

**MATERNAL DIETARY AND NUTRITIONAL CHARACTERISTICS AS  
PREDICTOR OF NEWBORN BIRTH WEIGHT IN JIMMA TOWN, SOUTH WEST,  
ETHIOPIA, 2017**



**BY**

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**A THESIS SUBMITTED TO JIMMA UNIVERSITY, INSTITUTE OF HEALTH,  
FACULTY OF PUBLIC HEALTH, DEPARTMENT OF POPULATION AND  
FAMILY HEALTH FOR THE PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTERS' OF SCIENCE (MSc) IN  
HUMAN NUTRITION.**

**JUNE, 2017**

**JIMMA UNIVERSITY**

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**DEPARTMENT OF POPULATION AND FAMILY HEALTH, HUMAN NUTRITION  
UNIT**

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## **ABSTRACT**

**Background:** During pregnancy a woman needs good nutrition for a healthy outcome. Maternal nutrition plays a crucial role in influencing fetal growth and birth outcomes. Poor birth outcomes such as high birth weight (HBW) and low birth weight (LBW) impose a huge burden on families, the health care system, education, and social services. The association of maternal dietary and nutritional characteristics on newborn birth weight is not studied in the study area.

**Objectives:** To assess maternal dietary and nutritional characteristics as predictor of newborn birth weight among pregnant mother who delivered in health institutions.

**Method:** Institution based cross sectional study was conducted among 541 pregnant mothers who delivered in nine health institutions in Jimma Town from March 1 to April 30, 2017. Data was entered into EPI data version 3.1 and analyzed using SPSS for windows, version 20.0; SPSS (Illinois, Chicago,). Bivariate analysis was used to assess the association between birth weight and list of independent variables and to test significance of the association at p-value <0.25 for multivariable linear regression. Multivariable linear regression model was used to identify the important predictors by controlling for possible confounding variables and statistical significance was considered at p-value <0.05.

**Results:** Majority of newborns had normal birth weight (91.0%) with mean birth weight of  $3224.6 \pm 438.5$  grams and only 2% of newborns had low birth weight. Maternal undernutrition is observed in 46.5% defined as Mid-upper arm circumference (MUAC) of < 23 cm. In Multivariable linear regression analyses it was observed that for a centimeter increase in maternal MUAC, birth weight increased by 13.5 grams ( $\beta=13.5$ ,  $P=0.04$ ), with each increase in parity of the mother, birth weight increased by 96.81 grams ( $\beta= 96.81$ ,  $P=0.01$ ) and for a unit increase in wealth index birth weight increased by 49 grams ( $\beta=49.04$ ,  $P=0.01$ ).

**Conclusion and recommendations:** - The predictors of newborn birth weight were maternal MUAC, parity and wealth index. Improving the nutritional status of pregnant mothers through nutrition counseling at antenatal care at all levels and improving socio-economic status by creating access to micro financing is essential for both maternal and newborn health.

**Key words:** newborn birth weight, nutritional characteristics, MUAC

## **ACKNOWLEDGMENTS**

Above all thanks to God for his endless help in every status of my life. I would like to thank my advisors Dr. Kalkidan Hassen and Mr Melese Sinaga for their assistance and valuable comment in developing the research thesis. In addition, I would like to pass my appreciation to mothers who participated in the study.

I would also like to pass my deepest gratitude for the research office of Jimma University Institute of Health, Faculty of Public Health for giving me the opportunity to conduct this research and Jimma University for funding the study.

Finally, I say thanks to my families especially for my husband Dr. Demisew Amanu for their support in every situation.

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## **ACRONYMS AND ABBREVIATIONS**

CFSVAs	Comprehensive food security and vulnerability analysis
DDS	dietary diversity score
FCS	Food consumption score
FGAE	Family guidance association of Ethiopia
HFIAS	Household food insecurity access scale
IUGR	Intra uterine growth restriction
JUSH	Jimma University specialized hospital
LBW	Low birth weight
LGA	Large for gestational age
MUAC	Mid-upper arm circumference
PPH	Postpartum hemorrhage
PROM	Premature rupture of membranes
SGA	Small for gestational age
SIPI	Short inter-pregnancy interval
UNICEF	United nation children's fund
WFP	World food program
WHO	World health organization

# 1 INTRODUCTION

## 1.1 Background

Maternal nutrition plays a crucial role in influencing fetal growth and birth outcomes. It is a modifiable risk factor of public health importance in the effort to prevent adverse birth outcomes, particularly among developing/low-income populations [1].

During pregnancy a woman needs good nutritional status for a healthy outcome. Women who have a poor nutritional status at conception are at higher risk of disease and death; their health depends greatly on the availability of food, and they are therefore unlikely to be able to cope with their increased nutrient needs during pregnancy. Infections such as malaria and HIV and infestation with gastrointestinal parasites can exacerbate such women's under nutrition [2].

Optimal nutrition supply to the developing fetus is crucial in achieving appropriate fetal growth and development. During pregnancy dietary energy and nutrient requirements are generally increased to support increased maternal metabolism, blood volume and red cell mass expansion, and the delivery of nutrients to the fetus [3, 4]. Although dietary practices during pregnancy varies from developed to developing countries, the required dietary recommendations will not usually be satisfied, particularly for developing countries. For instance, in a systematic review and meta-analysis of 90 dietary studies among pregnant women in developed countries, compared to dietary recommendations in the specific countries, energy and fiber intakes were generally lower, total fat and saturated fat intakes were higher, and carbohydrate intake was borderline or lower than recommendations [5].

Key nutrients including folate, iron, zinc, calcium, vitamin D, and essential fatty acids function to promote red blood cell production, enzyme activity, bone development, and brain development. Current evidence indicates that micronutrient intake during pregnancy is less than optimal [6]. This is of concern given the current consensus that maternal nutrition is relevant to both the short and long-term health of the infant.

The major determinant of intrauterine fetal growth is the placental supply of nutrients to the fetus, which is dependent upon placental size, morphology, and blood supply [7]. Animal studies have shown direct relationships between placental size and birth weight [8]. Experimental restriction of placental growth [9, 10], food restriction [11], and low protein diets [12, 13] resulted in reduced placental weight and altered placental efficiency, leading to reduced birth weight and intra uterine growth restriction (IUGR).

The timing of delivery of nutrients through the placenta is also important [14]. In pregnant sheep, severe undernutrition during the peri-conceptual period led to preterm delivery [7]; global undernutrition in early pregnancy reduced the placental: fetal weight ratio [15]; global undernutrition in early to mid-gestation increased placental size [16, 17] and global undernutrition in late gestation reduced fetal growth [18].

## **1.2 Statement of the problem**

Poor birth outcomes such as high birth weight (HBW) and low birth weight (LBW) impose a huge burden on families, the health care system, education, and social services. Improving the health and well-being of infants has been a crucial public health goal in any country. Both pre-pregnancy body mass index (BMI) and gestational weight gain are two key determinants of infant health. However, the exact relationship between the two inputs and newborn birth weight has not been well understood [22].

Suboptimal dietary intakes during pregnancy (intakes below recommended levels) occur commonly in developing countries, though it is not uncommon in developed countries, irrespective of BMI. The global obesity epidemic brings new challenges in understanding, managing, and treating obesity in pregnancy, to improve both short and long-term child health outcomes. Successful weight gain modifications show promise in reducing the risk of large for gestational age (LGA) which has subsequent risk of overweight, obesity, diabetes, cancer, and other disorders later in life [23] but do not appear to modify rates of small for gestational age (SGA). To date, the most promising results come from dietary pattern analyses, in which consumption of whole foods including fruit, vegetables, whole grains, low-fat dairy, and lean meats might be beneficial toward producing an infant of appropriate birth weight [24].

Assessment of common practices of food intake during pregnancy informs the direction of preventative practice and interventions benefiting populations of pregnant women and their offspring. The use of dietary pattern analysis to understand nutritional intake and pregnancy outcome is becoming more and more popular. Many published studies have showed the association between maternal dietary patterns and pregnancy outcome. As a modifiable factor, dietary patterns may be more applicable to clinical and pregnant health interventions [25].

Being born with low birth weight (LBW) is generally recognized as a disadvantage for the infant, increasing the risk of early growth retardation, fast catch up growth, infectious disease, developmental delay, and death during infancy and childhood [26]. Therefore, results from studies on associations between diet and birth weight need to be translated into practical advice for pregnant women, especially for women at high risk of giving birth to babies with low birth weight. Furthermore, improved means to help women make healthy dietary changes before and during pregnancy is necessary, both in high, middle, and low income countries.

This can be an important contribution to the efforts to reduce the risk of obesity and cardiovascular disease in future generations [27].

Previous publications have shown that dietary practices/patterns characterized with nutrient-rich foods such as fruits and vegetables, whole grains, and water were associated with larger birth size outcomes [28-30]. This shows that proper dietary pattern during pregnancy is crucial for normal pregnancy outcome.

The presented study is therefore aimed at assessing dietary and nutritional characteristics during pregnancy and newborn birth weight among pregnant women who delivered in health institutions.

## 2 LITERATURE REVIEW

In women, both low body mass index and short stature are highly prevalent in low-income countries, leading to poor fetal development, increased risk of complications in pregnancy, and the need for assisted delivery [31]. In some countries in south-central Asia, more than 10% of women aged 15–49 years are shorter than 145 cm. In sub-Saharan Africa, south-central and south-eastern Asia, more than 20% of women have a body mass index less than 18.5 kg/m<sup>2</sup> and this figure is as high as 40% in Bangladesh, Eritrea and India. Conversely, an increased proportion of women start pregnancy with a body mass index greater than 30 kg/m<sup>2</sup>, leading to increased risk of complications in pregnancy and delivery as well as heavier birth weight and increased risk of obesity in children [32].

Micronutrients are essential for growth, and maternal micronutrient deficiency, as frequently observed in developing countries, may be an important cause of IUGR. Micronutrient deficiency, whether clinical or sub-clinical, may affect growth, cognition, and reproductive performance. In pregnant women, moderate to severe deficiencies of iron, zinc and folic acid has been shown to increase risk of low birth weight, pregnancy complications and birth defects [33]. The study concluded that a positive relation exists between the micronutrient intake of pregnant women and the birth weight of the infant [34].

Anemia impairs health and wellbeing in women and increases the risk of maternal and neonatal adverse outcomes. Anemia affects half a billion women of reproductive age worldwide. In 2011, 29% (496 million) of non-pregnant women and 38% (32.4 million) of pregnant women aged 15–49 years were anemic. The most common cause of anemia worldwide is iron deficiency, resulting from prolonged negative iron balance, caused by inadequate dietary iron intake or absorption, increased needs for iron during pregnancy or growth periods, and increased iron losses as a result of menstruation and helminthes (intestinal worms) infestation. An estimated 50% of anemia in women worldwide is due to iron deficiency [35]. As a result WHO developed anemia policy brief with target of 50% reduction of anemia in women of reproductive age by 2025 [36, 70].

In Ethiopia, one quarter of women of reproductive age are undernourished and 17% are anemic, leaving their children predisposed to low birth weight, short stature, lower resistance to infections, and higher risk of disease and death [37, 38]. A study conducted on dietary Practice and Associated Factors among Pregnant women showed that good dietary practice was found to be low (40.1% in Gondar) during pregnancy. Mother's education, monthly income, nutrition information and dietary knowledge had a positive significant with pregnant

mothers' dietary practices [39]. Energy and most of the nutrients intakes of pregnant women in Wando Genet district is also reported to be lower than recommended for pregnant women [40]. In addition food taboos are reported by some pregnant women in Ethiopia which may contribute to low energy and nutrient intake during pregnancy [41].

Low birth weight is defined by the World Health Organization (WHO) as weight at birth less than 2500 g (5.5 lb.). Low birth weight continues to be a significant public health problem globally and is associated with a range of both short- and long-term consequences. Overall, it is estimated that 15% to 20% of all births worldwide are low birth weight, representing more than 20 million births a year. The goal is to achieve a 30% reduction in the number of infants born with a weight lower than 2500 g by the year 2025 [42]. This would translate into a 3% relative reduction per year between 2012 and 2025 and a reduction from approximately 20 million to about 14 million infants with low weight at birth [43].

In Ethiopia, low birth weight ranges from 17.1% in Gondar to 22.5% in health facilities in Jimma zone. On the other hand the mean birth weight of the newborn is reported to be  $2976 \pm 476$  grams in Gondar and  $3094.9 \pm 587.6$  grams in Tigray [44, 45, 69, 72].

Low birth weight is not only a major predictor of perinatal mortality and morbidity, but recent studies have found that low birth weight also increases the risk for non-communicable diseases such as diabetes and cardiovascular disease later in life [46, 47]. There is considerable variation in the prevalence of low birth weight across regions and within countries; however, the great majority of low-birth-weight births occur in low- and middle-income countries and especially in the most vulnerable populations [48, 49]. Regional estimates of low birth weight include 28% in south Asia, 13% in sub-Saharan Africa and 9% in Latin America

As obesity becomes a worldwide epidemic, its prevalence during reproductive age is also increased. Alarming reports state that two-thirds of adults in the USA are overweight or obese, and the rate of obese pregnant women is estimated at 18–38%. These women are of major concern to women's health providers because they encounter numerous pregnancy-related complications. Obesity-related reproductive health complications range from infertility to a wide spectrum of diseases such as hypertensive disorders, coagulopathies, gestational diabetes mellitus, respiratory complications, and fetal complications such as large-for-gestational-age infants, congenital malformations, stillbirth, and shoulder dystocia.

Recent reports suggest that obesity during pregnancy can be a risk factor for developing obesity, diabetes, and cardiovascular diseases in the newborn later in life [50].

There has been a dramatic rise in the numbers of children under 5 years of age who are overweight. According to the new 2013 United Nations Children's Fund (UNICEF), World Health Organization (WHO) and World Bank estimates [51], between 2000 and 2013, the Number of overweight children worldwide increased from 32 million to 42 million. The prevalence of childhood overweight is increasing in all regions of the world, particularly in Africa and Asia. Between 2000 and 2013, the prevalence of overweight in children under 5 years of age increased from 1% to 19% in southern Africa, and from 3% to 7% in south-east Asia. Due to this fact the WHO's Childhood Overweight Policy Brief is developed with the target of "No increase in childhood overweight" by 2025. It is believed that these policies and actions must be aimed at improving maternal health and nutritional status and infant and young child feeding practices, focusing on the first 1000 days from a woman's pregnancy to her child's second birthday [52].

Maternal short stature and iron deficiency anemia, which can increase the risk of death of the mother at delivery, contribute to at least 18% of maternal deaths in low and middle-income countries [53]. Anemia rates have not improved appreciably over the past two decades [54]. Maternal under nutrition also increases the probability of low birth weight, which in turn increases the probability of neonatal deaths due to infections and asphyxia [55].

