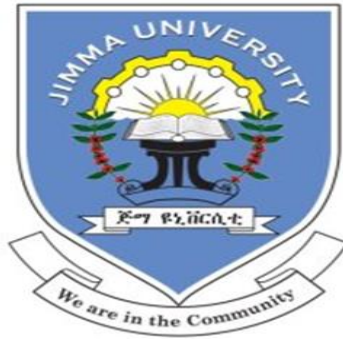**Disparities in antenatal care service utilization among food secure and food insecure women in Gombora Woreda, Hadiya Zone, South Ethiopia**

**By: Getachew Bitiro (BSc)**

A thesis submitted to the department of Population and Family Health, College of Health Sciences, Jimma University in Partial Fulfillment of the Requirements for the Degree of Masters in public health (Reproductive Health)

**June, 2015**

**Jimma, Ethiopia**

**Disparities in antenatal care service utilization among food secure and food insecure women in Gombora Woreda, Hadiya Zone South Ethiopia**

**Advisors:-**

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2. **Mrs. Meseret Tamrat (Bsc , Msc)**

## Abstract

***Background***: *Little is known about antenatal care utilisation difference among food secure and food insecure household pregnant women and factors contributing to inequities in antenatal care use in Gombora woreda Hadiya zone south Ethiopia. The aim of this study was to identify the disparities in the utilization of ANC that exists between pregnant women in food secure and food insecure household women*

***Methods:*** *A community based cross-sectional study was conducted from Feb 25 to March 25, 2015 in Gombora woreda, Hadiya zone, South Ethiopia. Structured questionnaire was used for data collection. **Descriptive**, bivariate and multivariable logistic regression analyses were conducted. Statistical tests were done at a level of significance of p < 0.05*

***Results***: *Of 796 sampled mothers, data were collected from 774 mothers giving a response rate of 97%. Two hundred sixty seven (34.5%) of the respondents had at least one antenatal care visit on current pregnancy. 49.1% of food secure and 23.3% of food insecure household women utilized ANC from health professionals. The odds of antenatal care use were 2.54(95% CI: 1.79-3.59, p < 0.001) times higher among women from food secure household pregnant women than those from food insecure. The odds of antenatal care use among women with secondary or higher education was 3. 76(95% CI: 2.32-6.1, **p < 0.001**) times higher when compared with women of no education. The odds of antenatal care use were 2.42(95%CI 1.348-4.334, p < 0.003) times higher among women with good knowledge than poor knowledge women. Moreover, the odds of use among women from the richest households were 2.10(95% CI: 1.347-3.286, **p < 0.001**) times higher compared with their counterparts from the poorest households. Furthermore, this study showed a significant variation in the use of ANC in food secure and food insecure household pregnant women.*

***Conclusions:*** *The disparities in antenatal care utilization among food secure and food insecure households, across economic and educational levels highlight the need to put more attention to food insecure household's pregnant women. In addition further study suggested understanding additional factors for the low antenatal utilization among food secure and insecure household pregnant women in Gombora Woreda, Hadiya Zone, South Ethiopia*

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## ACHRONOMY

| | |
|---|---|
| ANC | Antenatal care |
| BCC | Behavioral Change Communication |
| DHS | Demographic and Health Survey |
| EDHS | Ethiopian Demographic and Health Survey |
| FGD | Focused Group Discussion |
| FI | Food Insecurity |
| FANTA | Food And Nutrition Technical Assistance |
| FPL | Federal Poverty Level |
| HFIAS | Household Food Insecurity Access Scale |
| LMICs | Low and Middle-Income Countries |
| MDGs | Millennium Development Goal |
| NGO | None Governmental Organization |
| PCA | Principal Component Analyses |
| SNNPR | South Nation Nationalities People Region |
| USA | United Stat of America |
| WrHO | Woreda Health Office |
| ZHD | Zonal Health Department |

# Chapter1: Introduction

## 1.1 Background

Inadequate access and under-utilization of modern healthcare services are major reasons for poor health in the developing countries. This inequality in the health and wellbeing of women in the developing world is a growing concern (1). Antenatal care (ANC) is one of the most effective health interventions for preventing maternal morbidity and mortality particularly in places where the general health status of the women is poor through counseling on nutrition, birth preparedness, delivery care and family planning options. It is a good opportunity for identifying threats to mother and unborn baby's health (2). It provides also reassurance, education support for the women on screening programs and detects the problems that make the pregnancy high risk. Moreover, it is known to improve the outcome of pregnancy and birth for both mother and child. More than half a million maternal death that caused related to pregnancy and childbirth could be saved if they were provided with access to prenatal care and skilled attendants at birth as well as appropriate modern technology to deal with emergency obstetric care situations when needed (3).

For more than 20 years, Africa has struggled with hunger and food insecurity. Food security is a situation "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life"(4). Food security has four dimensions: stability, availability, accessibility and consumption and use of food (utilization) (4). Millions of people worldwide suffer from hunger and undernutrition. A major factor contributing to this international problem is *food insecurity*. This condition exists when people lack sustainable physical or economic access to enough safe, nutritious, and socially acceptable food for a healthy and productive life (5).

Despite the general worldwide reduction in food insecurity, Africa's food security and nutrition situation is growing worse. Africa has been experiencing several episodes of acute food insecurity causing an immense loss of life and livelihoods over the past decade (6).

Globally, certain groups of people are more vulnerable to food insecurity than others. Vulnerable groups include: women of reproductive age and dependent populations (e.g., elderly people, children under five, and disabled and ill people), victims of conflict (e.g., refugees and internally displaced people); marginal populations (e.g., unemployed people) (5).

## 1.2 Statement of the problem

Globally around 287,000 maternal deaths occurred in 2010, which was a decline of 47% from the levels in 1990. Sub-Saharan Africa (56%) and Southern Asia (29%) reported 85% of the global burden of 245,000 maternal deaths in 2010. According to World Health Organization (WHO), more than three-quarters of maternal deaths were found in just two regions of the world: 53% in the African Region and 25% in South-East Asia(4).

Despite some progress in the maternal mortality ratio over 1990–2010, a 42 percent reduction, from 745 deaths per 100,000 live births to 429—Africa still has the world's largest burden of maternal deaths, at 56 per cent of the global burden in 2010. At 429 deaths per 100,000 live births that year, or an estimated 164,800 maternal deaths, Africa has the world's highest maternal mortality ratio. In fact, Africa accounts for the 10 countries with the highest ratios (4).

Ethiopia is one of the countries in sub-Saharan Africa with markedly high maternal mortality ratio. The maternal mortality ratio (MMR) in the country has stagnated at 676 per 100,000 live births after declining from 871 per 100,000 live births in 2000 to 673 in 2005(7). Efforts to reduce maternal mortality should focus on reducing the likelihood that a woman will have a high risk pregnancy; reducing the likelihood that a pregnant woman will experience a serious complication of pregnancy or childbirth and improving the outcomes for women with complications

A woman who gives birth in Sub- Saharan Africa is 300 times more likely to die from complications related to pregnancy or childbirth compared to her counter-part living in a developed country (4).

Ante-natal care is one of the most important indicators for controlling maternal morbidity and mortality. In most of the developing countries women do not receive proper ante-natal care during pregnancy (8).

Over 70% of women worldwide have at least one ANC visit during pregnancy. Coverage is extremely high in high-income countries (98%) compared to in low and middle-income countries (LMICs) (68%). The lowest coverage is seen in Southeast Asia, where only 54% of women use ANC throughout pregnancy. In most African countries, less than 70% of pregnant women receive ANC, and most of them have only one or two visits, sometimes only late in pregnancy(4) .

In LMICs, more than 80% of women in the highest wealth index quintile use ANC compared to around 30% among women in the poorest quintile . Many of the women who do not have access to prenatal care are those who need it most, typically poor women in rural areas and urban slums (9). Due to this income/wealth difference antenatal care coverage in developing countries is low and there is wide gap of ANC between developed and developing countries mothers (9). The coverage is unequal across Africa. Only 47 per cent pregnant women attend the recommended four antenatal care visits, with wide disparities by geographic location and across income groups (4).

Even-though ANC services in Ethiopia were provided free of charge in all government health institutions, only thirty-four (34%) percent of pregnant mothers received antenatal care from a skilled provider. About six in every ten Ethiopian women (57%) did not receive any antenatal care.  In the rural area 63.1% women did not attend ANC at all. Women who received ANC at first trimester were only 11% and while those who attended four times were only 19%. This shows very low utilization of antenatal care (10).

