላል           |
| ለ.ጥ.13                  | ከመጠን በላይ የእርግዝና ክብደት መጨመር አደጋን ያውቃሉ? | 1. አዎ<br>2. አይ                                                         | አይ ከሆነ ወደ ጥያቄ ቁጥር ሐ.ጥ.14 ዝለል |
| ለ.ጥ.14                  | አዎ ከሆነ፣ እነዚህ አደጋዎች ምንድን ናቸው?         | 1. የስኳር በሽታ<br>2. የደም ግፊት<br>3. የልብ በሽታዎች<br>4. ሌላ ይግለጹ                | ከአንድ በላይ መምረጥ ይቻላል           |
| ክፍለ፡ ሦስተኛ - የእናት ጤና ሁኔታ |                                      |                                                                        |                              |
| ሐ.ጥ.1                   | አጠቃላይ የእርግዝና ክትትል ብዛት                | _____                                                                  |                              |
| ሐ.ጥ.2                   | ምን ያህል ጊዜ ወልድሻል ?                    | _____                                                                  |                              |
| ሐ.ጥ.3                   | በአሁኑ ጊዜ በህይወት ያሉ ልጆችዎ ምን ያህል ነው?     | _____                                                                  |                              |
| ሐ.ጥ.4                   | ባለፈው እርግዝና ውስጥ የጤና እክል ገጥሞት ነበር?     | 1. አዎ<br>2. አይ                                                         |                              |

|        |                                                         |                                                                                                                     |                    |
|--------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------|
| ሐ.ጥ.5  | አዎ ከሆነ፣ ባለፈው እርግዝና ወቅት የነበረው የጤና እክል ምን ነበር?            | 1. የስኳር በሽታ<br>2. የደም ግፊት<br>3. የልብ ሕመም<br>4. ሌላ ይግለጹ                                                               | ከአንድ በላይ መምረጥ ይቻላል |
| ሐ.ጥ.6  | በያለፈው ጊዜ የወልዱት ልጅ ዝቅተኛ ክብደት ነበረው?                       | 1. አዎ<br>2. አይ                                                                                                      |                    |
| ሐ.ጥ.7  | በየለፈው ጊዜ እርግዝና የቅድመ ውሊድ ክትትል አገልግሎቶችን ተጠቅመሽ ነበረ?        | 1. አዎ<br>2. አይ                                                                                                      |                    |
| ሐ.ጥ.8  | የቤተሰብ አባላት (የደም ዘመድና) ካላቸው መካከል መካከል ተላላፊ ያልሆኑ በሽታ ነበረ? | 1. አዎ<br>2. አይ                                                                                                      |                    |
| ሐ.ጥ.9  | አዎ ከሆነ፣ በሽታው ምን ነበር?                                    | 1. የስኳር በሽታ<br>2. የደም ግፊት<br>3. የልብ በሽታዎች<br>4. ሌላ ይግለጹ                                                             | ከአንድ በላይ መምረጥ ይቻላል |
| ሐ.ጥ.10 | የግሎ ከዚህ በፊት ተላላፊ ያልሆኑ በሽታ ነበረ?                          | 1. አዎ<br>2. አይ                                                                                                      |                    |
| ሐ.ጥ.11 | አዎ ከሆነ፣ በሽታው ምን ነበር?                                    | 1. የስኳር በሽታ<br>2. የደም ግፊት<br>3. የልብ በሽታዎች<br>4. ሌላ ይግለጹ                                                             | ከአንድ በላይ መምረጥ ይቻላል |
| ሐ.ጥ.12 | ከዚህ ቀደም የእርግዝና ችግሮች ታሪክ አለዎት?                           | 1. ዝቅተኛ የልደት ክብደት<br>2. የማህፀን ውስጥ እድገት ገደብ<br>3. ቅድመ ወሊድ<br>4. የስኳር በሽታ<br>5. የደም ግፊት<br>6. የልብ በሽታዎች<br>7. ሌላ ይግለጹ |                    |
| ሐ.ጥ.13 | በዚህ እርግዝና ወቅት ምንም ዓይነት ችግር አጋጥሞዎታል?                     | 1. ዝቅተኛ የልደት ክብደት<br>2. የማህፀን ውስጥ እድገት ገደብ                                                                          |                    |

|                           |                                           |                                                                                                          |                                     |
|---------------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------|