Traditionally women with a short inter-pregnancy interval will not have sufficient time to recover and get ready for the subsequent pregnancy. A short inter-pregnancy interval: a period between delivery of the previous infant and conception of the current pregnancy of less than 24 months [56], remains to be a major challenge among women in developing countries associated with increased risk for maternal and neonatal mortality [56,57]. As a result, higher risk for premature rupture of membranes (PROM), anemia, postpartum hemorrhage (PPH) and preeclampsia were observed among women with Short Inter-pregnancy interval (SIPI). SIPI is reported to be 13% in Tigray and 42.5% in Gondar [39, 69]. Babies born of mothers with a SIPI were significantly at higher risk for small for gestational age (SGA), low birth weight, preterm deliveries compared to women in normal inter-pregnancy interval [58].

Maternal undernutrition is highly prevalent in resource-poor settings, ranging from 10% to 19%, but is particularly high (>20%) in sub-Saharan Africa, south-central and southeastern



Asia [59]. A healthy pregnancy outcome depends largely on the availability and supply of nutrients from maternal stores to the developing fetus. Undernutrition in women, before and during pregnancy is recognized as a key determinant of poor pregnancy outcomes (poor fetal development, preterm births, and SGA and LBW babies), leading to increased infant morbidity and mortality [59-61].

Mid-upper arm circumference (MUAC) is often used as a measure of fat-free mass. MUAC is a measurement of the circumference of the upper arm at the midpoint between the olecranon and acromion processes [62]. Since the arm contains both subcutaneous fat and muscle, changes in MUAC can reflect a change in muscle mass, a change in subcutaneous fat, or both. In resource-poor settings, where individuals tend to have smaller amounts of subcutaneous fat, changes in MUAC are more likely to reflect changes in muscle mass [62]. In these settings, MUAC measurements can be useful as an indicator of protein-energy malnutrition or starvation, particularly in situations where measurement of weight or height may not be feasible [62, 63]. Maternal undernutrition is found to be 45% among pregnant women in Eastern Ethiopia [65].

A systematic review conducted to see the association between low MUAC and adverse health outcomes among pregnant women [64] found that the prevalence of undernutrition as defined by MUAC of < 23cm is 45% and consistently shown to be significantly associated with an increased risk of having an LBW baby. In addition low women autonomy was also observed in this study where autonomy of women's household decision was found to be low in 80% of women [65, 77]. This prevalence is shown to be 4.4% in Riyadh [71]. Similar positive association was observed in a study conducted in Brazil where for each centimeter increase in maternal MUAC, there was 45.52 increases in birth weight [74]. However, a standardized cutoff for low MUAC for adults does not yet exist and it is recommend that countries and programs conduct a cost-benefit analysis before adopting a specific MUAC cutoff. Accordingly the MUAC cutoff for most countries for malnutrition in pregnancy is < 22 -23 cm [66, 67].

Food consumption measured in kilocalories is the gold standard for measuring consumption, and often considered to be one of the gold standards for food security but the collection of detailed food intake data is difficult and time consuming. There are several alternative ways to collect and analyze food consumption information using indicators that are proxy for actual caloric intake and diet quality. In response to these problems, an additional level of analysis of food consumption has been introduced in recent Comprehensive Food Security

and Vulnerability Analysis (CFSVAs) and other food consumption related data analysis. An indicator, called the Food Consumption Score (FCS) has been developed. The FCS is a standardized and more transparent methodology, a repeatable data analysis within a dataset, comparable analysis between datasets and is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups [68].

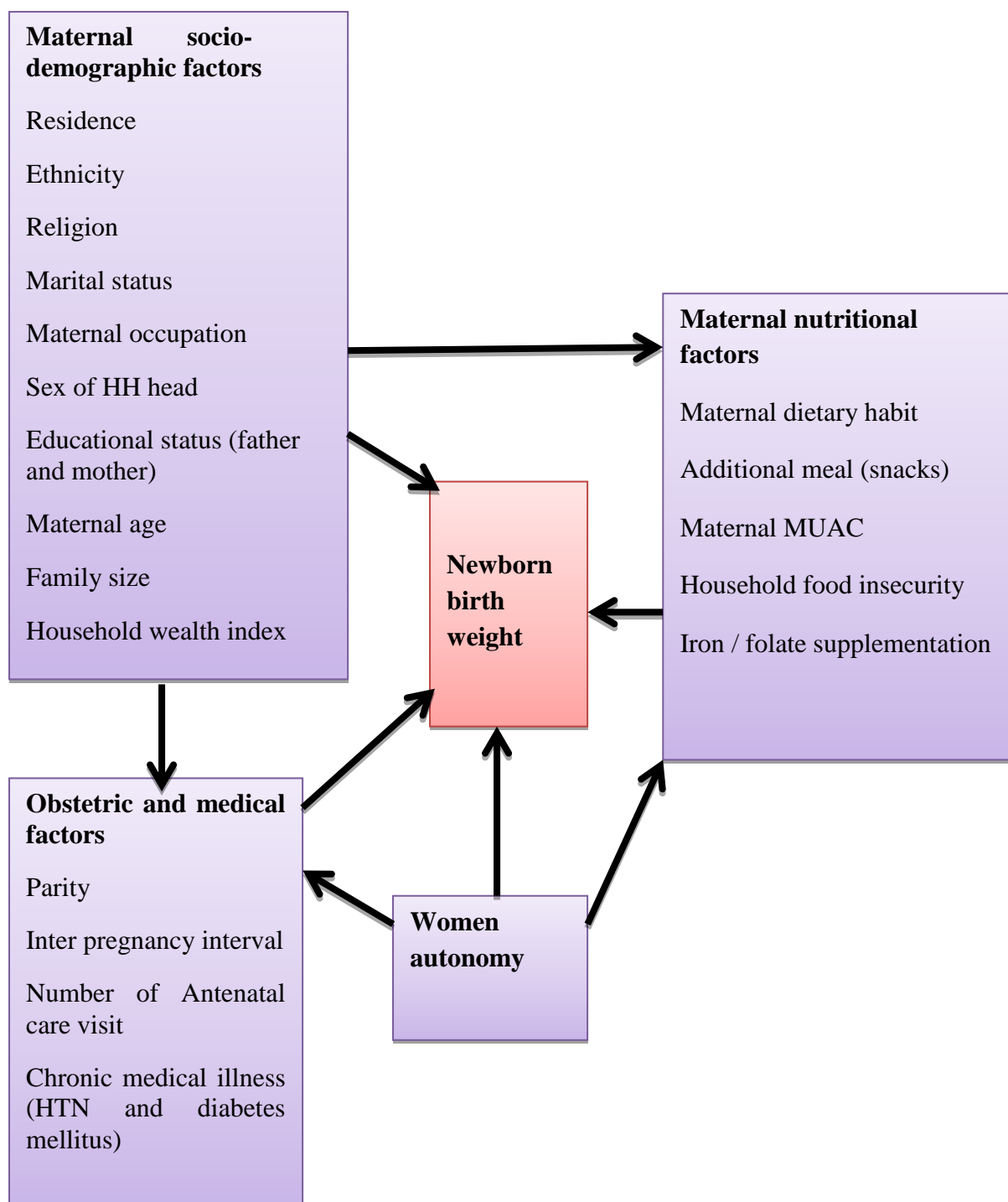
Women's autonomy is found to be very important in making key decisions in their reproductive health and growth of their baby. Women with the highest autonomy on their own health compared to those with health decisions involving husband or others, and husband and women together were less likely to give birth to LBW infants [75]. Furthermore, a study conducted in Ethiopia, the results of multi variable linear regression analyses showed that weight for height (WHZ) scores of children of mothers who had autonomy of conducting big purchase were higher by 0.42 compared to children's whose mothers had not [76].

Parity is said to be positively associated with birth weight. Different Studies have shown that Primiparous women, gave birth to babies with lower birth weight compared to multiparous women [80] and Women with parity2 and parity > 3 were 30 % and 81 % more likely to have babies weighing  $\geq 2.5$  kg compared to those with parity1 [78].

The Wealth index is said to be positively associated with birth weight. Study conducted in Bangladesh showed that Children born in poor families were more likely to be LBW than children born in middle-class and rich families [79]. Further studies have shown that there is strong association between birth weight and socioeconomic status of the family [78], family income was positively associated with birth weight [80].

## 2.1 Conceptual frame work

The conceptual frame work are developed after review of different literatures, standard books and protocols and organized according to the major categories attributed to the problem. It helps to answer the objectives in this study.



**Figure 1:- Conceptual frame work developed after reviewing literatures.**

## **2.2 Significance of the study**

Dietary practice during pregnancy and nutritional characteristics affect newborn birth weight. Poor dietary practice and maternal malnutrition is thought to result in birth weight of newborn, which in turn is one of the major causes of perinatal mortality and medical complications as adulthood. This research helps to show the newborn birth weight and its relation with maternal dietary and nutritional characteristics. Additionally this study will examine the independent role of maternal dietary and nutritional characteristics in predicting newborn birth weight.

The research output will be important to design nutrition interventions during pregnancy and which may incorporate training of health providers and transmitting nutrition messages for general community. Finally it generates additional information for further research.

### **3 OBJECTIVES**

#### **3.1 General objective**

To assess maternal dietary and nutritional characteristics as predictor of newborn birth weight among pregnant mother who delivered in health institutions in Jimma Town, South west Ethiopia

#### **3.2 Specific objectives**

1. To assess dietary practice during pregnancy among pregnant women who deliver in health institutions in Jimma Town.
2. To assess maternal nutritional characteristics during pregnancy among pregnant women who deliver in health institutions in Jimma Town.
3. To measure mean newborn birth weight among pregnant women who deliver in health institutions in Jimma Town.
4. To identify factor associated with newborn birth weight among pregnant women who deliver in health institutions in Jimma Town.

## **4 METHODS AND MATERIALS**

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

The study was conducted in the Oromia region, Jimma zone, Jimma City, at all health institution from March 1 to April 30, 2017, which is located 353 km South-West of Addis Ababa. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), Jimma town has a total population of 120,960, of whom 60,824 are men and 60,136 women. With an area of 50.52 square kilometers, Jimma has a population density of 2,394.30 all are urban inhabitants. A total of 32,191 households were counted in this Zone, which results in an average of 3.76 persons to a household, and 30,016 housing units. There is 1 referral hospital, 1 district hospital, 4 public health centers, 1 NGO clinic and 2 private clinics providing antenatal care (ANC) and delivery services.

### **4.2 Study Design**

Institution based cross sectional study design was employed.

### **4.3 Population**

#### **4.3.1 Source population**

All mothers who delivered live child in all health institutions in Jimma Town during the study period.

#### **4.3.2 Study population**

All selected mothers who delivered live child in all health institutions in Jimma Town during the study period.

#### **4.3.3 Study unit**

Mothers with newborn baby

### **4.4 Sample size determination and sampling procedure**

#### **4.4.1 Sample size determination**

Sample size is determined by considering the parameters of single population mean formula  $n=522$ . Since the total number of source population from 1 year Jimma Town Health Bureau report was 8482 (<10,000), using a finite population correction formula to calculate the final sample size  $n_f=492$ . Considering the 10% non-response rate the total sample was 541. The laboring mothers attended labor ward of all health institutions were recruited consecutively until the required sample size was achieved.

The sample size calculation using the formula for estimation of single population mean

$$n = Z^{\alpha/2} \frac{\sigma^2}{d^2} = (1.96)^2 \frac{(0.58)^2}{(0.05)^2} = 522$$

n = minimum sample size,

$Z_{1-\alpha/2}$  = significance level at  $\alpha = 0.05$  (standard normal variable at 95% confidence level = 1.96)

d = expected margin of error (0.05)

$\sigma$  = standard deviation of birth weight (587.6 gram)

Since source population is 8482 which is less than 10,000, using correction formula

$$n = \frac{n_0}{1 + \frac{n_0}{N}}, \text{ Where: } N = \text{Population size (8482 which are laboring mothers)}$$

$$n = \frac{522}{1 + \frac{522}{8482}} = 492$$

By considering (10%) non-response rate,  $492 \times 10/100$ , thus, the total sample size was 541.

Therefore the final sample size was **541**

#### **4.4.2 Sampling Procedure**

There are two hospitals (1 referral hospital, 1 district hospital), 4 public health centers, 1 NGO clinic and 2 private clinics are providing antenatal care (ANC) and delivery services. Proportional allocation of the sample to the size of women who gave birth in those public and private health institutions, based on number of deliveries prior to data collection (one year report) was made. Clients who fulfilled the inclusion criteria were recruited consecutively until the required sample size was achieved.

Proportional sample size was calculated for each institution, to give the total sample size by using the following formula.

$$n_j = \frac{n}{N} N_j$$

Where:  $N_j$  = sample size of the  $j$ th institution.

$N_j$  = total population size of  $j$ th institutions.

n = number of respondents to be selected from each institution.

N = Total number of pregnant women in selected institution (8,482).

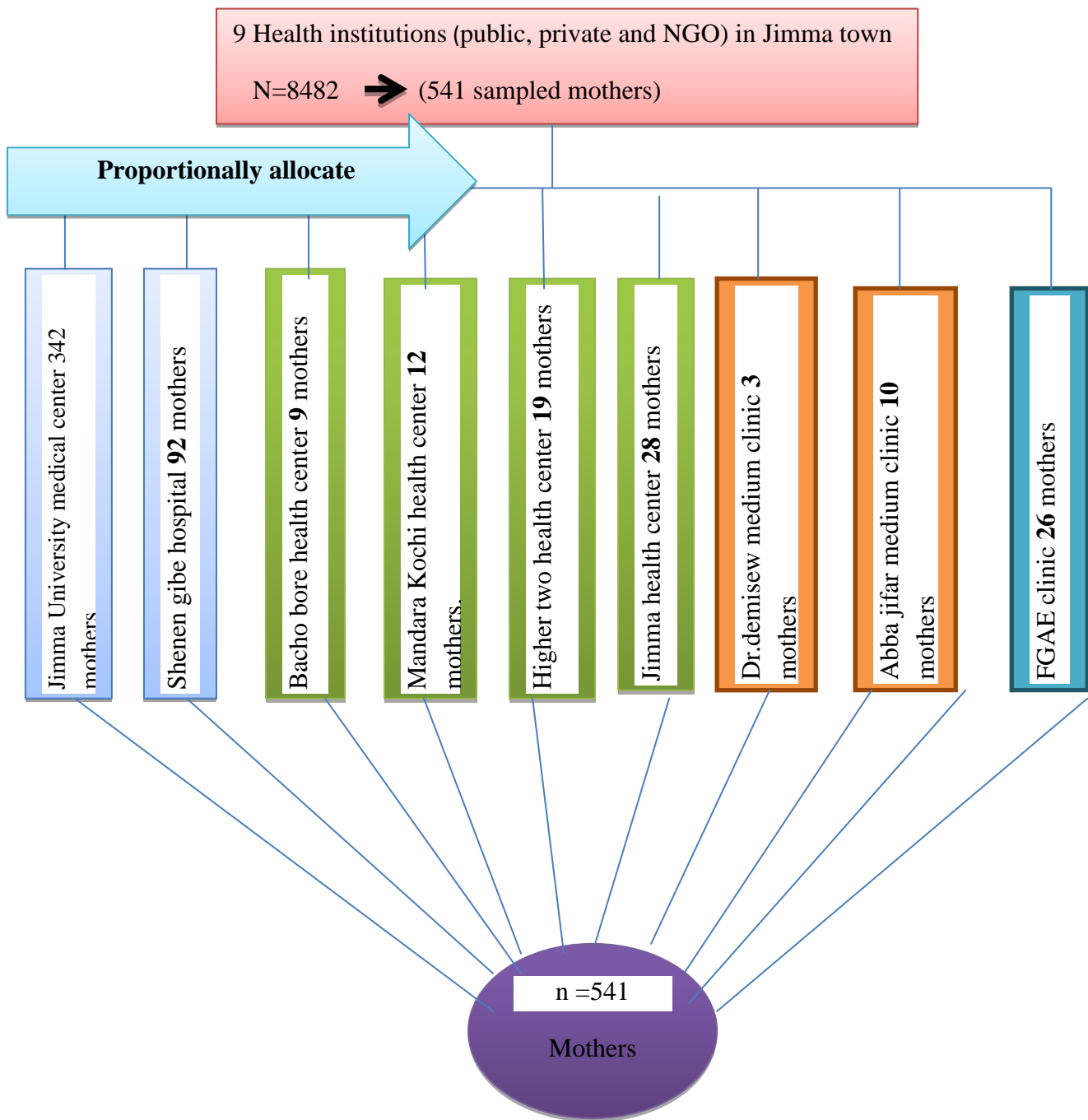


Figure 2:- Schematic presentation of the sampling procedure.