According to EDHS 2011, 27.3% and 2014 report 35.9% pregnant women received antenatal care from a skilled provider in SNNPR which is less than the national coverage(national coverage in 2011,34% and 2014, 40%). About 59.2% in 2011 and 38.4% women in 2014 didn't receive any ANC in SNNPR (10,11).

Despite the progress on the proportion of people living in extreme poverty, in absolute terms, poverty reduction performance remains a concern. Due to the slow pace of poverty reduction, the number of people in extreme poverty (less than USA$1.25 per day) increased in Southern, East, Central and West Africa over 1990–2010, from 289.7 million to 413.8 million (4).

Food insecurity has played a large role in slowing progress on the health MDGs, especially for children and mothers. About half of pregnant women in developing countries suffer from anaemia. Malnourished pregnant women are more likely to give birth to underweight babies, who are more likely to die before their fifth birthday (12, 13).

According to FAO 2009 report households during economic crises used different coping strategy. Household adaptations used by poor country in Armenia- Dietary changes (wheat to potatoes), reduced use of health services, in Bangladesh and Zambia- Eating fewer meals, eating lower-quality foods, cutting health expense and in Ghana Dietary changes (maintain staple food consumption but reduce intake of other foods), shift from private to public school, reduced health expenditure(13).

In a study conducted in Zimbabwe, 2841 (32.8%) pregnant women were food insecure and 1518 (17.5%) pregnant women were Food insecure with hunger. Also 62% food insecure (FI) women with hunger were more likely to never have attended ANC compared with food secure women. Further, FI women with hunger were not utilizing antenatal care a health facility (14).

The study of ANC utilization becomes one of the most important research areas in developing countries because of the serious damage to the societal well-being. It is known that ANC helps to reduce the incidence of maternal morbidity and mortality by providing opportunities for health promotion and information about danger signs, birth preparedness and where to seek care for pregnancy complications. Household food insecurity has been associated with several negative health outcomes, yet little is known about the prevalence and correlates of household food insecurity during pregnancy.

It has been evident that in food insecure situation health care services tend to be forfeited as people make gaining access to food their primary activity and use different coping strategies. Although ANC is a free service, there are indirect and opportunity cost that could deter pregnant women from using the service in food insecure situations. However, there is no study that documented the association between food insecurity and ANC service use in Ethiopian in general and in the study area in particular. Therefore, this study will add its contribution in filling gap using primary data from the study area.

# Chapter 2 : LITERATURE REVIEW AND SIGNIFICANCE OF THE STUDY

## 2.1    Literature review

Maternal health care service utilization is believed to reduce maternal mortality and morbidity directly through detection and treatment of pregnancy related illness or indirectly through detection of woman at increased risk of complications of delivery in ensuring that they delivered in suitable equipped facilities. However maternal care utilization coverage is very low in developing countries like Ethiopia and little is known about factors that influence the use of this service in rural areas.

Several studies in various countries have been carried out to identify and understand the use of antenatal care services, especially in countries where the services are underutilized, including Ethiopia. These studies indicates that the ANC utilization rate is still low due to many factors that need to be examined such as socio-demographic features and socio economic factors are major reasons in developing countries. Among the socio economic factors most commonly affecting the ANC utilization identified in different literature are income/wealth, poverty and from the demographic factors: education, family size.

### Wealth

Wealth signifies the economic status of the individual/family. Several studies have found wealth to influence the use of health services positively. Findings from different studies showed that, women from high income, wealthiest/richest households were more utilizing ANC service than their counter parts. According to India Madhya Pradesh state study women from richest quintile had 4.53 times more likelihood of receiving ANC during pregnancy in comparison with women from the poorest quintile of the society (15).Also a finding from EDHS shows that as the household wealth quintile increases, the proportion of use of skilled ANC attendants also increased. Women from the richest households have the highest proportion of ANC attendance compared with 1of those from the poorest household wealth quintile (16, 17).

**Education status of women and husband**

The education status of the mother is a very key factor that determines the level of utilization of maternal health services. This helps women to develop behavioral change in the utilization of health services. According to the study conducted in EAG states of India revealed that educated women were more likely to utilize ANC service than uneducated women (8). In another study conducted in KHAM district, Xiengkhouang province, LAO PDR showed that educated women were 6.8 times more likely to utilize ANC than those who had no education (18). In a study conducted in Nepal showed that as education level increases the number of ANC visits increases (19).Based on a study done by analyzing Demographic and Health Survey (DHS) data from 33 countries showed that Women who completed primary education are almost three times more likely to have made at least four antenatal care visits than women with no or less than primary education. The likelihood of attending four or more antenatal care visits was 2.89 times higher for women with complete primary education than for those less educated (17).

Finding from Bangladish household income and expenditure survey of 2005, of the total sample 8836 women, only 16.4% received antenatal care from trained provider. Regarding to the use of ANC, women with education were substantially more likely to use ANC than without education (20).

A study done in Ethiopia from a data taken from EDHS of 2000, 2005 and 2011 showed that the use of ANC had monotonically increased with the level of education of women in all of the three surveys. For instance, in 2005 and 2011, the rate of ANC use among women with secondary or higher education were 81.4% and 91.3% respectively compared with only 22.4% and 33.9% among women with no education respectively(21) In this study, women with secondary or higher education had five times the odds of having ANC visits compared with women with no education. In another cross sectional study done in North Gondar Zone Ethiopia revealed that Antenatal care by a skilled provider increases steadily with education so that women with secondary and above education were 68% more likely to use ANC service as their counterparts with no education( 22).

A study conducted in Ethiopia by drawing Data from the 2011 EDHS showed that Only 25% of women who had no education used skilled ANC compared with 45.5% of those with primary education, 85.6% of those with secondary school education and 90% of those who had higher than secondary level education **(16).**Also a study done in Sidama zone, southern Ethiopia showed that illiterate women were 27.9 percent less likely to use the ANC compared to their counterpart literate women (23).

Also male partner education status has a great influence in the utilization of ANC service. A cross-sectional study in rural Bangladesh revealed that, Among women whose husbands had schooling above primary level 74.5% sought ANC from a trained provider compared with 35.9% of women whose husbands had no schooling (24).

A study conducted in northwest Ethiopia revealed that women's and husband's education of secondary and above increased ANC use by more than 6 and 1.5 times, respectively than those whose partner has no education (25,26).

### Knowledge of timing, and frequency of ANC

Based on the research results done in Mulago hospital, Kampala Uganda 72.7% pregnant women did not know the right gestation age at which a pregnant woman should start attending antenatal care. Only 27.3% women who knew the right gestation age of antenatal care initiation time. From those knowledgeable women know the right gestation age 76.1% responded at three months; 15.6% at fourth months; 5.5% at two months and the rest 2.8% when a menstrual period is missed. The source of information for about 92.7% women was during health education in a health facility when they had attended antenatal care in previous pregnancies. The reason mentioned from those who not started antenatal care at the right gestational age, 53.3% reported that they did not have any problem with their current pregnancy and so they saw no reason to come early for antenatal care, even though some of these know the right gestation age at which they should make their first antenatal care visit (27).

According to the study done in Gondar hospital showed that, nearly half (47.4%) of the women started ANC within the recommended time and the rest (52.6%) booked late (28). Another study done in Kembata Tembaro Zone, Southern Ethiopia revealed that 31.4 % pregnant women initiated ANC before 16 weeks of gestation while two third 68.4 % initiated after 16 weeks of

gestation. However, the sample size of the above two studies were small to conclude for general population (29). Also, both studies were done in institutions. And the results of both study showed that early ANC booking were low compared to the recommendation of WHO which states that each and every pregnant woman should start the first ANC within the first trimester of pregnancy.

A community-based cross-sectional survey conducted in Tigray region, Ethiopia reviled that 602 women (54%) received ANC services at a health facility at least once during their last pregnancy from skilled provider. Some of the reasons mentioned for attending ANC were "to know maternal health status"(60.3%), "because of sickness"(31%), and "to know foetal status" (26.4%).Among those who did not attend ANC, the most frequently mentioned reasons were "not feeling sick" (32.7%), "lack of awareness of the benefits" (28.2%), "workload" (13.4%) and "health facility too far away"(12.5%)(30).

In a cross-sectional study conducted in Holeta town, central Ethiopia showed that the reason for non-attendance of ANC were absence of illness (44.4%), no or little knowledge about ANC (35.2%), and being too busy 31.5%. Determinant factors for low utilisation of ANC were Lack of awareness, apparently being healthy, work overload either in the household or in the other daily activities and financial constraint. However ,the sample size was small and sampling procedure was multistage sampling method but the researcher dosen't used design effect to incrase precision by incrasing sample size so it has weakiness in sampling procedure ( 31).