|                           |                                           | 3. ቅድመ ወሊድ<br>4. የስኳር በሽታ<br>5. የደም ግፊት<br>6. የልብ በሽታዎች<br>7. ሌላ ይግለጹ                                    |                                     |
| ሐ.ጥ.14                    | በእርግዝናዎ ወቅት ከሚከተሉት ሁኔታዎች ውስጥ አጋጥሞዎት ያውቃል? | 1. ከዚህ ቀደም ፅንሰ ማስወረድ<br>2. መንታ እርግዝና<br>3. ከመጠን ያለፈ ውፍረት<br>4. የደም ማነስ<br>5. ሌላ ይግለጹ                     | ከአንድ በላይ መምረጥ ይቻላል                  |
| ክፍለ፡ አራተኛ - የእናት አካላዊ ሁኔታ |                                           |                                                                                                          |                                     |
| መ.ጥ.1                     | የቅድመ እርግዝና ክብደት (ኪ.ግ.)                    | _____                                                                                                    |                                     |
| መ.ጥ.2                     | የአሁኑ ቁመት (ሴሜ)                             | _____                                                                                                    |                                     |
| መ.ጥ.3                     | የአሁኑ ክብደት (ኪግ)                            | _____                                                                                                    | የቅድመ እርግዝና BMI የማይታወቅ ከሆነ MUAC ይጠቀሙ |
| መ.ጥ.4                     | BMI ምድብ ቅድመ እርግዝና                         | 1. ዝቅተኛ ክብደት (<18.5)<br>2. መደበኛ ክብደት (18.5-24.9)<br>3. ከመጠን በላይ ክብደት (25-29.9)<br>4. ከመጠን ያለፈ ውፍረት (≥30) |                                     |
| መ.ጥ.5                     | የደም ግፊት ንባቦች                              | 1. የመጀመሪያ ሶስት ወር፡<br>(ከመጨረሻ የወር አበባዎ የመጀመሪያ ቀን ጀምሮ እስከ 12ኛው ሳምንት ድረስ) _____<br>mmHg                      |                                     |

|                                    |                                                         |                                                                                                  |                    |
|------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------|
|                                    |                                                         | <p>2. ሁለተኛ አጋማሽ: (ከ 13 እስከ 26 ሳምንታት) _____ mmHg</p> <p>3. ሦስተኛው ወር(&gt;=27 ሳምንታት) _____ mmHg</p> |                    |
| መ.ጥ.6                              | በቅድመ ወሊድ እንክብካቤ ጉብኝቶችዎ ወቅት ከመጠን በላይ ክብደት እንዳለዎት ተነግሮዎታል | <p>1. አዎ</p> <p>2. አይ</p>                                                                        |                    |
| ክፍለ: አምስተኛ - ከአኗኗር ጋር በተያያዘ ምክንያቶች |                                                         |                                                                                                  |                    |
| ሠ.ጥ.1                              | በየቀኑ ስንት ጊዜ ይበላሉ?                                       | <p>1. በቀን 3 ጊዜ</p> <p>2. በቀን 4 ጊዜ</p> <p>3. በቀን 5 ጊዜ</p> <p>4. ሌላ ይግለጹ</p>                       |                    |
| ሠ.ጥ.2                              | የትኛውን ፈሳሽ በብዛት ይጠጣሉ?                                    | <p>1. ውተት</p> <p>2. ቡና / ሻይ</p> <p>3. አልኮል</p> <p>4. ሌላ ይግለጹ</p>                                 | ከአንድ በላይ መምረጥ ይቻላል |
| ሠ.ጥ.3                              | በአንድ ሳምንት ለስላሳ ወይም ጭማቂ መጠጥ ምን ያህል ጊዜ ትጠጣለሽ?             | <p>1. ሁለት ጊዜ</p> <p>2. ሶስት ጊዜ</p> <p>3. አራት ጊዜ</p> <p>4. አትጠጣ</p> <p>5. ሌላ ይግለጹ</p>              |                    |
| ሠ.ጥ.4                              | በሳምንት ስንት ጊዜ ፍራፍሬዎችን ይበላሉ?                              | <p>1. ሁለት ጊዜ</p> <p>2. ሶስት ጊዜ</p> <p>3. አራት ጊዜ</p> <p>4. አትበሉ</p> <p>5. ሌላ ይግለጹ</p>              |                    |
| ሠ.ጥ.5                              | በሳምንት ስንት ጊዜ አትክልት ይበላሉ?                                | <p>1. ሁለት ጊዜ</p> <p>2. ሶስት ጊዜ</p> <p>3. አራት ጊዜ</p>                                               |                    |