## **4.5 Study Variables**

### **4.5.1 Dependent variable**

Newborn birth weight

### **4.5.2 Independent variables**

**Socio-demographic factors:** Residence, Ethnicity, Religion, Marital status, Maternal occupation, sex of HH head, Educational status of mother and father, maternal age, family size and wealth index

**Obstetric and medical factors:** Parity, inter pregnancy interval, Antenatal care visit, chronic medical illness (HTN and diabetes mellitus), HIV/AIDS status

**Maternal nutritional factors:** Maternal dietary habit, Additional meal (snacks), Maternal MUAC, household food insecurity, Iron / folate supplementation.

**Women's autonomy**

## **4.6 Inclusion and exclusion criteria**

### **4.6.1 Inclusion criteria**

Mother who came with term gestational age\_(37to42weeks) for delivery during data collection at health institution.

### **4.6.2 Exclusion criteria**

Those mother who were critically ill or mentally ill or have problems of communication.

Those mothers with still birth and congenital anomalies

Those mothers with multiple births

Those mothers who has lost their upper extremities.

## **4.7 Data collection methods and measurements**

### **4.7.1 Data collection procedure**

Data were collected by trained BSc nurses and midwives using pre-tested structured questionnaire from mothers (Socio-demographic characteristics, maternal nutritional factors and women autonomy variables), from mothers cards (for obstetric and medical variables) and measure newborn birth weight and maternal MUAC. For data collectors and supervisors

were given training for 2 days about the objectives of the study, data collection instruments, data collection procedures and the ethical considerations by the principal investigator and an additional training for supervisor on data completeness and Cross checking. The data collection was supervised by supervisors and by principal investigator daily.

#### **4.7.2 Data Collection**

Pre-tested questionnaires were used to collect information from each study subject on socio-demographic characteristics, Obstetric and medical factors, maternal nutritional factors and women autonomy.

#### **Anthropometry measurement:**

1. Mid upper arm circumference (MUAC) of the mothers was measured to the nearest centimeter with a non-stretchable tape on the left arm of the mother when right hand dominant.
2. Newborn birth weight was measured to the nearest 10g in Seca Digital Baby Scale Table. Calibration was done every morning with known objects in all data collection sites.

**Household food insecurity measurement:** to assess the household food insecurity status Assessed based on the Household Food Insecurity Access Scale (HFIAS) measurement Tool. (FANTA, 2007).

**Food frequency questionarrie:** to calculate individual dietary diversity score by extrat food group.

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

Pre-test among 5% of the total sample size was done to assess its clarity, length, completeness and consistency. Before data collection the questionnaires and consent form was written in English and translated to local language (Afaan Oromo and Amharic) and back translated in to English language for consistency and to facilitate understanding of the respondents. Training was given for data collectors and supervisors. The data collection was supervised by supervisors and by principal investigator daily and collected data was checked for completeness and consistencies by the supervisors and the investigator. Calibration was done every morning with known objects in all data collection sites.

#### **4.9 Data processing and analysis**

Data was entered in to Epidata version 3.1 and exported to SPSS versions 20 for analysis. Data were presented using frequency tables, Mean and standard deviations was presented for continuous variables. Bivariate linear regression model was run to identify independent

candidate variables at p-value <0.25 for multivariable linear regression. Multivariable linear regression model was used to identify predictors of newborn birth weight at P-value < 0.05 was considered as statistically significant.

#### **4.10 Ethical consideration**

The ethical clearances were obtained from Jimma University ethical review board. Permission was sought from all health institution administrative office to commence data collection. Written informed consent was obtained from individual mothers. Identifiers of the mothers were not included in questionnaire and the data collected from mothers was used for research purpose only. Mothers were informed that their participation in the study is based on their willingness and refusal has no any health service consequence. For those mothers with low birth weight and high birth weight counselling was given.

#### **4.11 Standard definitions**

**Term pregnancy:** gestational age at delivery ranging from 37 completed weeks to 42 completed weeks [82]

**Household food insecurity:** defined as the inability to provide enough food for a healthy and active lifestyle for all household members. This was analyzed based on the criteria used in the HFIAS [81].

**Inter-pregnancy interval:** the time between the birth of the firstborn child and the conception of the second-born child. [82]

**Antenatal care:** is the care received from healthcare professionals during pregnancy. [82]

**Parity:** refers to the number of deliveries after 28 completed weeks of gestation. [82]

#### **4.12 Operational definitions**

**Undernutrition:** MUAC of pregnant mother <23 CM

**Normal:** MUAC of pregnant mother  $\geq$ 23cm

**Dietary Practice:** eating habit of the mothers during the time of their pregnancy.

**No formal education:** do not going to school for the purpose of education which involves class room and provided by trained teachers.

#### **4.13 Dissemination plan**

The thesis of the study will be presented to institute of health science department of Population and family health, Jimma University as part of MSc thesis. Besides the findings of

the works will be presented at different seminars and training organized by the Ministry of Health, partners, professional associations and regional health bureau and also the results will be disseminated through Publication in international and national journals.

## 5 RESULT

Among the total of 541 postpartum women interviewed during the study period among deliveries in Jimma town health institutions, 10 were excluded as their data was incomplete, and the remaining 531 were analyzed (with response rate of 98.1%).

### 5.1 Socio-demographic characteristics

The age of the mothers was ranged from 15 to 49 years with a mean ( $\pm$ sd) of 27 ( $\pm$ 7) years and 245(46.1%) were in the age range of 25 to 34 years. Nearly 98% of women were currently married, 426 (80.2%) not employed, 395 (74.4%) Oromo, 372 (70.1%) Musilims, More than one third of the mothers 179 (33.7%) reported have no formal education and 389 (73.3) were residing in urban areas. In 96% of the cases the head of the household were males and 216 (40.7%) of the husbands have educational level of secondary and above. The mean( $\pm$ sd) -family size of the respondents were  $4 \pm (1)$  and the mean number of dependent household member is  $1.9 \pm (1.1)$ . Nearly a third of the households are food insecure and 321 (60.5%) were in the medium wealth index tertile(Table 1).

**Table 1:- Socio-demographic characteristic of mother who gave birth in health institutions in Jimma Town, Southwest Ethiopia from March1 to April 30, 2017.**

Variables		Frequency (n=531)	Percent (%) or Mean $\pm$ SD
Age of mother in years	15-24	195	36.8
	25-34	245	46.1
	35+	91	17.1
Residence	Urban	389	73.3
	Rural	142	26.7
Sex of the household head	Male	512	96.4
	Female	19	3.6
Marital status	Currently married	518	97.6
	Not married	13	2.4
Maternal occupation	Not employee	426	80.2
	Civil servant (employee)	42	7.9
Ethnicity	Oromo	395	74.4
	Amhara	63	11.9
	Others	73	13.7
Religion	Orthodox	111	20.9
	Protestant	48	9.0
	Muslim	372	70.1
Maternal education	No formal education	179	33.7
	Primary	211	39.7
	secondary and above	141	26.6
Paternal education	No formal education	113	21.3
	Primary	202	38.0
	Secondary and above	216	40.7

Wealth index	Low	31	5.8
	Medium	321	60.5
	High	179	33.7
Family size of the respondent			4.17±1.381

## 5.2 Obstetric and medical factors

Less than three fourth \*(72.5%.) had interpregnancy below 2 years and 146 (51.0%) had four and more antenatal care visits and 303 (57.1%) of women are para 2 to 4 while 205 (38.6%) are para 1. Seventy two percent of women gave birth to their last child with birth interval of less than two years. Regarding medical problems; 41 (7.7%), 8 (1.5%) of women had hypertension disorders of pregnancy and diabetes respectively (Table 2).

**Table 2:- Obstetrics and medical factors among mother who gave birth in health institutions in Jimma Town, Southwest Ethiopia from March 1 to April 30, 2017.**

Variables		Frequency (n=531)	Percent (%)
Inter pregnancy interval	<2 years	385	72.5
	≥2years	146	27.5
Number of antenatal visit	≤3	260	49.0
	4+	271	51.0
Parity	1	205	38.6
	2-4	303	57.1
	≥5	23	4.3
Birth order	1	205	38.6
	2	160	30.1
	3+	166	31.3
Hypertension disorders of pregnancy	Yes	41	7.7
	No	490	92.3
Diabetes	Yes	8	1.5
	No	523	98.5

## 5.3 Maternal nutrition, newborn related and Women autonomy characteristics

Regarding maternal nutritional status using Mid-upper arm circumference (MUAC), 247 (46.5%) of mothers are malnourished with MUAC of < 23 and 284 (53.5%) are normal. Majority of women (89.1%) had Iron folate supplementation during antenatal care and 247 (46.5%) have not adhered (took 0-3 pills/week) to iron folate supplementation. With regard to the feeding status of the women during pregnancy, 156 (29.4%) had prohibition of some food items, 142 (26.7%) had strong desire to eat (craving), 119 (22.4%) were not taking

additional meal, 185(36.1%) had low dietary diversity score, and 162 (30.5%) were food insecure.

Regarding women's freedom of movement, 429 (80.8%) seek permission to go outside home, 340 (64.0%) seek permission to go to Market place, 387 (72.9%) permission to go to Health institution. Maternal involvement in decision making regarding child Sickness was 352 (66.3%), child Schooling was 362 (68.2%), and child to whom to marry was 139 (26.2%). On the other hand maternal Autonomy in conducting: Food purchase was 448 (84.4%), Big Item Purchase was 133 (25.0%) and Autonomy regarding Family planning service utilization was 208 (39.2%). Nearly 49% of newborns were females and 272 (51.2%) were males. Majority of newborns are of normal weight in 483 (91.0%) with mean birth weight of  $3224.6 \pm 438.5$  grams (Table 3).

**Table 3:- Maternal nutrition, newborn related and women autonomy among mother who gave birth in health institutions in Jimma Town, Southwest Ethiopia from March 1 to April 30, 2017.**

Variables		Frequency(n =531)	Percent (%) or Mean $\pm$ Sd
Maternal MUAC	Undernourished(<23cm)	247	46.5
	Normal( $\geq$ 23cm)	284	53.5
Iron folate supplementation	Yes	473	89.1
	No	58	10.9
Adherence of iron folate supplementation	Not adhered(0-3 pills/week)	247	46.5
	Adhered(4-7 pills/week)	284	53.5
Food prohibition during pregnancy	Yes	156	29.4
	No	375	70.6
Dietary diversity score(DDS)	High Diversity	200	39.0
	Medium Diversity	128	25.0
	Low Diversity	185	36.1
Additional meal	Yes	412	77.6
	No	119	22.4
Hemoglobin level in g/dL	$\leq$ 11	106	20.0
	>11	425	80.0
Freedom of Movement; seeking permission to go to	Outside home (yes)	429	80.8
	Market place (yes)	340	64.0
	Health institution (yes)	387	72.9
Maternal involvement indecision regarding child	Sickness (yes)	352	66.3
	Schooling (yes)	362	68.2
	To whom to Marry(yes)	139	26.2
Maternal Autonomy in conducting	Food purchase (the mother involved)	448	84.4
	Big Item Purchase (mother is involved)	133	25.0

Autonomy regarding Family planning service Utilization	Yes	208	39.2
	No	323	60.8
Food insecurity	Food secure	369	69.5
	Food insecure	162	30.5
Newborn birth weight (Mean birth weight = 3224.61 ± 438.512)	<2500	11	2.0
	2500-3999.9	483	91.0
	4000+	37	7.0
Sex of newborn	Female	259	48.8
	Male	272	51.2

#### 5.4 Predictors of birth weight from bivariate linear regression analysis

Bivariate linear regression model was run to identify predictors of birth weight among newborns delivered. In bivariate linear regression analysis, parity, type of pregnancy (planned), adhering to iron folate supplementation, autonomy of mobility, decision autonomy, maternal MUAC, gestational age and wealth index of the mother are positively associated with newborn birth weight.

**Table 4:- Bivariate linear regression model predicting birth weight among newborns delivered at health institutions of Jimma Town, Southwest Ethiopia from March 1 to April 30, 2017.**

Variables	B	Std. Error	P	95% CI	
				Lower	Upper
Residence (urban)	66.710	38.296	0.082	-8.527	141.947
Educational status of mother(secondary and above)	26.187	15.092	0.083	-3.460	55.834
Age at first marriage(mother)	-9.128	7.703	0.237	-24.261	6.006
Parity (total number of deliveries)	40.731	12.891	0.002	15.406	66.055
Inter pregnancy interval	12.157	9.566	0.204	-6.636	30.949
Number of antenatal visit	20.895	17.343	0.229	-13.175	54.966
Type of pregnancy(planned)	64.270	55.105	0.244	-43.991	172.530
Maternal Autonomy: Mobility	115.930	58.287	0.047	1.428	230.433
Maternal Autonomy: Decision regarding Child	101.309	48.333	0.037	6.360	196.259
Iron folate supplementation(yes)	110.197	54.101	0.042	3.909	216.485
How many iron pills in last 7 days(adhered)	7.348	5.959	0.218	-4.358	19.054
How many meals within a day?	57.689	24.764	0.020	9.041	106.338
Food prohibition for pregnancy	60.269	41.736	0.149	-21.719	142.257
Maternal MUAC	21.310	7.143	0.003	7.278	35.343
Gestational age	41.791	16.356	0.011	9.660	73.921
Wealth index(high)	107.598	33.463	0.001	41.861	173.335
Dietary diversity score	9.507	19.713	0.630	-29.220	48.235



## 5.5 Predictors of newborn birth weight from multivariable linear regression analysis

Variables with P value of less than 0.25 were selected for multivariable linear regression analyses to identify the final predictors of birth weight (Table 4). Multivariable linear regression analyses showed that after adjusting for dietary diversity score (DDS), age at first marriage and food insecurity, there is a positive association between maternal MUAC and birth weight, parity and birth weight, and wealth index and birth weight of the new born. It was observed that for a centimeter increase in maternal MUAC, birth weight increased by 13.5 grams ( $\beta=13.5$ ,  $P=0.04$ ). Similarly it has shown that with each increase in parity of the mother, birth weight increased by 96.81 grams ( $\beta= 96.81$ ,  $P=0.01$ ) and for a unit increase in wealth index birth weight increased by 49 grams ( $\beta=49.04$ ,  $P=0.01$ ).