A study conducted in Benishangul Gumuz region of Ethiopia showed that lack of awareness 268(51.4%) and absence of health problems during pregnancy 213(40.9%) were the main reasons mentioned for not attending the service(24). However, the effect of food insecurity is not included in this study (17).

Finding from a cross-sectional survey conducted in Yem special woreda, Southwestern Ethiopia showed that the major reasons for not attending ANC for women who did not utilize antenatal care were; no illness experienced during pregnancy for 104 (23.2%), lack of awareness about ANC for 99 (22.1%), far distance from health facility for 73 (16.3%) , being too busy 68 (15.2%) and husband disapproval for 21(4.7%). Concerning Respondents' knowledge about

ANC among 627 studied women, 357(56.9%) reported that ANC check-up is essential to the health of both the mother and the child, while 41(6.5%) did not know the benefit of ANC (32).

Finding from study done in Hadiya zone showed that only 8.7% of the ANC attendants initiated care during the first trimester of pregnancy while 68.1%had the first visit during the third trimester. Similarly only 42% of the women visited at least three ANC service. According to mothers' response the reasons for not attending ANC were apparently healthy during their last pregnancy (65.3%). Other reasons mentioned include other family matters, lack of awareness, too far facility, no husband support, and long waiting time (33).

### Maternal age, Parity and Family Size

Use of maternal health care services is expected to be associated with demographic and socioeconomic factors. One important demographic variable that affects the utilization of health seeking behaviour is mothers' age at the time of birth. The study in EAG states of India showed that women of age groups 35-49 years are significantly less likely to receive ANC as compared to 15-24 years women. Similarly, women with higher birth order children are significantly less likely to receive antenatal cares (8). Also in another Study in Madhya Pradesh state of India showed that Women who were younger than 35 years at the time of last birth were 1.28 times more likely to receive ANC than women in the age group of 35 years or more (15).

According to the cross sectional Study conducted in Holeta Town central Ethiopia showed that lower utilization of maternity care services is observed among mothers who are over 35 years of age (31). Age at first pregnancy was also an independent predictor of antenatal care utilization. Another cross sectional study done in Yem special Woreda, southwestern Ethiopia showed that women whose age less than or equal to twenty years at the time of first pregnancy were nearly three times more likely to use antenatal care services than whose age were more than twenty years (32). Finding from study done in Sidama zone, southern Ethiopia showed that Women in the age groups 25-34 and 35-49 are 43 and 62.6 percent less likely to use ANC services compared to the reference category (younger mothers aged 15-24). Similarly In a cross sectional study done in Hadiya zone mothers who are in the age group of

25-29 years were less likely to utilize ANC service than those 35 years and older this finding is different from other research findings(33).

### Parity

Parity, the number of children ever born, is strongly associated with health seeking behaviour. Studies show that primiparous women are consistently more likely to use ANC service than any other parity group. High parity women are the least likely to utilize ANC services (15, 33) due to greater confidence and cumulative experience ( 31) and the other reason according to a cross-sectional study done in Holeta town, central Ethiopia shows that the main reason, for those high parity women not attending antenatal clinics was being too busy (31.5%)( 31)due to, work overload either in the household or in the other daily activities and to care for many children in addition to other works and responsibilities that make them too busy( 34). On the other hand, nulliparous women seek early antenatal care services due to women believe the first pregnancy is risky compared with the next consecutive pregnancies (35).

It was also observed that availability of women's time is important in the utilization of antenatal care. In developing countries, women spend more time on their multiple responsibilities for care of children, collecting water or fuel, cooking, cleaning, and trade than on their own health (they are too busy due to work overload either in the household or in the other daily activities 31.5% . More than six women in every ten (61 percent) were concerned about their workload inside and outside the home (10, 15, 16).

### Family size

Family size was found to be a strong factor of antenatal care utilization. Mothers who live in a household having less than three children were eight times more likely to utilize ANC than those living in a household size greater than five (15, 16, 31) this is due to high parity women not attending antenatal clinics was being too busy to care for many children in addition to other works and responsibilities that make them too busy (34).Finding from a study done in Hadiya zone Ethiopia revealed that Mothers who live in a household having less than three children were eight times more likely to utilize ANC than those living in a household size greater than five(33).

**Food insecurity and health service utilisation**

According to the study conducted in American people postpone needed health care and medications and high rates of poor access to health care use during Food insecurity (36). In another study conducted in Oregon, food insecure women received inadequate prenatal care (37).

According to FAO 2009 report households (in Armenia) during economic crises reduced use of health services as coping strategy (12). Also in a study conducted in Zimbabwe 62% food insecure (FI) women with hunger were more likely to never have attended ANC compared with food secure women. In this study Food Insecure women with hunger were not utilizing antenatal care at health facility (14).

A variety of demographic and socio economic characteristics influence women's ANC utilisation. These include women's education, husband's education, intendedness of pregnancy, age of women at pregnancy, and parity, Family size, and maternal occupation, Husbands occupation, wealth index, Knowledge on ANC and food insecurity, were predictors that either positively or negatively influence utilization of ANC care. However, almost all reviewed literatures were not showed about the association between antenatal care utilization and food security status of pregnant women. But a few study showed food insecurity that affect health care utilization.

Conceptual framework
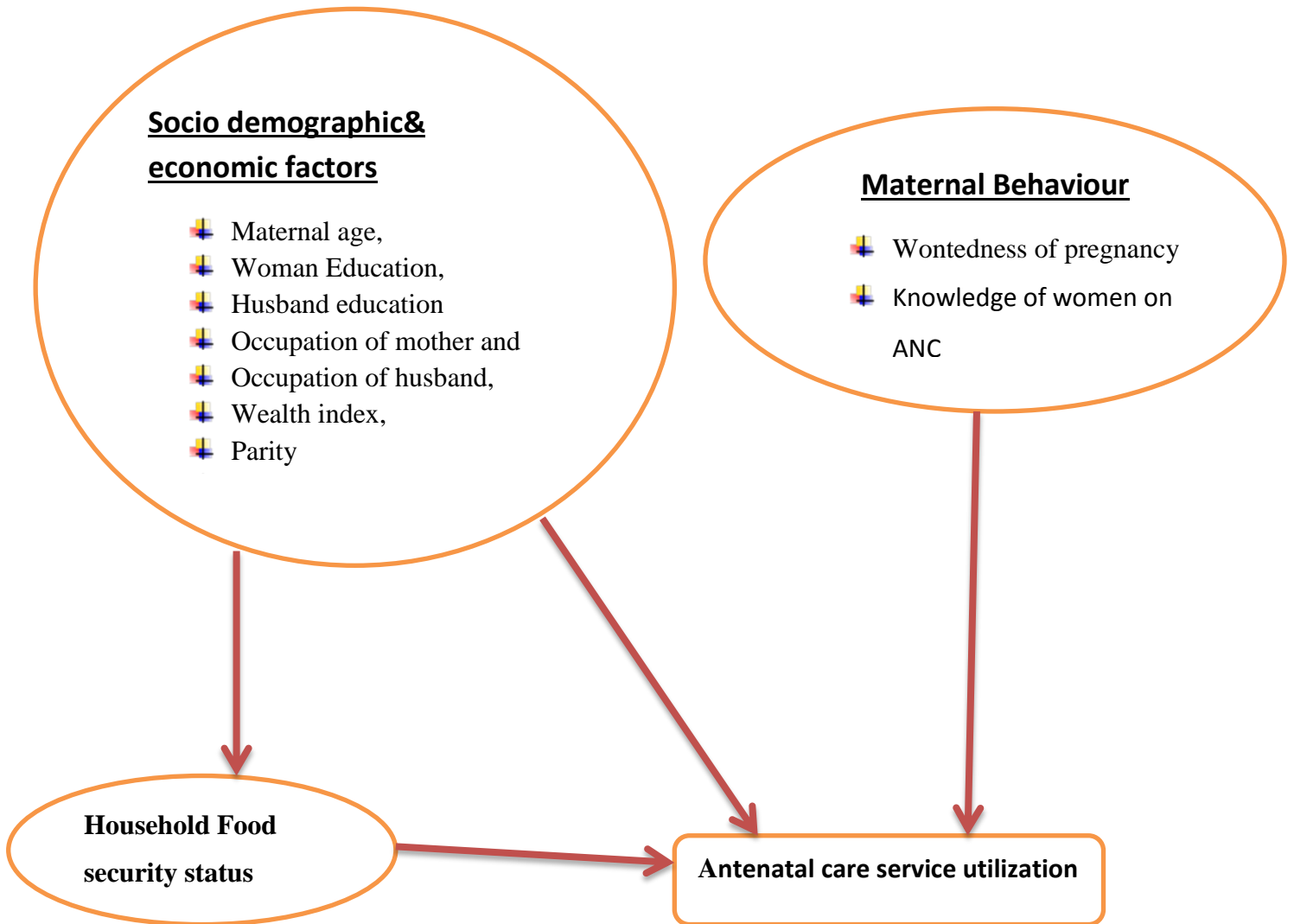


Figure 1: conceptual frame work

## 2.2 Significance of the study

Government of Ethiopia implementing different approaches to reduce maternal mortality .From these approaches ANC is one of cornerstone to reduce maternal mortality by identifying and preventing complication at early stage. But maternal mortality is still high in Ethiopia which is 676 per 100,000. A few studies explored the determinants of antenatal care service utilization in SNNPR (23, 32 and Hadiya Zone (33).