|        |                                                                       |                                                                                                                                                                                                                                                            |                    |
|--------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|        |                                                                       | 4. አትብሉ<br>5. ሌላ ይግለጹ                                                                                                                                                                                                                                      |                    |
| ሠ.ጥ.6  | ስጋ እና እንቁላል በሳምንት ስንት ጊዜ ይበላሉ?                                        | 1. ስጋ: _____ ጊዜ<br>2. እንቁላል: _____ ጊዜ<br>3. አልበላም                                                                                                                                                                                                          |                    |
| ሠ.ጥ.7  | በባህል/ሀይማኖት በእርግዝና ወቅት የትኞቹ ምግቦች እንዲመገቡ ይመከራል?                         | _____                                                                                                                                                                                                                                                      |                    |
| ሠ.ጥ.8  | በባህል/ሀይማኖት በእርግዝና ወቅት ከየትኞቹ ምግቦች መራቅ ይመከራል?                           | _____                                                                                                                                                                                                                                                      |                    |
| ሠ.ጥ.9  | ከዚህ ቀደም የታወቁ አድንዛዥ እዎች ተጠቃሚ ኖት (ምሳሌ አልኮሆል መጠጣት፣ ጫት ወይም ማጨስን ጨምሮ ሌሎችም) | 1. አዎ<br>2. አይ                                                                                                                                                                                                                                             |                    |
| ሠ.ጥ.10 | መደበኛ የአካል ብቃት እንቅስቃሴ ያደርጋሉ?                                           | 1. አዎ<br>2. አይ                                                                                                                                                                                                                                             |                    |
| ሠ.ጥ.11 | አዎ ከሆነ የአካል ብቃት እንቅስቃሴ አይነት እና ድግግሞሽ ይግለጹ                             |                                                                                                                                                                                                                                                            |                    |
| ሠ.ጥ.12 | በእርግዝና ወቅት ከሚከተሉት ምክንያቶች ውስጥ የትኛው የአኗኗር ምርጫዎ ላይ ተጽዕኖ አሳድሯል?           | 1. የምግብ ምርጫ እና የአመጋገብ ምርጫዎች<br>2. የአካል ብቃት እንቅስቃሴ ደረጃዎች (ለምሳሌ የአካል ብቃት እንቅስቃሴ ወይም እንቅስቃሴ)<br>3. የስነ ልቦና ጭንቀት (ለምሳሌ፡ ስሜታዊ ወይም አእምሮአዊ ውጥረት)<br>4. ለአካላዊ እንቅስቃሴ ጊዜ ማጣት<br>5. ጭንቀትን መቆጣጠር ችግር<br>6. የቤተሰብ ወይም የማህበረሰብ ጤና እምነት ተጽእኖ<br>7. ሌላ (እባክዎ ይግለጹ): _____ | ከአንድ በላይ መምረጥ ይቻላል |

| ክፍል ስድስት፡ ከእርግዝና ጋር የተያያዙ ምክንያቶች |                                           |                                                                                                             |                      |
|----------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------|
| ረ.ጥ.1                            | የቅድመ ወሊድ እንክብካቤ ጉብኝቶች ብዛት                 | _____                                                                                                       |                      |