**Table 5:- Multivariable linear regression model predicting birth weights among newborns delivered at health institutions of Jimma Town, Southwest Ethiopia March 1 to April 30, 2017.**

Model	B	P	95%CI	
			Lower Bound	Upper Bound
Maternal MUAC	13.50	0.04	0.48	26.51
Multiparty	96.81	0.01	27.11	166.52
Primiparous(Referent)				
Wealth Index	49.04	0.01	13.47	84.62
Age at first marriage(mother)	-10.08	0.15	-23.71	3.56
High DDS	13.46	0.74	-67.55	94.47
Medium DDS	-42.61	0.34	-130.11	44.89
Low DDS(Referent)				
Food insecurity	-30.64	0.09	-66.55	5.27
Food secure(Referent)				

Maximum VIF=1.452,

## 6 DISCUSSION

Birth weight is the most important indicator of survival of newborns during their early life and has been associated with morbidity and mortality at all ages within the human life span. Drivers of gaining each grams of a newborn weight should be well exploited. Accordingly, we have conducted the current study on 531 postpartum mothers attending in health service institution of Jimma town. In general, these socioeconomic findings were comparable with studies conducted in Gondor and Wondogenet, and Haramaya district, Ethiopia [39, 40, 65]. Similarly the wealth strata in most of the studied mothers assumed was similar to a study in eastern Ethiopia where majority are in poor to middle wealth index tertile (63.6%) [65].

In resource-poor settings, where individuals tend to have smaller amounts of subcutaneous fat, changes in MUAC are more likely to reflect changes in muscle mass [62]. There existed alarming level of (46.5%) maternal undernutrition defined as Mid-upper arm circumference (MUAC) of < 23 cm among the study subjects. Though a comparable level of maternal undernutrition were reported from eastern Ethiopia (45%) [65], the current finding is nearly two fold compared to USAID report on Ethiopia nutrition profile (25%) [38] and tenfold higher compared with the study conducted in Riyadh(4.4%)[71].

Micronutrients are essential for growth, and maternal micronutrient deficiency, as frequently observed in developing countries, may be an important cause of IUGR. Micronutrient deficiency, whether clinical or sub-clinical, may affect growth, cognition, and reproductive performance[33]. Optimal nutrition during pregnancy is important for the health of both the mother and the baby however, in many studies dietary intake during pregnancy is found to be suboptimal [19-21]. This is in agreement with different studies conducted in Ethiopia where maternal nutrition during pregnancy is generally poor because of different reasons. Among these are: one quarter of women of reproductive age in Ethiopia are undernourished and 17% are anemic, associated low birth weight, short stature, lower resistance to infections, and higher risk of disease and death [37, 38]. On the other hand, study showed that good dietary practice was found to be low (40.1% in Gondar) during pregnancy [39]. In addition Energy and most of the nutrients intakes of pregnant mother in Wando Genet district is also reported to be lower than recommended for pregnant mother[40]. The inadequate dietary pattern in our study is however by far very high compared to the above studies. This may be because of the seasonal variation in the undertaking of the study or the difference in geographical location.

In this study majority of newborns are of normal weight (91.0%) with mean birth weight of  $3224.6 \pm 438.5$  grams and only 2% of newborns are low birth weight. The low birth weight

rate in this study by far low compared to the previous studies in Ethiopia where the prevalence of low birth weight ranges from 15 to 20% of all births worldwide to 17.1% in Gondor to 22.5% in Jimma zone health facilities [42-45]. On the other hand the  $3224.6 \pm 438.5$  mean birth weight of the newborn in this study is higher compared to previous studies  $2976 \pm 476$  grams in Gondor and  $3094.9 \pm 587.6$  grams in Tigray [45, 69] and other african country [72]. The reason why the mean birth weight is high and the low birth weight is low in this study might be the research is conducted on term pregnancies compared to the other studies where preterms are also included. Furthermore nearly three fourth of the mother are urban residents in this study in contrast to other studies where majority are rural residents which is found to be positively associated with birth weight. This is because Urban residents are thought to have better education, health information and access to health facilities for antenatal care which subsequently promotes birth weight [40, 41].

It was found that there is a positive association in Multivariable linear regression analyses between (maternal MUAC, parity and wealth index) and birth weight after adjusting for dietary diversity score (DDS), age at first marriage and food insecurity.

In this study it was observed that for a centimeter increase in maternal MUAC, birth weight increased by 13.5 grams ( $\beta=13.5$ ,  $P=0.04$ ). Similar positive association was observed in a study conducted in Brazil where for each centimeter increase in maternal MUAC, there was 45.52 increased in birth weight [74]. Another study conducted in Ethiopia also showed that maternal MUAC of 23+ was positively associated with birth weight [77]. This is because maternal MUAC of 23+ show maternal good nutrition during pregnancy which subsequently will contribute to maternal weight gain and increased birth weight. On the contrary women with low MUAC are at high risk of low birth weight.

In this study it is observed that with each increase in a parity of the mother, birth weight increased by 96.81 grams ( $\beta= 96.81$ ,  $P=0.01$ ). Different Studies have shown that Primiparous mother, gave birth to babies with lower birth weight compared to multiparous women [80] and Women with parity2 and parity  $> 3$  were 30 % and 81 % more likely to have babies weighing  $\geq 2.5$  kg compared to those with parity1[78].

The Wealth index in this study is positively associated with birth weight ( $\beta=49.04$ ,  $P=0.01$ ) Study conducted in Bangladesh showed that Children born in poor families were more likely to be LBW than children born in middle-class and rich families [79]. Further studies have shown that there is strong association between birth weight and socioeconomic status of the

family [78], family income was positively associated with birth weight [80]. This might be because low birth weight could be due to poor maternal nutritional intake among mothers with lower socioeconomic status as found in other studies.

## **7 LIMITATION AND STRENGTH OF THE STUDY**

### **7.1 Limitation of the study**

- As it is cross-sectional study some of the findings in this study may not show the seasonal variation in maternal nutrition and newborn birth weight.
- Since the study depends on self-report there might be recall bias, especially for food frequency questionnaires.

### **7.2 Strength of the study**

- Inclusion of all health facilities providing delivery services in the town is strength of the study and the study used large sample size with response rate 98.1%.

## **8 CONCLUSIONS AND RECOMMENDATION**

### **8.1 Conclusions**

- Majority of newborns are normal birth weight with mean birth weight of  $3224.6 \pm 438.5$  grams and the percentage of low birth weight is very low.
- Maternal nutritional status using Mid-upper arm circumference (MUAC), 247 (46.5%) of mothers are malnourished with MUAC of  $< 23$  and 284 (53.5%) are normal.
- No association between maternal dietary habit and newborn birth weight in this study, which needs further investigation.
- The predictors of newborn birth weight were maternal MUAC, parity and wealth index. This is significant because newborn birth weight is an important determinant of newborn survival.

### **8.2 Recommendations**

The following points are recommended for the government, Ministry of health, Ministry of finance, JUMC, College of Health Sciences, Health Office of Jimma Town and other responsible bodies.

- ✚ Nutrition counseling at antenatal care at all levels is essential for both maternal and newborn birth weight.
- ✚ Improving socio-economic status by creating access to micro financing.

**For researchers**

- ✚ Further studies are highly recommended for the study of maternal dietary by considering bio marker tests to see the association with newborn birth weight and
- ✚ Also future studies on underline, basic and immediate causes of maternal malnutrition in the study area.

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**JIMMA UNIVERSITY**  
**FACULTY OF PUBLIC HEALTH**  
**DEPARTMENT OF POPULATION AND FAMILY HEALTH**  
**MSc in Human Nutrition**

**APPENDIX**

**Appendix 1: - English version consent form and information sheet**

**Appendix 1.1 Written consent forms for study participant**

Name of principal investigator: Hawi Goshu

Research title: To assess maternal dietary and nutritional characteristics as predictor of fetal birth weight among pregnant women who delivery in health institution in Jimma Town, South west Ethiopia from March 1 to April 30, 2017.

1. I confirm that I understand the information sheet for the above study and have had the opportunity to ask questions.
2. I understand that my participation is completely voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.
3. I agree to take part in the above study. I would like to confirm my agreement by signing.

Participant's name \_\_\_\_\_ Signature\_\_\_\_\_ date\_\_\_\_\_

Name of the data collector: \_\_\_\_\_ Signature: \_\_\_\_\_ date\_\_\_\_\_

Thank you for your participation and cooperation!

## **Appendix 1.2 Information sheets**

### **Participants' information sheet**

**Name of the principal investigator:** Hawi Goshu

**Name of study area:** Jimma Town

**Research budget covered by:** Jimma University

**Research objective:** To assess maternal dietary and nutritional characteristics as predictor of newborn birth weight among pregnant women who delivery in health institution in Jimma Town, South west Ethiopia from March 1 to April 30, 2017.

**Significance of the study:** This study will help design strategies of prevention and control of poor dietary practice during pregnancy and associated with birth weight.

**Data collection procedure:** The data collectors will interview participants using questionnaire and MUAC measurement from mothers after obtaining written informed consent from the participants. All data are accessible to researchers, supervisors and data collectors. Only research team members will have access to full data of study participants. The data from participants will used for research purpose only.

**Risks:** There will be no risks to participants

**Beneficial:** The study is beneficial for participants' in improving the quality of dietary practice and control associated factors of birth weight.

**Participants' right:** The participants have a right to stop the interview at any time, or to skip any question that she does not want to answer.

**Incentives:** The participants will not be provided any specific incentive for taking part in the research other than acknowledgment.

**Confidentialities:** The study result will not include participants name and address.

**Agreement:** Participants are expected to be fully voluntary and give written consent to participate in the study.

**Whom to contact:** for any queries, anybody can contact any of the three individuals:

1. Hawi Goshu: 0911052178
2. Dr. Kalkidan Hassen: 0911370862
3. Mr Melese Sinaga: 0911538218

## Appendix 2: Questionnaire

S. No	Question	Response	Skip option
	Name of health facility	_____	
	Card number	_____	
	Date of interview	_____	
	Kebele	_____	
	Code	_____	
<b>Section A</b>	<b>Socio-demographic and obstetric factors</b>		
A1	Residence	1. Urban    2. rural	
A2	Family size of the respondent	_____	
A3	How many members of the household are below age 15 and above 65?		
A4	How many members of the your household are between the age b/n 15-65		
A5	Sex of the household head	1.Male    2.female	
A6	Marital status	1. Currently married 2. Single 3. Widowed 4. Divorced /Separated	
A7	Maternal Occupation	1. House wife 2. Civil servant (employee) 3. Farmer and house wife 4. Merchant 5. student 6. Others(specify).....	
A8	Educational status of mother	1. Unable to read and write 2. Read & write only 3. Primary (Grade 1-8) 4. Secondary (Grade 9-12) 5. Above secondary (Grade >12) (specify).....	
A9	Educational status of paternal	1. Unable to read and write 2. Read & write only 3. Primary (Grade 1-8) 4. Secondary (Grade 9-12) 5. Above secondary (Grade >12) (specify).....	
A10	Age of mother	_____ years	
A11	Age of father	_____ years	
A12	Age at first marriage (mother)	_____ years	
A13	Age at first birth (mother)	_____ years	
A14	Age difference between spouse	_____ years	
A15	Ethnicity		



A16	Religion		
<b>Section B</b>	<b>Antenatal and pregnancy related</b>		
B1	Parity (total number of live birth)	_____	
B2	Birth order	_____	
B3	Birth interval		
B4	Do you have antenatal visit?	1. Yes      2. No	
B5	What is the Source of antenatal visit?	1. Health center 2. Hospital 3. Private clinic 4. NGO(FGAE)	
B6	Number of antenatal visit	_____	
B7	Did you get prenatal dietary advice	1. Yes 2. No	
B8	Type of pregnancy	1.planned and wanted 2.unpianned but wanted 3.unplanned and unwanted	
B9	Is the pregnancy supported?	1. Yes      2. No	
B10	Was fetal heart beat positive at admission to labor ward?	1. Yes 2. No	
B11	Do you have illness during pregnancy?	1. Yes      2. No	
B12	If yes for Q B11, what type of illness?	1.placental abruption 2.pregnancy induced diabetes mellitus 3.others, specify_____	
B13	Did you take tetanus toxoid (TT) during this pregnancy?	1. Yes      2. No	
B14	Do you have chronic hypertension?	1. Yes      2. No	
B15	During this pregnancy, have you developed pregnancy induced hypertension?	1. Yes 2. No	
B16	During this pregnancy, have you developed gestational diabetes?	1. Yes 2. No	
B17	Do you have diabetes mellitus before this pregnancy?	1. Yes 2. No	
<b>Section C</b>	<b>Women Autonomy questions</b>		
	<b>Freedom of Movement</b>	1.Yes	<b>0.No</b>
C1	Do you have to ask your husband or a senior family member for permission to go anyplace outside your house or compound?	1	0
C2	Do you have to ask your husband or a senior family member for permission to go to the local health center?	1	0
C3	Do you have to ask your husband or a senior family member for permission to go to the local market?	1	0
	<b>Decision-Making Regarding Children:</b> Please tell me who in your family decides the	<b>1.Wife</b>	<b>0.Other</b>

	following:		
C4	What to do when a child falls sick?	1	0
C5	How much schooling to give to your children?	1	0
C6	To whom to marry your children (probe the mother for current (if exist) and or expectation in future)?	1	0
	<b>Household Tasks and Decisions (final say)</b>	1	0
C7	What food to buy for family meals	1	0
C8	Whether to purchase major goods for the household such as oxen, land and house	1	0
	<b>Autonomy regarding Family planning service utilization</b>		
C9	Can you decide the number of children you need to have alone	Yes	No
<b>Section D</b>	<b>Morbidity questions</b>		
	<b>Has the mother any illness in the past two weeks</b>	<b>1. Yes,</b>	<b>0=No</b>
	<b>If yes, then continue below. Otherwise, skip to the next section.</b>		
D1	Cough		
D2	Difficult or fast breathing		
D3	Fever		
D4	Diarrhea		
D5	Vaginal bleeding		
D6	Other (specify _____)		
<b>Section E</b>	<b>Household Food Insecurity Access Scale (HFIAS) Measurement Tool</b>		
	Question	Response Options	CODE
E1	In the past four weeks, did you worry that your household would not have enough food?	0 = No 1=Yes	
E2	If yes Q E1, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
E3	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No 1=Yes	
E4	If yes Q E3, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in	

		the past four weeks)	
E5	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	0 = No 1=Yes	
E6	If yes Q E5, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
E7	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	0 = No 1 = Yes	
E8	If yes Q E7, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
E9	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No 1 = Yes	
E10	If yes Q E9, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
E11	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	0 = No 1 = Yes	
E12	If yes Q E11, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
E13	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	0 = No 1 = Yes	
E14	If yes Q E13, How often did this happen?	1 = Rarely (once or twice in the past four weeks)	