These studies have shown that different factors affecting antenatal care service use. Most of the studies focused on demographic and socio economic factors such as maternal age, education, residence, parity, history of abortion, child birth outcome, and experience of service utilization, pregnancy-related complications, wanted or unwanted pregnancy and income/wealth/poverty etc. None of the studies tried to look at the effect of food security on antenatal care service utilization. This study has tried to look into these issues. In addition this study tried to estimate the prevalence of household food insecurity among pregnant women and ANC utilization or provide an overview of the relationship between food security status of women and ANC utilization.

The study of disparities in antenatal care utilization among food secure and insecure household pregnant women and its associated factors will provide planners and policymakers with useful information that could lead to reforms that encourage antenatal care utilization and solve household food insecurity. Such reforms may increase utilization of antenatal care in food insecure women and improve health status of women.

Also this study, will furnish important directions for intervention which help local health planners to critically look at the problem during their planning process. It will also serves as a baseline data for future studies

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# Chapter 3 : Objective

## 3.1 General Objective

- To identify the disparities in the utilization of ANC that exists between pregnant women in food secure and food insecurity household women in Gombora Woreda, Hadiya Zone, South Ethiopia, 2015.

## 3.2 Specific objectives

- To determine the prevalence of ANC utilization among food secure and food insecure household women in Gombora Woreda, Hadiya Zone, South Ethiopia, 2015.

- To determine factors association with ANC utilization among food security and food insecure household women in Gombora Woreda, Hadiya Zone, South Ethiopia, 2015.

# Chapter 4 : Methods and Materials of the Study

## 4.1 Study area and period

The study area is Gombora Woreda. It is found in SNNPRs, Hadiya administrative zone of the country. It is located at 264km far away from Addis Ababa, 226km from the regional capital city Hawassa and 32km from Hossana.

It is one of the 11(eleven) woredas found in the zone. The study area has 23 kebeles (one semi urban and 22 rural kebeles) with a total population of 116,168 (Male 59,246; Female 56,922) and reproductive age group women of 27,067. It is bordered in the North by Gibe woreda, in the North East by the Misha woreda, and in the South Soro woreda, in the East by the Lemo woreda, and in the West by Omo River, Yam special woreda and Jimma Zone of Oromiya Regional States. It has three agro-ecological Zones, namely Kolla (lowland) 45.5%, woinadega (midland) 51%, and Dega (highland) 3.5% (FEDC, 1998). The woreda has 29 health institutions (23 health posts and 6 health centers (1 NGO). The level of food security status in the woreda was not known exactly but there is a safety net program since 2007 for those households with food insecurity. According to agriculture office report, only 9(nine) pregnant women were on safety net program from food insecure households in the woreda

The study was conducted from Feb 25 to March 25, 2015

## 4.2 Study Design
Community based comparative cross sectional survey.

## 4.3 POPULATION
### 4.3.1 Source population
All pregnant women in Gombora Woreda

### 4.3.2 Study Population
Study population is the representative number of pregnant women who were randomly selected from the source population.

**Inclusion criteria**- Pregnant women with self-reported pregnancy

**Exclusion criteria**-Women who are critically ill and not-permanent residents

### 4.4   SAMPLE SIZE AND SAMPLING TECHNIQUES

#### 4.4.1 Sample size

The sample size was calculated by using Epi info version 7 for two population proportion considering

Power =80%, Ratio (food secure women: food insecure women) = 1

P1 = proportion of ANC users among proportion of food secure women = 41% (Mini- EDHS   2014)

P2= proportion of ANC users among proportion of food insecure women = 29% (Mini-EDHS 2014)

Zα/2 =Standard normal variable at confidence level of 95% (1.96))

It gives a total of 528.

The total population is <10,000.So it needs finite population correction.

It is corrected by using     $n_f$  = (n)/ (1+ (n/N) = (528)/ (1+ (528/4019)) = 467 where N=4019 which is total pregnant women in the woreda. After the finite population correction sample size becomes 467. Adding 10% non-response rate it becomes 514.

Also design effect is needed and calculated by the following formula

$$D_{\text{eff}} = 1 + (m - 1)\rho.$$

Where                                Deff = design effect

                                m= number of cluster (kebeles)

$\rho$= intra-cluster correlation (ICC)

                                Taking m=23 kebeles as cluster, considering $\rho$ = 0.025

                                 The calculated Deff = 1+ (23-1) 0.025 =1.55

The final sample size becomes 514*1.55= 796

### 4.4.2 Sampling Techniques

From the 23 kebeles in the woreda, 12 kebeles were selected to get representatives sample by simple random sampling (lottery method).For each kebele frame work was developed by taking households with pregnant women from family folder of health posts. Then based on the population, sample size was allocated for each selected kebeles proportionally. Finally households with pregnant women within the selected kebeles were selected randomly using research Randomizer online and interviewed in their home.

SAMPLING PROCEDURE
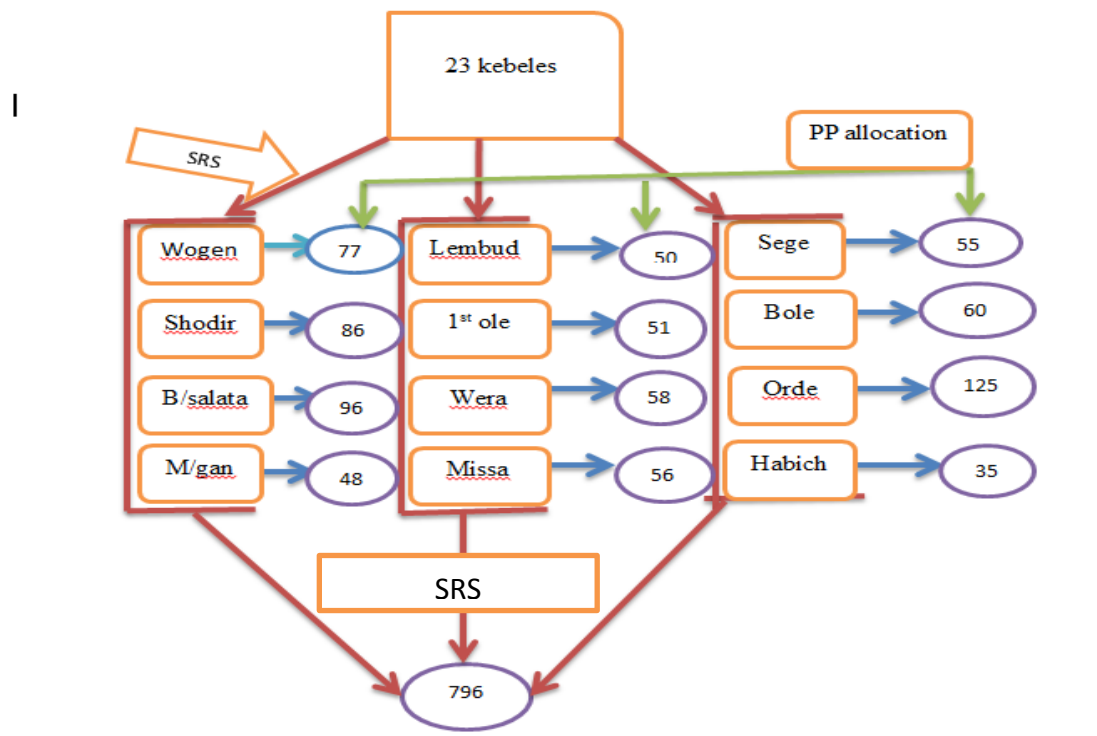


**Figure 2: sampling technique for Selection of Household with pregnant woman**

Note: SRS: - simple random sampling, PP: - population proportion allocation

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### 4.5 Variables

**Dependent variable**

Antenatal care service utilization by food security level

**Independent Variables**

- Socio-demographic factors include (women's education, husband's education, intendedness of pregnancy, age of women, parity, Family size, marital status, and maternal occupation, Husbands occupation, and wealth index)
- Household food security status

### 4.6 Data Collection Instrument

Data were collected using structured questionnaire adapted from different literatures and by modifying according to the local context by the investigator for ANC. For the household food insecurity the standard nine-item Household Food Insecurity Access Scale (HFIAS) questionnaire by Food And Nutrition Technical Assistance (FANTA III, VERSION 3 august 2007) was used. The questionnaire were translated first to Hadiyisa (the local language) to make data collection process simple and back translated to English language to check its consistency. Data were collected by seven trained data collectors whose mother tongue is Hadiyisa and the persons involved in data collection were Diploma nurses.