| ረ.ጥ.2                            | በመጀመሪያ የቅድመ ወሊድ እንክብካቤ ጉብኝት የእርግዝና ጊዜ     | _____ ሳምንታት                                                                                                 | ከታካሚ የሕክምና መዝገብ ይሞላል |
| ረ.ጥ.3                            | አሁን ያለው የእርግዝና ጊዜ                         | _____ ሳምንታት                                                                                                 | ከታካሚ የሕክምና መዝገብ ይሞላል |
| ረ.ጥ.4                            | የአመጋገብ ምክሮችን ተቀብለዋል?                      | 1. አዎ<br>2. አይ                                                                                              |                      |
| ረ.ጥ.5                            | ስንት ጊዜ የአመጋገብ ምክር አግኝተዋል?                 | _____                                                                                                       | ጥያቄ ረ.ጥ.4 አዎ ከሆነ     |
| ረ.ጥ.6                            | የአመጋገብ ምክር የሰጠው ማን ነው?                    | 1. ሐኪም<br>2. ነርስ / አዋላጅ<br>3. ሌላ ይግለጹ                                                                       |                      |
| ረ.ጥ.7                            | አሁን ባለው እርግዝና ውስጥ ምንም ዓይነት የሕክምና ችግር አለ?  | 1. አዎ<br>2. አይ                                                                                              |                      |
| ረ.ጥ.8                            | አሁን ባለው እርግዝና ውስጥ ያሉ የሕክምና ችግሮች ምንድን ናቸው? | 1. የስኳር በሽታ<br>2. የደም ግፊት<br>3. የልብ በሽታ<br>4. ማቅለሽለሽ እና ማስታወክ<br>5. በእርግዝና ወቅት ከፍተኛ የማያቋርጥ ማቅለሽለሽ እና ማስታወክ. | ጥያቄ ረ.ጥ.7 አዎ ከሆነ     |

|        |                                                                                                                     |                                                                                                        |                                         |
|--------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------|
|        |                                                                                                                     | 6. የምግብ ፍላጎት ማጣት<br>7. ሌላ ይግለጹ                                                                         |                                         |
| ረ.ጥ.9  | በአሁኑ ጊዜ ለከፍተኛ የደም ግፊት መድሃኒት እየወሰዱ ነው?                                                                               | 1. አዎ<br>2. አይ                                                                                         |                                         |
| ረ.ጥ.10 | ከሚከተሉት ምልክቶች አንዱን እያጋጠመዎት ነው?                                                                                       | 1. ራስ ምታት<br>2. የእይታ መዛባት<br>3. የእጅ ወይም የፊት እብጠት<br>4. ድንገተኛ ክብደት መጨመር<br>5. ፕሮቴኔሬያ (በሽንት ውስጥ ያለ ፕሮቴን) | ጥያቄ ረ.ጥ.9 አዎ ከሆነ                        |
| ረ.ጥ.11 | የእርግዝና ጊዜ (ሳምንታት)                                                                                                   | _____ ሳምንታት                                                                                            |                                         |
| ረ.ጥ.12 | በቀድሞ እርግዝና ወቅት የእንግዲል ልጅ እክሎች (ለምሳሌ የእንግዲል ልጅ ቀድሞ መላቀቅ ፣ የእንግዲል ልጅ ቀድሞ መውጣት) ወይም ከደም ሥር ጋር ተያያዥኛ ችግሮች እንዳሉ ተነግሮታል?  | 1. አዎ<br>2. አይ                                                                                         | ከታካሚ የሕክምና መዝገብ ወይም የታካሚ የቃል መልስ ተሞልቷል። |
| ረ.ጥ.13 | በአሁኑ እርግዝናዎ ወቅት የእንግዲል ልጅ እክሎች (ለምሳሌ የእንግዲል ልጅ ቀድሞ መላቀቅ ፣ የእንግዲል ልጅ ቀድሞ መውጣት) ወይም ከደም ሥር ጋር ተያያዥኛ ችግሮች እንዳሉ ተነግሮታል? | 1. አዎ<br>2. አይ                                                                                         | ከታካሚ የሕክምና መዝገብ ወይም የታካሚ የቃል መልስ ተሞልቷል። |
| ረ.ጥ.14 | እርግዝናዎን በተመለከተ ሌላ አስተያየት ወይም ስጋት አለዎት?                                                                              |                                                                                                        |                                         |