		2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
E15	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	0 = No 1 = Yes	
E16	If yes Q E15, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
E17	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	0 = No 1 = Yes	
E18	If yes Q E17, How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	
<b>Section F</b>	<b>Nutrition related</b>		
F1	What is the source of drinking water?	1. Tap water 2. Protected spring 3. Unprotected spring 4. Dug well 5. Pond/river 6. Others, specify _____	
F2	Have you ever used Iron folate supplementation during this pregnancy?	1. Yes 2. No	
F3	If yes to Q F2, for how long in months	_____	
F4	How many iron/folate pills you take in the last 7 days?	_____	
F5	Have you ever been counseled about additional meal for this pregnancy during your ANC Visit?	1. Yes 2. No	
F6	How many meals do you Usually eat within a day?	1. One time 2. Two times 3. Three times 4. Four times 5. Five times and above	
F7	Do you believe that additional meal is required during pregnancy?	1. Yes 2. No	
F8	If yes to Q 7, How many times do		

	you take additional meal per day?	_____	
F9	Do you use iodized salt?	1. Yes    2. No	
F10	Do you use bed net?	1. Yes    2. No	
F11	Do you have any food prohibition for pregnancy?	A. Yes    B. No	
F12	If Yes Q F11, What type of Foods are prohibited during pregnancy (Probe).	1. Meat 2. Mishinga 3. Mango 4. Banana 5. Egg 6. Maize 7. other _____	
F13	Who told you to do so?	1. Elderly 2. Neighbors 3. Husband 4. Religious leaders 5. Others	
F14	What is the reason you did not take above food?	1. No health benefit for fetus 2. To Will make baby big & labour difficult 3. Will be plastered on fetal head & body 4. Fear of abortion 5. Evil eye 6. Fetal abnormality 7. Others	
F15	What special food Do you take to improve strength, Endurance and/or vitality	_____	
F16	Do you avoid any food item because you are pregnant?	1. Yes 2. No	
F17	If yes Q F16 which food?	Specify _____ _____.	
F18	What is the reason you didn't take the above food?	1. No health benefit 2. Personal dislike (aversion) 3. To Will make baby big & labour difficult 4. Will be plastered on fetal head & body 5. Fear of abortion 6. Evil eye 7. Fetal abnormality 8. Other_____	
F19	If personal dislike, what do you think is the reason for your dislike?	1. Smell/taste of food 2. Heart burn/discomfort 3. Feeling of nausea/vomiting 4. I don't know the reason	

F20	Is there any food item that you desire strongly to eat especially during this pregnancy?	1. Yes 2. No	
F21	If, yes Q20 what do you crave? (Probe for pica practice).	Specify_____	
F22	What is your reason to crave for these food items?	1. Color of food 2. Food odor 3. Desire of the fetus 4. I don't know the reason 5. Other(specify)_____	
F23	Do you have latrine?	1.Yes            2.No	
F24	If yes Q F23, what type of latrine?	1. Private pit 2. shared latrine 3. flush to pit latrine 4. open pit 5. ventilated improved pit latrine 6. open defecation	
F25	When do you wash your hands? 1. Before meal 2. After meal 3. After toilet	1 .Yes        2. No 1.Yes        2.No 1.Yes        2.No	
F26	How do you wash your hand?	1. Using water only 2. Using soap some times 3. Using soap always 4. Using ash some times	
F27	<b>Behavioral factor</b> 1.chewing chat 2.cigarrate smoking 3.drink alcohol	1. Yes        2. No 1. Yes        2. No 1. Yes        2. No	

**Section G      Food frequency questionnaire**

Thinking back on the last three months, please tell me how often you consumed each of the following items. You can tell me in terms of times per day, per week or per month

	<b>Food item</b>	<b>Per day</b>	<b>Per week</b>	<b>Per month</b>
1	Teff			
2	Maize			
3	Rice			
4	Sorghum/millet			
5	Barley			
6	Wheat including bread			
7	Beef			
8	Goat /Lamb			
9	Fish			
10	Chicken			
11	Liver			

12	Milk			
13	Butter			
14	Nuts			
15	Beans, peas, lentils			
16	Sweet potatoes			
17	Oil			
18	Eggs			
19	Cheese			
20	Carrot			
21	Potatoes			
22	Tomato			
23	Leafy green vegetables			
24	Avocado			
25	Cauliflower			
26	Bananas			
27	Oranges			
28	Pineapple			
29	Coffe			
30	Soft drinks			
31	In the last three months, how often did you eat meals outside of your home	_____		

**Section H Household Assets**

Now I will ask you about some fixed assets that your household have.

Does the household have any of the following properties? (Circle)		Yes	No
H1	Functioning radio/Tape recorder/CD player	1	0
H2	Functioning Television	1	0
H3	Gas Stove	1	0
H4	Kerosene stove	1	0
H5	Electric stove	1	0
H6	Bicycle	1	0
H7	Motor Cycle	1	0
H8	Cart/Gari	1	0
H9	Watch (Hand/Wall)	1	0
H10	Mobile phone	1	0
H11	Plough	1	0
H12	Sofa	1	0
H13	Spring mattress	1	0
H14	Sponge/Foam mattress	1	0
H15	Cotton mattress	1	0
H16	Grass Mattress	1	0
H17	Chair/Stool	1	0
H18	Generator	1	0
H19	Milling	1	0
H20	Water pump	1	0
H21	Refrigerator/fridge)	1	0
H22	Car	1	0
H23	Own house	1	0
H24	Bajaj	1	0

H25	Video camera/ Digital Camera	1	0
	<b>Does the household have any of the following animals?</b>	<b>1. Yes</b>	<b>0. No</b>
H26	Oxen		
H27	Cows		
H28	Horse/mules/donkey		
H29	Goats/Sheep		
<b>Section I</b>	<b>Anthropometry</b>		
I1	Maternal MUAC	_____ cm	
I2	Newborn birth weight	_____ grams	

**Section J Document review**

Variable	measurement	Remark
Sex of newborn		
Gestational age (LMP or ultrasound)	_____ Weeks	
Hemoglobin level	_____	
HIV status of mother	_____	
If the mother is HIV positive, check about HAART/Option B+	1. Yes 2. No	



## YUNIIVERSIITII JIMMAA

### MUMMEE FAYYAA HAWWAASAA

#### DIPAARTIMENTII HAWAASUMMAA FI FAYYAA MAATII

##### Saayinsii Qorannoo sirna nyaataa namaa (MSc)

### Guca 1<sup>ffaa</sup>

#### 1. Guca odeefannoon ittiin funaanamu kan Afaan Oromoon qophahe

##### 1.1 Uunka odeefanoo

**Maqaa nama qohannoo adeemsisuu:** Hawwii Goshuu

**Bakka qohannoon itti adeemsifamu:** Magaalaa Jimmaa

**Baajata qohanichaa kan uffisu:** Yuniiversitii Jimmaa

**Kayyoo qohannoo:** Dubartoota ulfaa kanneen mana yaalaatti dahan keessaa, sirna nyaataa haadholee fi qabiyyee nyaataa akka ibsituu fayyadamuun walitti dhufeenya inni ulfaatina daa'imman haaraa dhalatan waliin qabu madaaluu, Magaalaa Jimmaa, Lixa Itoopiyaa, Bitotesa 1 hanga ebla 30ti, 2017.

**Bu'ura qohannoo kanaa:** Qohannoon kun yeroo qophii tarsiimooti, taatee sirni nyaataa yeroo ulfaa gahumsa hin qabne walitti dhufeenya inni ulfaatina da'iman dhalatanii waliin qabu ittisuu fi to'achuuf gargaara.

**Adeemsa raga funaanuu:** Ogeesotni raga funaanani waliigaltee tarreeffame irratti hundaa'uudhaan hirmaattoota ni gaafatu, akkasumas safarii 'MUAC' ni raawwatu. Ragaan fuunaname hundinuu abbaa qohannaa adeemsisuuf, suupparvaayizeeraa fi kanneen raga funaananiif akka dhihaatu ni taasifa. Guutumman guututti raga hirmaattota qohannoo kan arguu qabu miseensa garee qohannichaa qofa. Ragaan hirmaattota irraa waliitti qabamu qohannoof qofa kan ooludha.

**Dhibbaa:** Hirmaattota irratti rakkoon qaqabuu danda'u tokko illee hin jiru.

**Fayyadamtoota:** Qohannoon kun fayyadamummaa sirna nyaataa madalawaa foyyeessudhaan rakkoo uulfaatina daa'iman dhalatanii qaqabuu danda'u akka to'ataniif isaan gargaara.

**Mirga hirmaattotaa:** Hirmaattotni gaaffii kanaa yeroo kamittuu akkasumas gaaffii barbaadan kam iyyuu deebisuu dhiisuudhaaf mirga qabu.

**Durgoo:** Galateeffachuu irraa kan hafe hirmaattotaaf qohannoo kana keessatti durgoo yookiin faayidaan addaa argata hin jiru.

**Icciti eegu:** Qohannoon kun maqaa fi teessoo hirmaattotaa of keessatti hin hammatu.

**Walii galtee:** Hirmaattota irraa kan eegamu fedhii guutuun hirmaachuu fi qohannaa kana irratti hirmaachuu isaanii barreeffamaan walii galuudha.

Eenyu waliin wal quunnamuu akka qaban: waan isaan mudate kamiifu namni kam iyyuu kanneen asiin gaditti tarreeffaman keessaa qunnamuu ni danda'a.

1. Hawwii Goshuu: 0911052178
2. Dr. Qaalkidaan Hasen: 0911370862
3. Mr. Malasee Sineega: 0911538218

## **1.2.Uunka barrefamaa eyyama hirmaattotaa ittin gafaatan**

**Maqaa nama qohannoo adeemsisuu:** Hawwii Goshuu

**Kayyoo qohannoo:** Dubartoota ulfaa kanneen mana yaalaatti dahan keessaa, sirna nyaataa haadholee fi qabiyyee nyaataa akka ibsituu fayyadamuun walitti dhufeenya inni ulfaatina daa'imman haaraa dhalatan waliin qabu madaaluu, Magaalaa Jimmaa, Lixa Itoopiyaa, Bitotesa 1 hanga ebla 30ti, 2017.

1. Qohannoo armaan olitti ibsameef odeeffannoo dhuunka kanaan hubaachuu danda'uu kootiif waliin galuun carraa gaafachuu argadheera.
2. Hirmaannaan koo guutummaan guutuutti fedhi qabeessa tahuu isaa hubachuun, mirgi koo osoo hin dhiibamiin bilisa tahuun sababii tokko malee yeroo kam iyyuu hirmaataa tahuu koo hubadheera.
3. Qohannoo armaan olii keessatti qooda fudhannaa koof waliin gala. Waliif galuu koos malattoo kootiinan mirkaneessa.

Maqaa hirmaattotaa \_\_\_\_\_ Malattoo \_\_\_\_\_ Guyyaa \_\_\_\_\_

Maqaa nama raga funaane: \_\_\_\_\_ Malattoo \_\_\_\_\_ Guyyaa \_\_\_\_\_

\_\_\_\_\_

Hirmaannaa fi deeggarsa nuuf taasiftaniif ulfaadha!

**Guca 2<sup>ffaa</sup> · Gaffiiwwaan**

<b>Lakk.</b>	<b>Gaaffii</b>	<b>Deebii</b>	<b>Filannoo dhiisanii darbuu</b>
	Maqaa dhaabbata tajaajila fayyaa	_____	
	Lakk. Kaardii	_____	
	Guyyaa gaaffii fi deebiin adeemsifame	_____	
	Ganda	_____	
	Koodii	_____	
<b>Kutaa A</b>	<b>Ragaalee eenyummaa hawaasummaa fi dinagdee.</b>		
A1	Bakka jireenyaa	1. Maagaalaa 2. Baadiyyaa	
A2	Baay'ina miseensa maatii	_____	
A3	Miseensa maatii keessaa namootni umuriin isaanii waggaa 15 gadii fi waggaa 65 ol tahan meeqa?		
A4	Miseensa maatii keessaa namootni umuriin isaanii waggaa 15 fi 65 gidduuti argaman meeqa?		
A5	Saala bulchaa manaa	1. Dhiira 2. Dubartii	
A6	Haala fudhaa fi heerumaa	1. Kan heerumte/e 2. Kan hin heerumne 3. Kan jalaa du'e 4. Kan adda bahan.	
A7	Haala hojii/dalagaa	1. Haadha manaa 2. Hojjetaa mootummaa 3. Qonnaan bultuu fi haadha manaa 4. Daldaltuu 5. Barattuu 6. Kan biro(adda baasi)-----	
A8	Haala barnoota haadholee	1. Barreessuu fi dubbisuu kan hin dandeenye. 2. Barreessuu fi dubbisuu qofa kan dandeessu. 3. Sadarkaa tokkoffaa (kutaa 1-8) 4. Sadarkaa lammaffaa (kutaa 9-10) 5. Sadarkaa lammaafaadha ol(kutaa 12 ol adda baasi)-----	

A9	Haala barnoota maatii	<ol style="list-style-type: none"> <li>1. Barreessuu fi dubbisuu kan hin dandeenye.</li> <li>2. Barreessuu fi dubbisuu qofa kan dandeessu.</li> <li>3. Sadarkaa tokkoffaa (kutaa 1-8)</li> <li>4. Sadarkaa lammaffaa (kutaa 9-10)</li> <li>5. Sadarkaa lammaafaadha ol(kutaa 12 ol adda baasi-----)</li> </ol>	
A10	Umurii haadhaa	Waggaa -----	
A11	Umurii abbaa	Waggaa -----	
A12	Umurii heeruma jalqabaa (kan haadhaa)	Waggaa -----	
A13	Umurii jalqaba itti daa'ima argatte (haadhaaf)	Waggaa -----	
A14	Garaagartummaa umurii haadhaa fi abbaa gidduu	Waggaa -----	
A15	Sabummaa		
A16	Amantii		
<b>Kutaa B</b>	<b>Ulfaa fi dahumsa waliin walqabatee</b>		
B1	Baay'ina daa'ima dhalatani	_____	
B2	Tartiiba dhalootaa	_____	
B3	Garaagartummaa yeroo dhaloota gidduu jiru	_____	
B4	Hordofii dahumsa duraa ni taasifta turtee?	1. Eeyyee 2. Lakki	
B5	Dhaabbatni fayyaa ati hordoffii itti adeemsiftu eessa ture.	<ol style="list-style-type: none"> <li>1. Buufata fayyaa</li> <li>2. Hospitaala</li> <li>3. Kiliinika dhuunfaa</li> <li>4. Dhaabbilee miti mootummaa (FGAE)</li> </ol>	
B6	Baay'ina yeroon ati hordoffii dahumsa dura taasiftee meeqa?	_____	
B7	Gorsa sirna nyaataa dahumsaan duraa argatteta?	1.Eeyyee 2.Lakki	
B8	Gosa ulfaa	<ol style="list-style-type: none"> <li>1. Kan karoorfamee fi barbaadamu</li> <li>2. kan hin karoorfamnee fi barbaadamu</li> <li>3. Kan hin karoorfamnee fi hin barbaadamne</li> </ol>	
B9	Deeggarsi barbaachisaan ulfichaaf taasifamee ture?	1.Eeyyee 2.Lakki	
B10	Yeroo cinniinsuuti rukkutaan onnee daa'immaa haala gaarii irratti argama ture?	1.Eeyyee 2.Lakki	