### 4.7 OPERATIONAL/ NOMINAL DEFINITION

**Antenatal care utilization**: If a woman received ANC at least once from skilled health professional (MD, HO, NURSE AND Midwife), antenatal care was said to be utilized.

**A food secure household** experiences none of the food insecurity conditions, or just experiences worry, but rarely(39).

**A mildly food insecure: -** household worries about not having enough food sometimes or often, and/or is unable to eat preferred foods, and/or eats a more monotonous diet than desired and/or some foods considered undesirable, but only rarely. But it does not cut back on quantity nor experience any of three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating).

**A moderately food insecure: -** household sacrifices quality more frequently, by eating a monotonous diet or undesirable foods sometimes or often, and/or has started to cut back on quantity by reducing the size of meals or number of meals, rarely or sometimes. But it does not experience any of the three most severe conditions.

**A severely food insecure household**: Any household that experiences one of these three conditions(running out of food, going to bed hungry, or going a whole day and night without eating) even once in the last four weeks (30 days).

**Food insecure households**: Households with mildly, moderately and severely food insecure conditions.

**Food secured households**: Households with food secure conditions or just experiences worry, but rarely.

**Family size**: - The total number of people lives in a house during the study period.it categorized as <=5 and > 5 family members

**Parity:** This variable was coded from a question that assessed the number of children a woman had ever given birth to. Responses were grouped as nulliparous (zero births prior to the current pregnancy), Para 1, Para 2 to 4 (2 to 4 births) and Para 4+ (more than 4 births)

**Maternal age**: The age of the mother at the time of the most recent pregnancy. Coding was done in three cohorts: <19 years, 20-34 years and 35-49 years; representing adolescents/teenagers, young adults and older women respectively.

**Women's Educational level**: Refers to the highest educational level a woman attained and it will be categorized as no education, primary(1-8), secondary(9-12) and More than secondary.

**Husband Educational level:** Similar to women's educational status this was categorized

as no education, primary(1-8), secondary(9-12) and More than secondary.

**Employment status** :In the survey this was defined as if the woman has been currently working in any field other than household work. This was classified as employed or non-employed

**Religion:** Classification of this variable was developed according to previous literature as: orthodox, protestant, and Muslim and others like traditional religion**.**

**Wealth index:** This is a measure of the standard of living of the family the woman belongs to. It is based on characteristics related to the socio-economic status of a household e.g. ownership of fixed assets, toilet facilities, type of drinking water source, main material of roof and external wall of house etc. Wealth index was developed using Principal Component Analyses (PCA). For this study, the wealth index is divided into three categories: 'poor', 'middle', and 'rich.

**Knowledgeable:** mean score for knowledge questions of 0.5 and above when 1 is given for correct answer and 0 is given for incorrect answer

## 4.8    Data quality control

To ensure the quality of data to be gathered from the study subjects, a range of mechanisms were employed to address major areas of bias introduction during the data collection process. First, the questionnaire was pre- tested on five present (5%) (40 pregnant women) mothers in nearby kebeles out of study kebeles on similar settings and necessary

modification were made based on the nature of gaps identified in the questionnaire. Data collectors were trained on how to gather the appropriate information, procedures of data collection techniques and the whole contents and subject matter of the questionnaire. Continuous on site supervision by the researcher was carried out during the whole period of data collection. At the end of each day, the questionnaire was reviewed and cross checked for completeness, accuracy and consistency by the investigator and corrective discussion was under taken with all the data collectors. Data was cleaned and edited after it is entered in to the software (IBM SPSS version 21)

### 4.9    Data analysis

Data was coded, entered and cleaned by using SPSS version 21(Illinoise Chicaco). First Bivariate analyses were done and results were presented using proportions, means, and crude odds ratios. Variables having p-value $\leq 0.25$ was considered as a candidate for multivariable analysis. Then the multivariable logistic regression model was performed to isolate independent effect of food insecurity on ANC attendance after adjusting for potential confounder variables. The results were presented using adjusted Odds ratios and ninety five percent confidence intervals. Statistical significance will be declared at PV<0.05.

### 4.10    Dissemination of findings

The findings were presented to the Jimma University scientific community and submitted to the department of population and family health and college of public health and medical sciences. The findings were also be communicated to the local health planners and other relevant stake holders at zonal and Woreda level in the area to enable them take recommendations in to consideration during their planning process. It can also be communicated to health planners and managers at regional level. Publications in peer reviewed, national or international journals were considered.

## 4.11 Ethical considerations

Prior to data collection appropriate ethical clearance was obtained from the ethical clearance committee of the Jimma University. Formal letter of permission was produced from administrative bodies of the zone to the Woreda and to kebeles. Letter of cooperation from kebele administrators was obtained. Finally verbal consent was requested from every study participant included in the study during data collection time after explaining the objectives of the study. Confidentiality was assured for the information provided

# Chapter 5 : RESULTS

Out of 796 pregnant women   774 of women were interviewed making a response rate of 97%.

## 5.1    Socio-demographic characteristics

Six hundred thirty three (633) (81.8%) of the respondents were in the age group of 25-34 with the median age of 29 $\pm$ 5.48 years. The Dominant ethnic group is Hadiya (96.6%).

Out of 774 interviewed pregnant women 96.8% of the respondents were Protestants and the rest 3.2 percent were catholic followers, 99.2 percent were married, and more than 95.9 percent were housewives.

The educational status of women included in the survey shows that 350(45.2%) had no education, 280(36.2%) primary (1-8) and the rest 144(18.6%) account for secondary and above education level. When we see educational status of food secure and food insecure households, 125(38%) from food secure and 225(50.6%) from food insecure households had no education. Women in primary education constitute 132(40.1%) from food secure and148 (33.3%) from food insecure households. Secondary and above education level constitutes 72 (21.8%) and 72(16.2%) from food secure and food insecure household pregnant women respectively.  Concerning husbands education, 491(63.4%) attended formal education from grade 1 up to 8 and 108(13.9%) attended secondary and above education level

From the total women interviewed the household's wealth index falls in the lowest tertiles 257 (33.2%), in the middle tertiles 262(34%), and in highest/third tertiles 225(32.8%). From the food insecure household women183 (41.1%), 153(34.4%) and 109(24.5%) were found at lowest, middle and third wealth index groups respectively.

Also from the total interviewed(774) women 49.1% ,40.7% and 10.2% women were gravida two(2) to four(4),gravida more than 5 and gravida one respectively(Table 1)

**Table 1: Socio-demographic characteristic of the women among interviewed women in Gombora woreda Hadiya zone south Ethiopia, 2015**

| Characteristics | Count( percent) |
|---|---|
| **Ethnicity** | |
| Hadiya | 748(96.9) |
| Kembata | 5(0.6) |
| Gurage | 3(0.4) |
| Silite | 3(0.4) |
| Others* | 15(1.9) |
| **Mothers current occupation** | |
| House wife | 742(95.9) |
| Civil servant | 13(1.7) |
| Merchant | 12(1.6) |
| Farmer | 4(0.5) |
| Others** | 3(0.4) |
| **Religion of mother** | |
| Protestant | 749(96.8) |
| Catholic | 25(3.2) |
| **Marital status** | |
| Married | 768(99.2) |
| Divorced | 4(0.5) |
| never married | 2(0.3) |
| **Mothers education** | |
| no education | 350(45.2) |
| primary(1-8) | 280(36.2) |
| secondary(9-12)+ | 144(18.6) |
| **Husbands education** | |
| no education | 175(22.6) |
| primary(1-8) | 491(63.4) |
| secondary(9-12)+ | 108(13.9) |
| **Wealth Index** | |
| Lowest | 257(33.2) |
| Middle | 262(34) |
| Highest/third | 225(32.8) |
| **Gravidity (number of total pregnancy)** | |
| gravida_1 | 79(10.2) |
| gravida 2_4 | 380(49.1) |
| gravida>=5 | 315(40.7) |