B11	Yeroo turtii ulfaa dhukkubaan qabamtee beekta?	1.Eeyyee	2.Lakki	
B12	Yoo deebiin gaaffii B11 eeyyee tahe, dhibee maaliiti?	1. Miixuu/ciniinsuun dura dhangala' aan obaatii dursee dhangala'uu. 2. Dhukkuba sukkaaraa ulfa waliin wal qabatu 3. kan biroo ibsi_____		
B13	Yeroo ulfa turtetti talaallii TT fudhattee turte?	1.Eeyyee	2.Lakki	
B14	Rakkoo dhiibbaa onnee qabda turte?	1.Eeyyee	2.Lakki	
B15	Wayita ulfa turtetti ulfa waliin kan wal qabatu rakkoo dhibbaa onneen qabamteeta?	1.Eeyyee 2.Lakki		
B16	Yeroo ulfaa dhibeen sukkaaraa si qabateera?	1.Eeyyee 2.Lakki		
B17	Ulfaa'uu keen dura dhibeen sukkaaraa si qabatee ture?	1.Eeyyee 2.Lakki		
<b>Kutaa C</b>	<b>Women Autonomy questions</b>			
	<b>Bilisaan socho'uu</b>	<b>1.Eeyyee</b>	<b>0.Miti</b>	
C1	Mana/ naannoo jiraattuu baatee bakka barbaadde deemuuf abba manaa kee yookiin miseensa maatii hangafa eeyyama ni gaafatta?	1	0	
C2	Buufata fayyaa naannoo keetii jiru deemuuf abba manaa kee yookiin miseensa maatii hangafa eeyyama ni gaafatta?	1	0	
C3	Gara dhaaba gabaa naannoo keetii jiru deemuuf abba manaa kee yookiin miseensa maatii hangafa eeyyama ni gaafatta?	1	0	
	<b>Murtii kennuu daa'imani ilaalchisee:</b>  Murtiiwwan armaan gadii maatii keessan keessaa nama murteessuu danda'u nu hima:	<b>1. Haadha warraa</b>	<b>0. nama kan biraa</b>	
C4	Daa'imni yeroo dhibeen qabamu maaltu godhama?	1	0	
C5	Hagam daa'ima kee gara mana barnootaa fudhata?	1	0	
C6	Ammas tahu gara fuuladuraatti daa'imni kee eenyutti akka heerumtu ka murteessu	1	0	
	<b>Dirqamaa fi murtee kennuu mana jireenyaa</b>	1	0	
C7	Nyaata miseensi manaa akka sooratuuf bitamu	1	0	

C8	Wantootaa gurguddoojoo tahan kanneen akka qotiyyoo, lafa fi mana kan mana jireenyaaf bitu	1	0
	<b>Itti fayyadama tajaajila karoora maatiin walqabatee.</b>		
C9	Baay'ina daa'ima qabaachuu barbadduu murteessuu ni dandeessa?	Eeyyee	Lakki
<b>Kutaa D</b>	<b>Gaaffii rakkina fayyaa waliin walqabata.</b>		
	Toorban lamaan darban keessa haati rakka fayyaa kam iyyuu ishee argatee beeka?	<b>1.Eeyyee</b>	<b>0.Lakki</b>
	Yoo deebiinkee eeyyee tahe, kannneen armaan gadii itti fufuun gaafadhu. Tahuu banana gara gaaffii itti anuutti darbi.		
D1	Qufaa		
D2	Ariitiin yookaan ulfaatina afuura baafachuu		
D3	Ho'iinsa qaamaa		
D4	Garaa kaasaa		
D5	Dhiiginsa qaama saalaa		
D6	Kan bira ( adda baasii ibsi)		
<b>Kutaa E</b>	<b>Meeshaa safartuu Wabii nyaataa fi Qabiyyee</b>		
	<b>Gaaffii</b>	<b>Deebiiwwan filannoo</b>	<b>Koodii</b>
E1	Torban arfun darban keessatti mana keessa nyaati gahaa hin jiru jettan yaaddofitanii beekitu?	0. Miti 1. Eeyyee	
E2	Yoo gaaffii E1 eeyyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
E3	Torban arfun darban keessa ati ykn miseensa maatiin dhabumma irra kan ka'e nyaata soorachuu dhabuu sin muudattee beeka?	0. Miti 1. Eeyyee	
E4	Yoo gaaffii E3 eeyyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
E5	Torban arfun darban keessa ati ykn	0. Miti	

	miseensa maatiikee dhabumma irra kan ka'e nyaata gosa murtaa'e soorachuu isin muudateera?	1. Eeyyee	
E6	Yoo gaaffii E5 eeyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee torban arfun darban keessa yeroo 10 oli.	
E7	Torban arfun darban keessa ati ykn miseensa maatiikee dhabumma irra kan ka'e nyaata ati jaalattu (feetu) soorachu dhabuun si qunamee beeka?	0. Miti 1. Eeyyee	
E8	Yoo gaaffii E7 eeyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
E9	Torban arfun darban keessa ati ykn miseensa maatiikee mana keessatti dhabumma nyaata irra kan ka'e dhiyaanaratti nyaata baay'inni isa xiqaa kan ta'e soorachuun isin muudateera?	0. Miti 1. Eeyyee	
E10	Yoo gaaffii E9 eeyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
E11	Torban arfun darban keessa ati ykn miseensa maatiikee mana keessatti dhabumma nyaata irra kan ka'e dhiyaanaratti nyaata baay'inni isa xiqaa kan ta'e soorachuun isin muudateera?	0. Miti 1. Eeyyee	
E12	Yoo gaaffii E11 eeyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama 2. Darbe darbee ( torban arfun	

		darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
E13	Torban arfun darban keessa dhaburraa kan ka'e nyaati cirumaa mana keessa dhibuun isin muudateera?	0. Miti 1. Eeyyee	
E14	Yoo gaaffii E13 eeyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 1 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
E15	Torban arfun darban keessa ati ykn miseensa maatiikee mana keessatti dhabumma nyaata irra kan ka'e oto hin nyaatin rafuun ni jira?	0. Miti 1. Eeyyee	
E16	Yoo gaaffii E15 eeyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
E17	Torban arfun darban keessa ati ykn miseensa maatiikee mana keessatti dhabumma nyaata irra kan ka'e oto hin nyaatin oolani buluun ni jira?	0. Miti 1. Eeyyee	
E18	Yoo gaaffii E17 eeyee tahe, kun yeroo hagamiif uumame?	1. Baay'ee xiqqoo (torban arfun darban keessa yeroo tokko ykn lama 2. Darbe darbee ( torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee ( torban arfun darban keessa yeroo 10 oli	
<b>Kutaa F</b>	<b>Sirna nyaataa ilaalchisee</b>		
F1	Maddi dhiheessii bishaan dhugaatii maali?	1. Bishaan sararaan dhihaatu 2. Burqaa kunuunfame 3. Burqaa hin kunuunfamne 4. Bishaan boollaa 5. Haroo 6. Kan biraa (ibsi-----)	
F2	Yeroo ulfa turtetti 'Iron folate' dabalataan fayyadamaa turteetta?	1.Eyyee 2.Miti	



F3	Yoo deebiin gaaffii F2 Eeyyee tahe, ji'a meeqaaf fudhatte?	_____	
F4	Guyyoottan darban torba keessatti Iron folate pilsii meeqa fudhatte?	_____	
F5	Yeroo turtii ulfaatti, ulfichaaf nyaatni dabalataa akka barbaachisu gorsa dabalataa argattee turte?	1.Eeyyee 2.Miti	
F6	Guyyaatti nyaata dabalataa yeroo meeqa nyaata?	1. Yeroo tokko 2. Yeroo lamma 3. Yeroo sadii 4. Yeroo afur 5. Yeroo shaniif fi isaa ol	
F7	Nyaata dabalataa yeroo ulfaa dabalataan fayyadamuun barbaachisaa tahuu isaati ni amanta?	1.Eeyyee 3. 2.Miti	
F8	Yoo deebiin gaaffii lakk. 7 Eeyyee tahe, guyyaati yeroo meeqaaf dabalataan fayyadamu?	_____	
F9	Ashaboo ayodinaayizdii ni fayyadamta?	1.Eeyyee 2.Miti	
F10	Saaphana siree ni fayyadamtu?	1. Eeyyee 2. Miti	
F11	Yeroo ulfaa nyaata lagatu/jibbitu qabda?	A. Eeyyee B. Miti	
F12	Yoo deebiin gaaffii F11 Eeyyee tahe nyaata gosa kam yeroo ulfaa jibbita?	1. Foon 2. Bisingaa 3. Maango 4. Muuzii 5. Hanqaaquu 6. Boqqolloo 7. Kan biro(adda baasi)	
F13	Kana akka raawwattuuf eenyutu sitti hime?	1. Maanguddoo 2. Ollaa 3. Abbaa manaa 4. Abbootii amantii 5. Kan biroo	
F14	Nyaata armaan olitti sababiin ati itti hin fayyadamne maaliif?	1. Ulfichaaf fayidaa fayyaa hin qabu 2. Ulfaatina ulfichaa dabaluu fi daa'imni guddaa akka tahuuf 3. Qaama fimataa micireeti waan maxxanuuf 4. Sodaa ulfa baasuu 5. Ija seexanaa 6. Ulficha irra rakkoo waan	

		geessisuuf 7. Kan biroo-----	
F15	Ciminaa fi fooyya'iinsaf nyaatni addaa ati fayyadamtu maali?		
F16	Sababa ulfa tahuu keetiif gosa nyaataa of irraa fageessitu qabda?	1.Eeyyee 2.Miti	
F17	Yoo deebiin gaaffii lakk F16 Eeyyee tahe nyaata gosa kami?	Ibsa -----	
F18	Sababiin fayyadamuu dhiisuu keetii maali?	1. Faayidaa fayyaa hin qabu. 2. Jibbiina 3. Ulfaatina ulfichaa dabaluu fi daa'imni guddaa akka tahuuf 4. Qaama fimataa micireeti waan maxxanuuf 5. Sodaa ulfa baasuu 6. Ija diinaa 7. Ulficha irra rakkoo waan geessisuuf 8. Kan biroo -----	
F19	Yoo namni jibbe sababiin inni jibbuuf maal jettee yaada?	1. Foolii yookiin dhandhama nyaataa 2. Gubiinsa lappee 3. Sodaa olgurritii/balaqamuu 4. sababa isaa hin beeku	
F20	Gosa nyaataa adda tahe yeroo ulfaatti soorachuuf kan karoorfatte qabda?	1.Eeyyee 2.Miti	
F21	Yoo deebiin gaaffii lakk 20 Eeyyee tahe, maal si arraasisa?	Ibsi -----	
F22	Sababni gosa nyaataa kana si arraasisu maaliif?	1. Halluu nyaataa 2. Foolii nyaataa 3. Barbaachisummaa inni ulfaaf qabu 4. Sababa isaa hin beeku 5. Kan biroo yoo jiraate ibsi-----	
F23	Mana fincaanii qabda?	1.Eeyyee      2.Miti	
F24	Yoo deebiin lakk 23 Eeyyee tahe, gosa mana fincaanii isaan qaban?	1. Mana fincaanii dhunfaa 2. Mana fincaanii walinii 3. Kan bishaan dhumarrati itti dhangala'u 4. Kan ijaarsa of irraa hin qabne 5. Kan ujummoo qilleensa baasu dabalataan qabu 6. Bakkeetti boba'uu	

F25	Harki kan dhiqatamu yeroo kami? 1. Nyaata dura 2. Nyaata booda 3. Mana fincaanii booda	1.Eeyyee 2.Miti 1.Eeyyee 2.Miti 1.Eeyyee 2.Miti	
F26	Harka kan dhiqattu haala kamiini?	1. Bishaan qofa fayyadamuu 2. Darbee darbee sammunaa fayyadamuu 3. Saamuna qofa fayyadamuu 4. Darbee darbee daraa fayyadamuu	
F27	<b>Rakkoowwan amalaa</b> 1. Caatii/jimaa qama'uu 2. Tamboo xuxuu 3. Alkoolii dhuguu	1.Eeyyee 2.Miti 1.Eeyyee 2.Miti 1.Eeyyee 2.Miti	

**Kutaa G Itti fayyadama soorataa**

Ji'ootan sadan darban dubatti deebi'uun yaadadhu. Sanaan booda qabiyyeewwan nyaataa kan armaan gadii keessaa guyyatti, toornbanitti fi ji'atti kanneen soorachaa turte natti himi.