Note: * Alaba, Oromo, Donga, Fuga ethnic groups, **  preacher, daily laborer, pottery worker

## 5.2 Prevalence of household food insecurity among interviewed pregnant women

From the total pregnant women interviewed, 438(56.6%) were from food insecure households and 336(43.4%) were from food secure households. From the total food insecure pregnant women 283 (63.6%) were in the age group of 25-34. Among the food insecure household women, 53(12%) were mildly food insecure, 205(46.8%) were moderately food insecure and 180(41%) were severely food insecure households
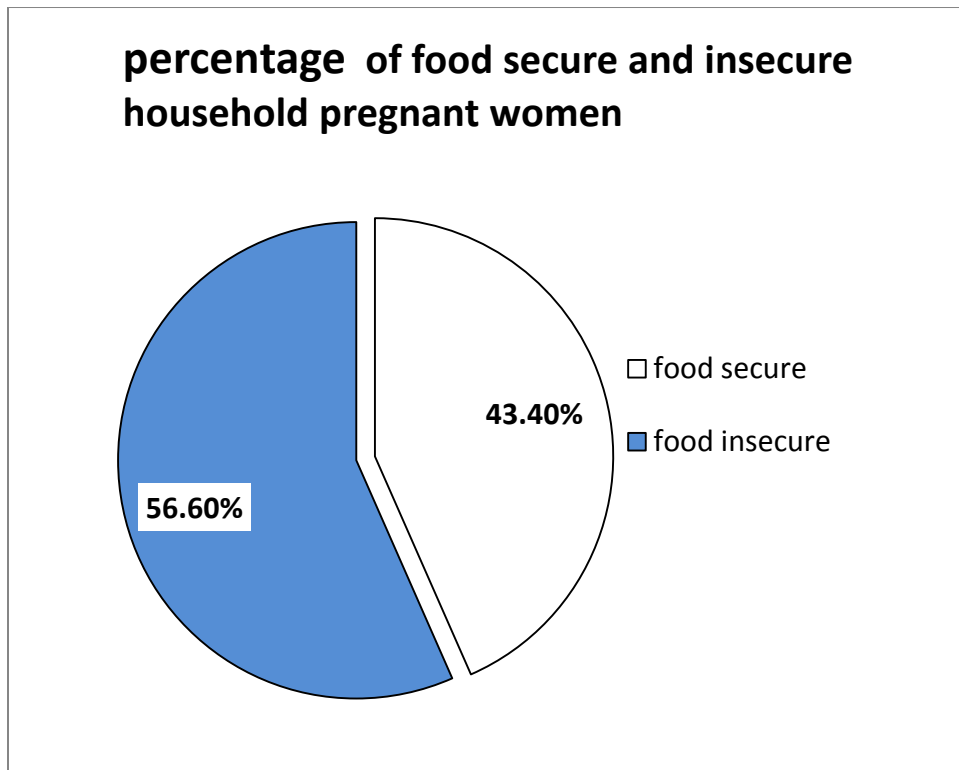


Figure 3: percentage of food secure and food insecure household pregnant women in Gombora woreda Hadiya zone south Ethiopia 2015

## 5.3    ANC utilization in the woreda

Among the women included in the study 237 (30.6%) had at least one antenatal visit during this pregnancy from skilled health professionals (doctors, nurses, midwife) and 30 (3.9%) of the mothers received ANC care from health extension workers (HEW), while 507 (66.5%) had none. Only 12% (n = 32) had the recommended 4 or more ANC visit from skilled professionals

Eighty Eight percent (88%) of women were not made their first ANC visit according to WHO recommendation(less than 4 months of pregnancy). The mean duration of pregnancy at the first visit is 6 months.
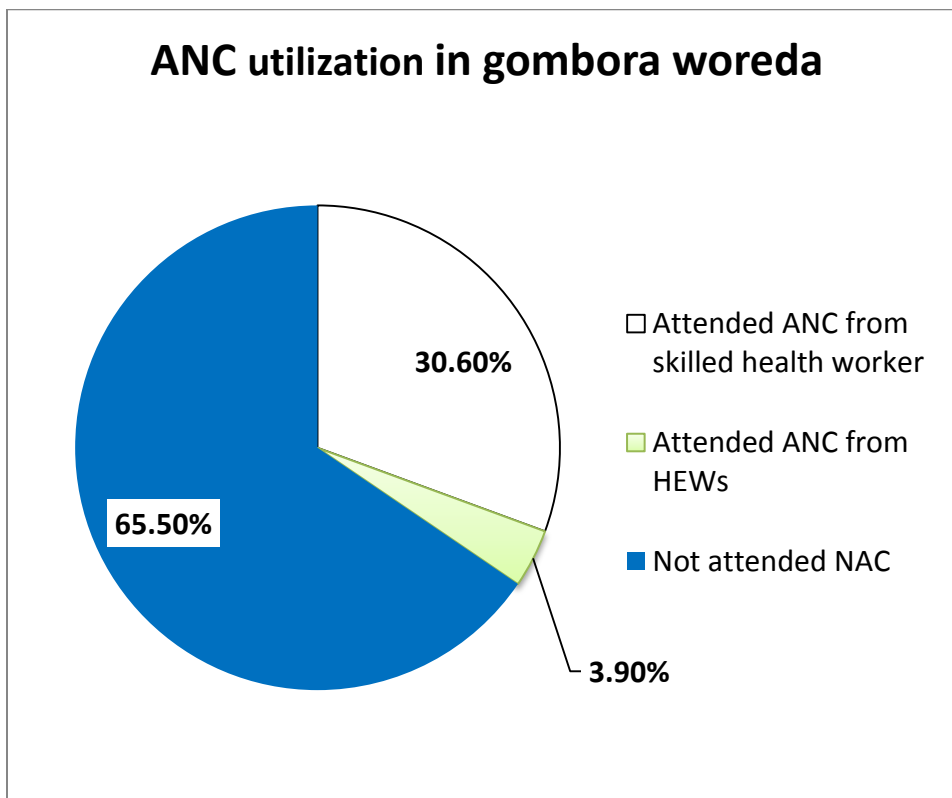


Figure 4: percentage of ANC attendants in Gombora woreda Hadiya zone south Ethiopia 2015

**Socio-cultural factors and the utilization of ANC services**

From those who attended ANC service 68(25.5%) of women were no education, 119(44.6%) had primary education and 80(30%) were secondary and above education level who received ANC from skilled health professionals. 57(21%) of women from lowest wealth index, 83(31%) from middle wealth index and 127(48%) from highest wealth index women attended ANC, among ANC attended women **237** (88.8%) from skilled health workers and the rest 30(11.2%) from HEWs.

In this study 476(61.5%) pregnant women were intended pregnancy whereas 298(38.5%) women were unintended pregnancy. From unintended pregnant women only 80(26.8%) attended ANC whereas from the intended pregnancy women 187(39%) attended ANC service. When we see intendedness of pregnancy and household food security status, 185(62.1%) women with unintended pregnancy were from food insecure households and 113(37.9%) were from food secure households. from intended ones 253(53%) were from food insecure households and 219(66.6%) were from food secure households.

### 5.4 Prevalence of ANC utilization among food secure and food insecure

Analysis according to Household food security level revealed that 165 (49.1%) of the food secure women and 102(23.3 %) of food insecure women have attended ANC service during current pregnancy. 171(50.9%) from food secure households and 336(76.7%) from food insecure households were not utilized ANC at all. From moderately food insecure household women (N=205) only 41(20%) and from severely food insecure household women (N=180) only 36(20%) attended ANC service.
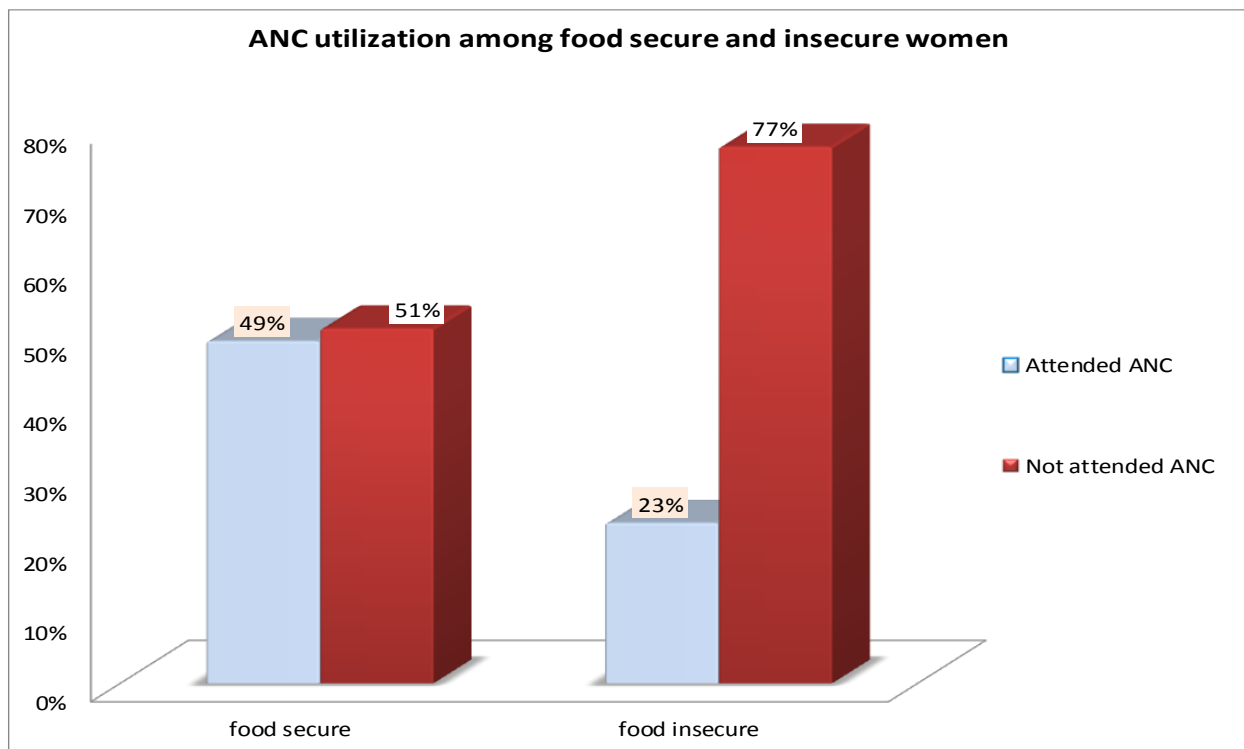


Figure 5: Percentage distribution of ANC utilization from skilled health workers among food secure and insecure household women in Gombora woreda Hadiya zone south Ethiopia 2015

## 5.5 Time of ANC initiation among food secure and insecure household women

Concerning time of initiating antenatal care only 32 (12%) of the ANC attendants initiated care according to WHO recommendation(less than four months of pregnancy) while 235(88%) women were not booked on the recommended time but majority started on the second visit schedule(6 to 7months/24 to 28 weeks). Number of visit was at least four in 32(12%) of the ANC service attendants. The majority of pregnant women 99(75%) from food secure and 77.2% from food insecure household women started ANC utilization latter than the recommended time (figure 6)
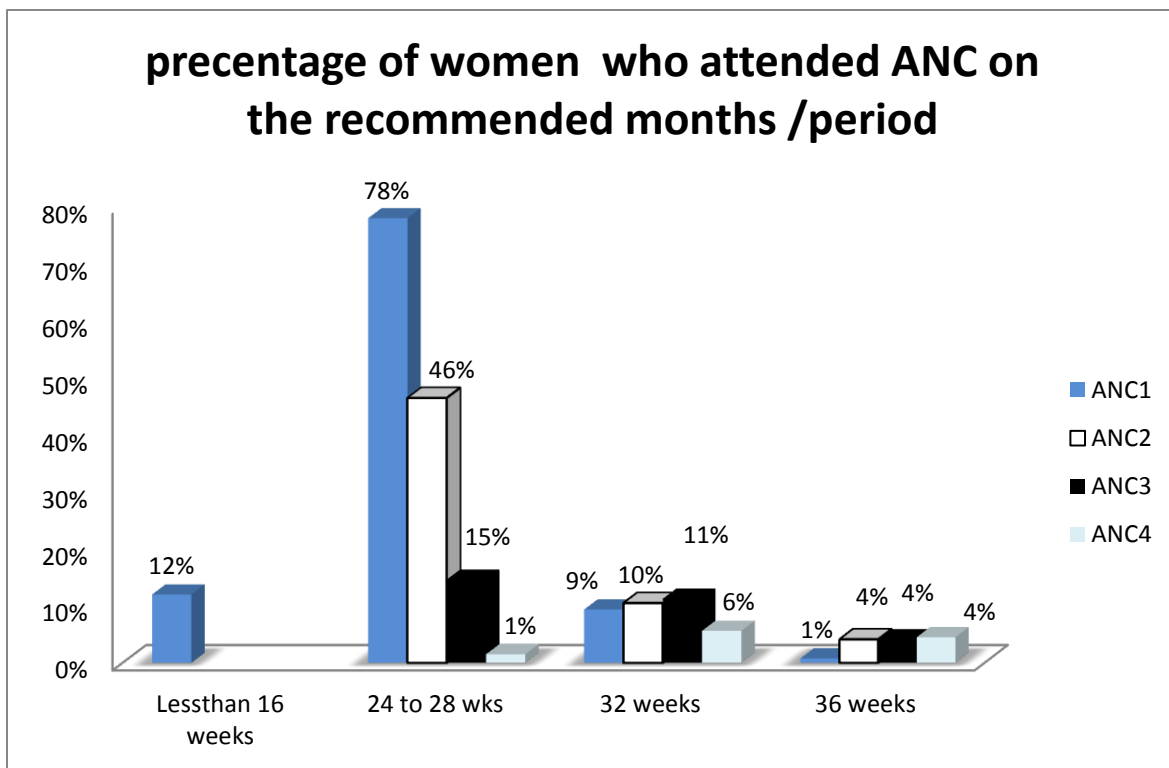


Figure 6: Time of first visit of ANC among food secure & insecure household pregnant women

## 5.6  Reason for attending ANC service among food secure and food insecure women

From those who attended ANC service 37.6%, 53.9%, 35.8%, 34.5% from food secure and 46%, 41.2%, 35.3%& 23.5% of food insecure household mothers visited a health institution because of **fear of problem**, **to take vaccination**, **to have healthy child** and **to take iron** for anemia prevention respectively , while 61(22.8%) of the mothers visited a facility for regular checkup.
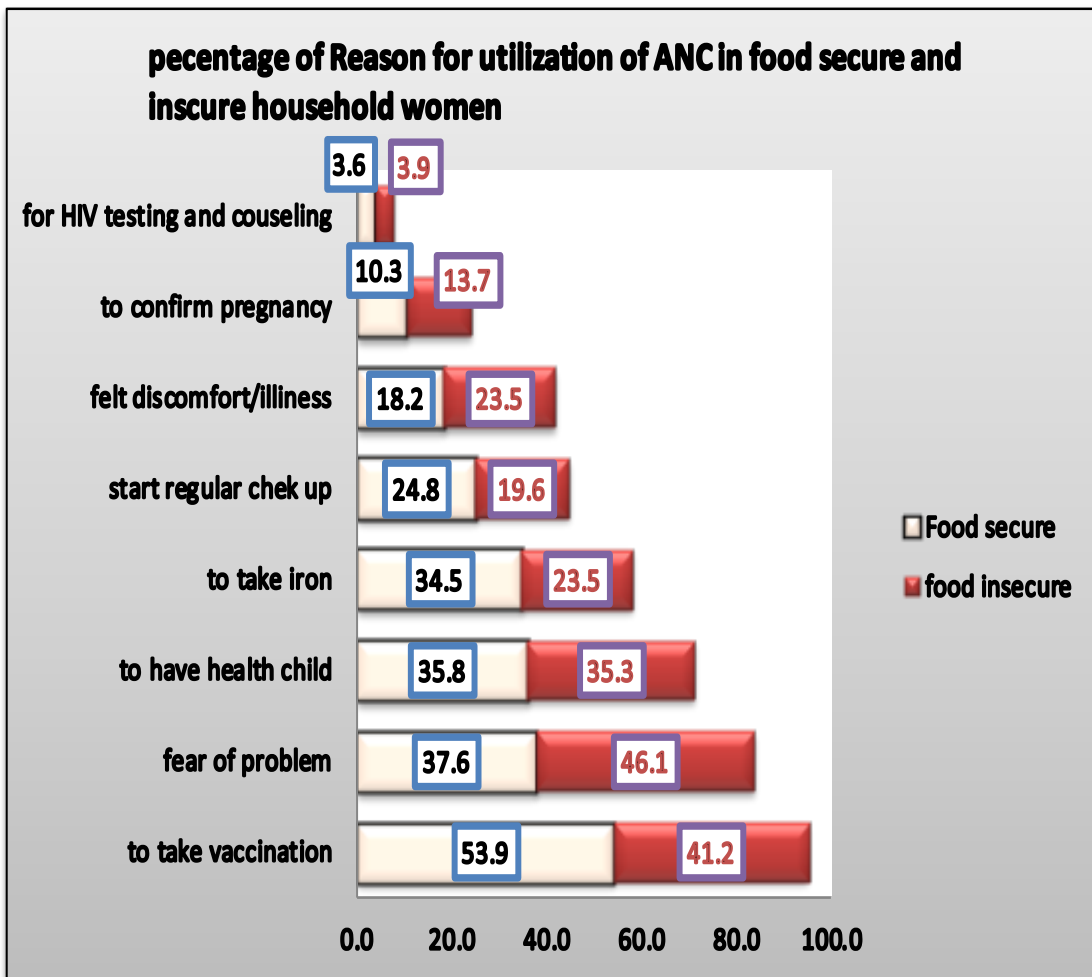