	<b>Gosoota nyaataa</b>	<b>Guyyaatti</b>	<b>Toorbanitti</b>	<b>Ji'atti</b>
1	Xaafii			
2	Boqqoloo			
3	Ruuzii			
4	Bisingaa			
5	Garbuu			
6	Qamadii			
7	Foon sangaa			
8	Re'ee			
9	Qurxummii			
10	Lukkuu			
11	Tiruu			
12	Aannan			
13	Dhadhaa			
14	Nuugii			
15	Baaqelaa, atara			
16	Dinnicha mi'aa			
17	Zayita			
18	Hanqaaquu			
19	Baaddu			
20	Kaarotii			
21	Dinnicha			
22	Timaatima			
23	Kuduraalee			
24	Avookaadoo			

25	Suufii			
26	Muuzii			
27	Burtukaana			
28	Apilii			
29	Buna			
30	Dhugaatii lallaafaa			
31	Ji'ootan darban sadii keessatti, mana jireenyaa keen ala nyaata fayyadamtee beekta?			
<b>Kutaa H</b>	<b>Qabeenya mana jireenya</b>			
Amma qabeenya dhuunfaa ati manaa qabdun si gaafadha.				
<b>Manni jireenyaa isaanii qabeenyota kanneen armaan gadii keessaa kam qaba? (itti naanessi)</b>			<b>Eeyyee</b>	<b>Miti</b>
H1	Raadiyoo, teeppii tajaajila kennu	1	0	
H2	Televiziyoona tajaajila kennu	1	0	
H3	Istoovii gaazii	1	0	
H4	Istoovii keerosinii	1	0	
H5	Istoovii electriikii	1	0	
H6	Saayikilii	1	0	
H7	Doqdoqqee	1	0	
H8	Gaarii	1	0	
H9	Sa'atii gidgiddaa	1	0	
H10	Telefoona moobayilaa	1	0	
H11	Marashaa	1	0	
H12	Soofaa	1	0	
H13	Ciisicha ispiiringii	1	0	
H14	Ciisicha ispoonjii	1	0	
H15	Ciisicha jirbii	1	0	
H16	Ciisicha cidii	1	0	
H17	Teesuma	1	0	
H18	Genereetera	1	0	
H19	Hofcoo/baabura midhan daaku	1	0	
H20	Paampii bishaanii	1	0	
H21	Firiijii	1	0	
H22	Konkolaataa	1	0	
H23	Mana jireenyaa dhunfaa	1	0	
H24	Baajajii	1	0	
H25	Kaameeraa/ viidiyoo dijitaalawaa	1	0	
	<b>Mana jireenyaa isaanii keessaa horiiwwan armaan gadii qabu?</b>	<b>1.Eeyyee</b>	<b>Baay'ina isaanii</b>	
		<b>0.Miti</b>		
H26	Qotiyoo			
H27	Saawa			

H28	Farada/Gaangee/harree		
H29	Re'ee/hoolaa		
<b>Kutaa I</b>	<b>Safara</b>		
I1	MUAC haadhaa	Saantii meetira -----	
I2	Ulfaatina daa'ima haaraa dhalatee	Giraama -----	

**Kutaa J Ragaa irraa kan fudhatame**

<b>Qabiyyee</b>	<b>Safara</b>	<b>Yaada</b>
Saala daa'ima haaraa dhalatee/ttee		
Yeroo ulfi eegale irraa ka'ee hanga dhalatuutti ulfaa (marsaan xurii lagu yeroo dhumaaf itti mul'ate kasee hangaa dahuumsatii ykn u/s)	Toorban -----	
Sadarkaa heemoogilobinii	_____	
Haala vaayiresii HIV haadhaa ilaalchisee	_____	
Yoo haati HIV poozetivii taate, HAART/ B+ mirkaneessi	1. Eeyyee 2. Miti	

**ጅማ ዩኒቨርሲቲ**

**የጤና ሳይንስ ኢንስቲትዩት**

**የሥነ ህዝብና ቤተሰብ ትምህርት ክፍል**

**MSc (የሰው ልጅ የአመጋገብ ጥናት ሳይንስ)**

**መጠየቅ 1**

**የአማራጭ ትርጉም መረጃ መስቀላዊ ቅጽ**

**መጠየቅ 1.1 መረጃ መስጫ ቅጽ፤**

**የተሳታፊዎች መረጃ ቅጽ**

**የጥናቱ የሚያከላክል ሰው:** ሐዊ ጎሹ

**ጥናቱ የካሄደበት ቦታ:** ጅማ ከተማ

**የጥናቱን ክፍያ የሚሸፍነው:** ጅማ ዩኒቨርሲቲ

**የጥናቱ አላማ:** በጤና ተቋማት የሚወለዱ እናቶች የአመጋገብ ስረዓታቸውን እና የአመጋገብ መገለጫ በመጠቀም አድስ በሚወለዱ ህፃናት ከብደት ላይ ያለውን ተጽእኖ ማየት፣ በጅማ ከተማ፣ ምዕራብ ኢትዮጵያ፣ ከመጓበት 1 ኢስክ መያዝያ 30፣ 2009 ዓ.ም ።

**የጥናቱ አስፈላጊነት:** ይህ ጥናት በእስትራተጂ አዘገጃጀት ወቅት በእርግዝና ጊዜ ያልተመጣጠኑ አመጋገብ ስረዓት አድስ በሚወለዱ ህፃናት ከብደት ጋር ተያያዥነት ያላቸውን ችግሮች ለመከላከል እና ለመቆጣጠር እንዲጠቅም ለማስቻል ነው።

**የመረጃ አሰባሰብ ህደት:** መረጃውን የሚሰበስቡት ባለሙያዎች የተገለጸውን ስምምነት መሰረት በማድረግ ተሳታፊዎችን የጠይቃሉ፤ እንደዚሁም ‘MUAC’ ይለካሉ። የተሰበሰበው መረጃ በሙሉ ለተቆጣጣሪው እና ለአጥኚው ሰዎች እንዲቀርብ ይደረጋል። ሙሉ በሙሉ የተሳታፊውን መረጃ ማየት የሚችል የጥናቱ ቡድን አባላት ብቻ ናቸው። ከተሳታፊው የሚሰበሰበው መረጃ የሚወልድ ለጥናት ብቻ ነው።

**ልዩጋጥም የሚችል ችግር/አደጋ:** ተሳታፊው ላይ ምንም ዓይነት ሊያጋጥም የሚችል ችግር/አደጋ የለም።

**ተጠቃሚዎች:** ይህ ጥናት የተመጣጠኑ አመጋገብ ስረዓትን በማሻሻል በወሊድ ጊዜ አድስ በሚወለዱት ህፃናቶች ከብደት ላይ ሊደርስ የሚችል ተያያዥ ችግሮቻቸውን ለመቆጣጠር እንዲችሉ ያስችላል።

**የተሳታፊው መብት:** በዚህ መጠየቅ ላይ የሚሳት ማንኛውም ተሳታፊ በፈለገው ጊዜ እና የሚፈልገውን ማሻኛውንም ጥያቄ ላለመመለስ መብት አለው።

**ጥቅማ ጥቅም:** ተሳታፊውን ከፍተኛ አክብሮት ከመስጠት ያለፈ ምንም ዓይነት ጥቅማ ጥቅም አይሰጥም።

**ምስጢር መጠበቅ:** ይህ ጥናት የተሳታፊውን ስም እና አድራሻ አያካትትም።

**ስምምነት:** ከተሳታፊዎች የሚጠበቀው በዚህ ጥናት ላይ በሙሉ ፍላጎታቸው መሳተፍ እና ስለመስማማታቸው ደግሞ ስምምነታቸውን በፅሁፍ መግልጽ ነው።

**ከማን ጋር መገናኘት እንደ አለባቸው:** ለአጋጠማቸው ማሻኛውም ጉዳይ ስማቸው ከዚህ በታች ከተዘረዘሩት ሰዎች መነጋገር ችላሉ።

1. ሐዊ ጎሹ: 0911052178

2. ዶ/ር. ቃልከዳን ሃሰን: 0911370862

3. አቶ መሌሰ ስነጋ: 0911538218

**መጠየቅ ቅፅ 1.2 የስምምነት ቅፅ፤**

**ጥናቱን የሚያካሄድ ሰው: ሐዊ ጎሹ**

**የጥናቱ አላማ:** በጤና ተቋማት የሚወለዱ እናቶች የአመጋገብ ስረዓታቸውን እና የአመጋገብ መገለጫ በመጠቀም አድስ በሚወለደው ህፃን ክብደት ላይ ያለውን ተጺኖ ማየት፣ በጅምር ከተማ፣ ምዕራብ ኢትዮጵያ፣ ከመጓበት 1 ኢስክ መያዝያ 30፣ 2009 ዓ.ም ::

1. ከላ በመረጃ ቅፁ ስጥናቱ የተገለፀውን በመረዳት የመጠየቅ እድል ማግኘትን አረጋግጣለሁ።
2. ተሳታፊነቴ ሙሉ በሙሉ በፍቃደኝነት ላይ የተመሰረተ መሆኑን እና ምን አይነት መብቴ ሳይነካ በነፃለት ያለምንም ምክንያት በማንኛው ጊዜ ተሳታፊ መሆኔን እገልጻለሁ።
3. ከላይ የተገለፀው ጥናት ተካፋይ መሆኔን እስማማለሁ። ስምምነቱንም በፍርማዬ አረጋግጣለሁ።

የተሳታፊው ስም፣ \_\_\_\_\_ ፍርማ፣ \_\_\_\_\_ ቀን፣ \_\_\_\_\_

የመረጃ ሰብሳቢ ስም፣ \_\_\_\_\_ ፍርማ፣ \_\_\_\_\_ ቀን፣ \_\_\_\_\_

**ለአደረጋቸው ትብብርና ድጋፍ ከልብ እናመሰግናለን!**

መጠየቅ 2፤

ተ.ቁ	ጥያቄ	መልስ	ማለክያ
	አገልግሎት የሚሰጥ ጤና ተቋም	_____	
	የካርድ ቁጥር	_____	
	ጥያቄና መልስ የተካሄደበት ቀን	_____	
	ቀበሌ	_____	
	መለያ ቁጥር	_____	
ክፍል ሀ	ማህበራዊ እና ኢኮኖሚያዊ መጠየቅያ		
ሀ1	የመኖሪያ አድራሻ	1. ከተማ                      2. ገጠር	
ሀ2	የቤተሰብ ብዛት	_____	
ሀ3	ከቤተሰብ አባላት ውስጥ እድሜያቸው ከ15 ዓመት በታች እና ከ65 ዓመት በላይ የሆኑት ስንት ናቸው;		
ሀ4	ከቤተሰብ አባላት ውስጥ እድሜያቸው 15 ዓመት እና 65 ዓመት መካከል የሚገኙ ስነት ሰዎች ናቸው?		
ሀ5	የቤቱ አስተዳዳሪ ያታ	1. ወንድ                      2. ሴት	
ሀ6	የጋብቻ ሁኔታ	1.ያገባ/ባች 2.ያላገባ/ባች 3.የሞተባት 4. የተፋቱ	
ሀ7	የስራ ሁኔታ	1.የቤት እመቤት 2.የመንግስት ሰራተኛ 3.አርሶ አደር 4.ነጋዴ 5.ተማሪ 6.ለላ ካሌ ግለፅ-----	
ሀ8	የእናት/እማወራ ትምህርት ሁኔታ	1. ማንበብ እና መፅሐፍ የማትችል 2. ማንበብ እና መፅሀፍ ብቻ የምትችል. 3.1ኛ ደረጃ (1-8 ክፍል) 4.2ኛ ደረጃ (9-10 ክፍል) 5.ከ2ኛ ደረጃ በላይ(ከ12 ክፍል በላይ) ለይተ ግለፅ -----	
ሀ9	የቤተሰብ ትምህርት ሁኔታ	1. ማንበብ እና መፅሐፍ የማትችል 2. ማንበብ እና መፅሀፍ ብቻ የምትችል. 3.1ኛ ደረጃ (1-8 ክፍል) 4.2ኛ ደረጃ (9-10 ክፍል) 5.ከ2ኛ ደረጃ በላይ(ከ12 ክፍል በላይ) ለይተ ግለፅ -----	
ሀ10	የእናት እድሜ	-----አመት	



U11	የአባት እድሜ	-----አመት	
U12	የመጀመሪያ ጋብቻ እድሜ (የእናት)	-----አመት	
U13	የመጀመሪያ ልጅ የወለደችበት እድሜ (ከለእናት)	-----አመት	
U14	እናት እንደ አባት መካከል ያለ የእድሜ ልዩነት	-----አመት	
U15	ብሔር		
U16	ሀይማኖት		
<b>ክፍል ለ</b>	<b>እርግዝና እና ወሊድ ጋር በተያያዘ</b>		
A1	በአጠቃላይ የተወለዱ ህፃናት ብዛት	_____	
A2	የወሊድ ቀደም ተከተል	_____	
A3	የተወለዱ ህፃናት መካከል ያለ የእድሜ ልዩነት	_____	
A4	ከወሊድ በፊት ክትትል ታደርጊ ነበር?	2. አዎ 2. አይደለም	
A5	ክትትል የሚታደርጊበት ጤና ተቋም የት ነበር?;	1. ጤና ጣቢያ 2. ሆስፒታል 3. የግል ክሊንክ 4. መንግስታዊ ያልሆኑ ድርጅት (FGAE)	
A6	ለምን ህል ግዜ ቅድሜ ወሊድ ክትትል አደረግሽ?		
A7	በቅድመወሊድ ግዜ የአመጋገብ ስረአት ላይ የምክር አገልግሎት አገኝተሽል?	1. አዎ 2. አይደለም	
A8	የእርግዝናዎ አይነት	1. የታቀደ እና የሚፈለግ 2. ያታቀደ እና የሚፈለግ 3. ያታቀደ እና የማይፈግ	
A9	አስፈላጊ ድጋፍ ለእርግዝናዎ ተደርጎ ነበር?	1. አዎ 2. አይደለም	
A10	በምጥግዜ የህፃኑ ልብ ምት በጥሩ ሁኔታ ለሰይ ይገኝ ነበር?	1. አዎ 2. አይደለም	
A11	በእርግዝናዎ ወቅት በህመም ተይዘሽ ታወቃለሽ?	1. አዎ 2. አይደለም	
A12	መልስሽ ለ A11 አዎ ከሆኑ፤ ምን ሌሎች በሽታ?	1. የህፃናት መፍሰስ ከእርግዝና ጋር የተያያዘ የስኳር በሽታ 3. ሌላ ከሆነ ግለፅ-----	
A13	የ TT ክትትል ወስደሽ ነበር?	1. አዎ 2. አይደለም	
A14	የደም ግፊት ህመም ነበረብሽ?	1. አዎ 2. አይደለም	
A15	ነብሰጡር በነበረበት ግዜ ከእርግዝናዎ ጋር በተያያዘ የተፈጠረ የደም ግፊት ህመም ነበረብሽ?	1. አዎ 2. አይደለም	

ለ16	እርግዝናዉ ግዜ በስኳር በሽታ ተይዘሽ ነበር	1.አዎ 2.አይደለም	
ለ17	ከእርግዝናዉ በፊት በስኳር በሽታ ተይዘሽ ነበር	1.አዎ አይደለም	
<b>ክፍል ሐ</b>	<b>የሰቶች ነፃነት ጥያቄ</b>		
	<b>የመንቀሳቀስ መብት</b>	<b>አዎ</b>	<b>የለኝም</b>
ሐ1	ከሚትኖሪበት መኖሪያ ቤት ወተሽ ለመሄድ ባለቤትሽ ወይም የቤቱን አባላት ታስፈቅዳለሽ?	1	0
ሐ2	በአከባቢሽ የሚገኘዉን ጤና ጣቢያ ለመሄድ ባለቤትሽ ወይም የቤቱን አባል ታስፈቅዳለሽ?	1	0
ሐ3	በሚትኖሪበት አከባቢ የሚገኘዉን ጉብያ ለመሄድ በለቤትሽ ወይም የቤቱን አባላት ታስፈቅዳለሽ?	1	0
ሐ4	<b>የህፃናት ዉሳኔ ሰጪነትን በተመለከተ:</b> ከዚህ በታች የተዘረዘሩት ላይ ከቤተሰቡ አባላት ዉሳኔ መስጠት የሚችለዉን ሰዉ ግለፅልን:	<b>1. የቤቱ አሜቤት</b>	<b>0. ሌላ ሰዉ</b>
ሐ5	ህፃን ልጅ በበሽታ ከተያዘ ምን ታደርጋላቹ?	1	0
ሐ6	ልጅን ምንያህል ወደ ትምህርት ቤት ትወስዳለሽ?	1	0
ሐ7	አሁንም ይሁን ወደፊት ልጅሽ ማን እንዲታገባ የሚወስን ማነዉ	1	0
ሐ8	<b>በመኖሪያ ቤት ሃላፊነት እና ዉሳኔ ሰጪነትን በተመለከተ</b>	1	0
ሐ9	ለመመገቢያ የሚዉል እህል ለመኖሪያ ቤት የሚገዛ	1	0
ሐ10	መሰረታዊ ሆኔ እንዴ በሩ፤መረት እና ቤት የሚገዛ	1	0
ሐ11	<b>የቤተሰብ ምጣኔ አጠቃቀምን በተመለከተ.</b>		
ሐ12	ምን ያህል ልጅ ሊኖርሽ እንደሚችል መወሰን ትችላለሽ?	አዎ	አይደለም
<b>ክፍል መ</b>	<b>ከጤና ችግሮች ጋር የተያያዘ ጥያቄ</b>		
	<b>በላፉት ሁለት ሳምንታት እናት የጤና ችግር አጋጥሟት ያቃል?</b>	<b>1.አዎ</b>	<b>0.አይደለም</b>
	መልሷ አዎ ከሆነ የሚከተለዉን ጥያቄ ጠይቃት:: ካልሆነ ወደሚቀጥለዉ ጥያቄ እለፍ.		
መ1	ጉንፏን		
መ2	የአተነፋፈስ ችግር		
መ3	ትኩሳት		
መ4	ተቅማት		
መ5	የሴት ብሊት መድማት		

መጠን	ለላ ካለ ግለፅ-----		
ክፍል ረ	የአመጋገብ ልምድና እነክብካቤ መለኮ		
	ጥያቄ	አማራጭ መልሶች	መለያ ቁጥር
ረ 1	በለፉት 4 ሳምንታት በቤት ውስጥ በቂ ምግብ የለም ብለው ስጋት ገብቶት የወቀል?	0. አዎ 1. አይደለም	
ረ 2	መልሰሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 3	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰብ አባል ከአቅም ማነስ የተነሳ የማትፈልጉትን ምግብ ያለመመገብ ሁኔታ አገጥሞችሁ የወቀል ?	0. አዎ 1. አይደለም	
ረ 4	መልሰሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ (በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 5	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰብ አባል ከአቅም ማነስ የተነሳ የተወሰነ የምግብ አይነት የመመገብ ሁኔታ አገጥሞት የወቀል?	0. አዎ 1. አይደለም	
ረ 6	መልሰሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 7	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰብ አባል ከአቅም ማነስ የተነሳ የማትፈልጉትን የምግብ አይነት ተመግቦ የወቀል?	0. አዎ 1. አይደለም	
ረ 8	መልሰሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 1. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 9	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰብ አባል በገጠሞት የምግብ ማነስ ምክንያት ጥቂት የምግብ ብዛት በየገበታዎ ተመግቦ የወቀል?	0. አዎ 1. አይደለም	

ረ 10	መልስሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 11	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰብ አባል በገጠሞት የምግብ ማነስ ምክንያት መብላት የለቦትን የምግብ ጊዜ ብዛት ዘለው ተመግቦ የወቀል?	0. አዎ 1. አይደለም	
ረ 12	መልስሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 13	በለፉት 4 ሳምንታት ከአቅም ማነስ የተነሳ በቤቶት ውስጥ ምንም አይነት ምግብ ያለመኖር ሁኔታ አጋጥሞት የወቀል?	0. አዎ 1. አይደለም	
ረ 14	መልስሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 15	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰብ አባል በቤቶት ውስጥ በጋጠሞት የምግብ ማነስ ምክንያት ማታ እየተራቡ ወደ መኝታ ሂደው የወቃሉ?	0. አዎ 1. አይደለም	
ረ 16	መልስሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
ረ 17	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰብ አባል በቤቶት ውስጥ በጋጠሞት የምግብ ማነስ ምክንያት ቀንና ሌሊት ምንም ሳይመገቡ ወለው አድረው የወቃሉ?	0. አዎ 1. አይደለም	
ረ 18	መልስሽ አዎ ከሆኔ፤ ይህ ነገር ምን ያህል ጊዜ	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቴ)	

	ተከሰተ?	2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
<b>ሠ</b>	<b>የአመጋገብ ስረዓት ጋር ተያያዙ</b>		
ሠ	የመጠጥ ወ.ሃ አቅርቦት?	1.የቧንቧ ወ.ሃ 2.እንክብካቤ የሚደረግለት ምንጭ 3.እንክብካቤ የማይደረግለት ምንጭ 4.የጉድጓድ ወ.ሃ 5.ኩሬ/ወንዝ 6.ለላ ካለ ግለፅ-----)	
ሠ1	ነብስጡር በነበርሽበት ወቅት አይሬን ፎለት በተቸማሪ ትጠቀሚ ነበር?	1.አዎ 2.አይደለም	
ሠ2	መልስሽ አዎ ከሆኔ፤ ለስንት ወር ተጠቀምሽ?	_____	
ሠ3	ባለፉት ሰባት ቀናት ምን ያህል አይሬን ፎለት ተጠቀምሽ?	_____	
ሠ4	ነብስ ጡር በነበርሽበት ጊዜ ለእርግዝናወ ተጨማሪ ምግብ እንደሚያስፈልግ የምክር አገልግሎት አገኝተሽ ነበር?	1.አዎ 2.አይደለም	
ሠ5	በቀን ምን ያህል ጊዜ ተጨማሪ ምግብ ትጠቀማለሽ?	1.አንድ ጊዜ 2.ሁለት ጊዜ 3.ሶስት ጊዜ 4.አራት ጊዜ 5.አምስት ጊዜ እና ከዛ በላይ	
ሠ6	በእርግዝና ጊዜ ተጨማሪ ምግብ ለእርግዝናወ ለመመገብ ታምኝበታለሽ?	1.አዎ 2.አይደለም	
ሠ7	መልስሽ አዎ ከሆነ በቀን ምን ያህል ትመገባለሽ?	_____	
ሠ8	የአዮዲን ጨዋ ጥጠቀላመሽ?	1.አዎ 2.አይደለም	
ሠ9	ሃንበር ጥጠቀማለሽ?	1. አዎ 2. አይደለም	
ሠ10	በእርግዝናሽ ወቅት የሚትጠይወ ምግብ አይነት አለ?	B. አዎ B. አይደለም	
ሠ11	መልስሽ አዎ ከሆኔ በእርግዝናሽ ወቅት የቲኛወን አይነት ምግብ ነዉ የሚያስጠላሽ?	1.ስጋ 2.ማሽላ 3.ማንጎ 4.ሙዝ 5.እንቁላል 6.በቆሎ 7.ለላ ካለ ግለጫ	
ሠ12	ይህን ለማከናወን ምክር የሰጠሽ ማነዉ?	1.ጎልማሳ 2.ጎሮቤት 3.ባለቤት	

		4.የሀይማኖት አባት 5.ሌላ ሰው	
ሠ13	ከላይ የተጠቀሱትን የምግብ አይነት እንዳትጠቀሙ ምክንያት የሆኑ ምንድነው?	1.ለእርግዝናዎ የጠየና ጥቅም ስለሌለዎ 2.የእርግዝናዎ የህፃኑን ክብደት ለመጨመር 3.በፅንሱ ጭንቅላት እና ሰውነት ላይ ስለሚጣበቅ 4.የወርጃ ፍራቻ 5.የሰጣን አይን 6.ፅንሱ ላይ ችግር ስለሚያደርስ 7.ሌላ ካለ-----	
ሠ14	ለጥንካራ እና ጤንነት በተጨማሪ የሚትመገቧዎ የምግብ አይነት ምንድነው?	_____	
ሠ15	ነብሰ ጡር በመሆንን ከአጠገብ ላይ የሚታሪቁዎ የምግብ አይነት አለ	1.አዎ 2.የለም	
ሠ16	መልስ ስለ አዎ ከሆኑ የትኛው የምግብ አይነት?	_____ ግለጭ-----	
ሠ17	እንዳት ተቀሙ ምክንያት የሆነው ምንድነው?	1.ለእርግዝናዎ የጠየና ጥቅም ስለሌለዎ 2.የእርግዝናዎ የህፃኑን ክብደት ለመጨመር 3.በፅንሱ ጭንቅላት እና ሰውነት ላይ ስለሚጣበቅ 4.የወርጃ ፍራቻ 5.የሰጣን አይን 6.ፅንሱ ላይ ችግር ስለሚያደርስ 7.ሌላ ካለ-----	
ሠ18	ሰውነት ካስጠላ የሚጠላበት ምክንያት ምንድነው ብለሽ ታስባለሽ?	1.የምግብ ሽታ 2.ደረት ስለሚያቃጥል 3.ትወከት ፍራቻ 4.ምክንያቱን አላውቅም	
ሠ19	በእርግዝና ሽጭት በተለየ መልኩ ለመመገብ ያቀድሽዎ የምግብ አይነት አለ?	1.አዎ 2.ኤደለም	
ሠ20	መልስ ስለ አዎ ከሆኑ ምን ያምሬሻል?	ግለጫ -----	
ሠ21	ይህን ምግብ አይነት ሚያምርሽበት ምክንያት ምንድነው?	1.የምግቡ ቀለም 2.የምግቡ ሽታ 3.ለፅንሰ ያለው አስፈላጊነት 4.ምክንያቱን አላቅም ለላም ካለ ግለጫ-----	
ሠ22	መጻፍ ሴት አላቹ?	1.አዎ      2.የለንም	
ሠ23	መልሱ አዎ ከሆኑ ምን አይነት መጻፍ ሴት?	1.የግል መጻፍ ሴት 2.የጋራ መጻፍ ሴት 3.ወሃ ማፍሰሻ ያለው መጻፍ ሴት 4.ከላይ ሽፋን የለለው መጻፍ ሴት 5.በተጨማሪ የአየር መተንፈሻ ያለው መጻፍ ሴት	

		6.መዳ ላይ መጻፍያት	
ሆ24	እጅሽን የሚትታጠቢዉ መቶ ነዉ? 1.ከምግብ በፊት 2.ከምግብ ቧላ 3.ከመጻፍጃ ቧላ	1.አዎ 2.አይደለም .አዎ 2.አይደለም .አዎ 2.አይደለም	
ሆ25	እጅሽን የምትታጠቢዉ በምን አይነት መልክ ነዉ?	1.በዉሃ ቢቻ 2.አልፎ አልፎ በሳሙና 3.ሳሙና ብቻ በመጠቀም 4.አልፎ አልፎ በአመድ	
ሆ26	ከሱስ ጋር በተያያዜ 1.ጫት መቃም 2.ስጋራ ማጨስ 3.አልኮል መጠጣት	.አዎ 2.አይደለም .አዎ 2.አይደለም .አዎ 2.አይደለም	

**ክፍል በ የምግብ አጠቃቀም በግዜ**

ያለፉት ሶስት ወራትን ወደ ኋላ አስታውሺ:: ከታች የተዘረዘሩትን ምንያህል እነደ ተጠቀምሽ ግለፅልኝ::

	የምግብ አይነት	በቀን	በሳምንት	በወር
በ1	ጠፍ			
በ2	በቆሎ			
በ3	ሩዝ			
በ4	ለዉዝ			
በ5	ጉበስ			
በ6	ስንደ			
በ7	የበሬ ስጋ			
በ8	ፍየል			
በ9	አሳ			
በ10	ዶሮ			
በ11	ጉበት			
በ12	ወተት			
በ13	ቅቤ			
በ14	ኑግ			
በ15	አተር			
በ1176	ጣፋጭ ድንች			
በ18	ዘይት			
በ19	እንቁላል			

በ20	አይብ			
በ21	ካሮት			
በ22	ድንች			
በ23	ትማትም			
በ24	አሬንጓዴ አትክልት			
በ25	አቮካዶ			
በ26	ሱፍ			
በ27	ሙዝ			
በ28	ቡርቱካን			
በ29	አፕል/ፖም			
በ30	ቡና			
በ31	ለስላሳ መተጦች			
በ32	በለፉት ሶስት ወራት ከመኖሪያሽ ወጪ ምግብ ተጠቅመሽ ታቃለሰ?			
<b>ክፍል ቀ</b>	<b>የመኖሪያ ቤት ሃብቶች</b>			

አሁን ከመኖሪያ ቤትሽ ያለሽን ሀብቶችን ነው የሚጠይቅሽ

<b>ከታች ከተገለፁት ሃብቶች በመኖሪያ ቤትሽ የሚገኘው የትው ነው? (ክብብበት)</b>		<b>አዎ</b>	<b>አይደለም</b>
ቀ1	አገልግሎት የሚሰጥ ረድዮ፤ ተፕ እና ሲዲ መጫወቻ	1	0
ቀ2	አገልግሎት የሚሰጥ ተለሽገርን	1	0
ቀ3	የጋዥ ስተቭ	1	0
ቀ4	የክሮሲን ስቶቭ	1	0
ቀ5	የኤለክትሪክስቶቭ	1	0
ቀ6	ሳይክሊ	1	0
ቀ7	ሞተር ሳይክል	1	0
ቀ8	ጋሪ	1	0
ቀ9	የግድግዳ ሰዓት	1	0
ቀ10	የግል ሞባል	1	0
ቀ11	ማረሻ	1	0
ቀ12	ሶፋ	1	0
ቀ13	የስፕሪንግ ፍራሽ	1	0
ቀ14	የስፖንጅ ፍራሽ	1	0



ቀ15	የጥት ፍራሽ	1	0
ቀ16	የሳር ፍራሽ	1	0
ቀ17	መቀመጫ	1	0
ቀ18	ጀነረተር	1	0
ቀ19	የእህል ሆፍጮ	1	0
ቀ20	የወ.ሃ ፓምፕ	1	0
ቀ21	ፍራጂ	1	0
ቀ22	መኪና	1	0
ቀ23	የግል መኖሪያ ቤት	1	0
ቀ24	ባጃጃ	1	0
ቀ25	ድጅታል ካሜራ/ቪዲዮ	1	0
	<b>በመኖሪያ ቤታቸው የሚገኙ እንሳዎች የቲኞቹ ናቸው?</b>	<b>1.አዎ 0.አይደለም</b>	<b>ብዛታቸው</b>
ቀ26	ባሬ		
ቀ27	ከብት		
ቀ28	ፈረስ/በቅሎ/አህያ		
ቀ29	ፊየል/በግ		

<b>ክፍል ቸ</b>	<b>መለክያ</b>		
ቸ1	የእናት MUAC	-----ሳ.ሜ	
ቸ2	አድስየተወለደ ህፃን ከብደት	----- ግራም	

**ክፍል ተ**

**ክፍል ተ፤ ከመረጃ የሚወሰድ**

<b>ይዘት</b>	<b>መለክያ</b>	<b>ሀሳብ</b>
አድስየተወለደዉ ህፃን ፆታ		
ከፅንሰ ጀምሮ እስከ ወሊድ ግዜ ያሉ ግዜ(ለመጨረሻ የወር አበባ የታየበት ግዜ)	----- ሳምንት	
የሀምግሎቢን ደረጃ	_____	
የእናትየዋ HIV ሁኔታ	_____	
እናትዬዋ HIV በደሙያ ውስጥ የሚገኝ ከሁኔታ፣ HAART/ B+ ማረጋገጥ	1.አዎ 2.አይደለም	