Figure 7: Percentage distribution of reason for attending ANC among food secure and food insecure women in Gombora Woreda, Hadiya Zone South Ethiopia 2015

## 5.7 Major Reasons for not attending ANC service among food secure and insecure household women

The major reasons for not attending ANC for women who did not utilize antenatal care were; lack of awareness of correct time to start ANC 227 (44.8 %), being too busy 226 (44.6 %), being in a state of good health 102(20.1 %), far distance from health facility 68 (13.4 %) and pregnancy is ordinary issue 46 (9.1%)
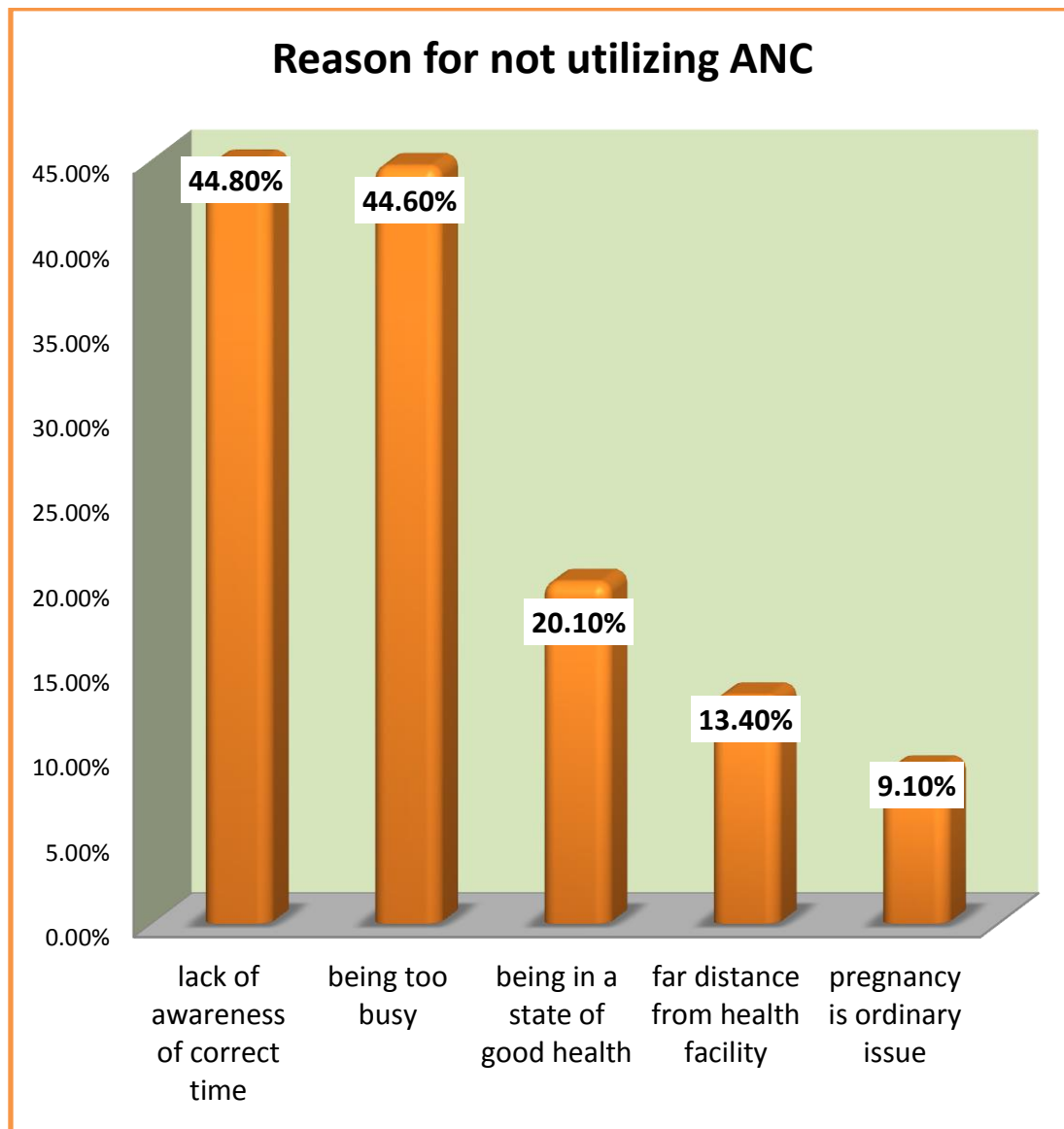


Figure 8: Percentage of reasons for not attending ANC services in both groups

**Table 2: Percentage composition of major Reasons for not attending ANC service among food secure and food insecure household pregnant women:**

| | Food security status | |
|---|---|---|
| | **Food secure** | **Food insecure** |
| **No/little knowledge about the right time to start ANC** | 71(41.5%) | **156(46.4%)** |
| **Being in a state of good health** | 39(22.8%) | 63(18.8%) |
| **Too busy to attend ANC** | 77(45%) | **149(44.3%)** |
| **Expenses for ANC are unaffordable** | 1(0.6%) | 2(0.6%) |
| **ANC clinic is too far from home** | 22(12.9%) | 46(13.7%) |
| **Waiting time is too long at ANC** | 4(2.3%) | 7(2.1%) |
| **Husband disapproval** | 4(2.3%) | 0 |
| **Poor quality of the service** | 2(1.2%) | 5(1.5%) |
| **Because of religion/cultural reasons** | 0 | 2(0.6%) |
| **Pregnancy is ordinary issue** | 18(10.5%) | 28(8.3%) |
| **Others reasons** | 12(7%) | 26(7.7%) |
| **Total** | 171(100%) | 336(100%) |

Note: multiple response results

## 5.8 Factors affecting the use of ANC services among food secure and insecure household women

Logistic regression model was used to identify factors that influence the utilization of ANC services. In the binary logistic regression analyses household food security, educational status of women, wealth, knowledge about ANC, and wontedness / intendedness of current pregnancy were some of the predisposing factors that showed a statistically significant association with antenatal care utilization.

The odds of using antenatal care was found to be statistically non-significant for the family size, husband occupation and education, birth order, maternal age & number of children (Table 3).

During the multivariable analysis, a dichotomous logistic regression was employed. The dependent variables were categorized as use of ANC services. All variables that showed significant association during the bivariate analysis were included in the multivariable analysis model. The P values, adjusted odds ratios (AOR) and 95% confidence intervals (CI) are presented in Table 3

The multivariable logistic regression result shows the net effect of each variable on the status of use of antenatal care services. The result showed that women who were from food secure households were 2.54 times more likely to receive antenatal care from a health professional (AOR = 2.54, 95% CI 1.79_3.59) as compared to women from food insecure households while controlling for all the other variables in the model.

A statistically significant difference was seen by education even after controlling for the other variables. The odds of using antenatal care service was 3.76 times higher if the woman has

Secondary education or more as compared to those with no education (AOR =3.76, 95% CI 2.32-6.10) and a 2.53times higher odds if the woman has primary education when compared to women with no education (AOR=2.53, 95% CI 1.659-3.789).

The odds of using ANC increased with increase in household wealth index in the total sample. The odds of using the ANC service was about 2.1times higher if the woman belongs to the highest wealth index group as compared to those belonging to the lowest wealth index group (AOR 2.104, 95% CI 1.617-4.159).

Women who had good knowledge were more likely utilized ANC compared with those poor knowledge  (AOR= 2.42, 95%CI 1.347-3.286)

Women were asked whether their last pregnancy was intended (wanted) or not. 38.5% of women (N = 298) had unintended pregnancy and 61.5% (N = 476) of women had intended pregnancy. Intended ness of the current pregnancy has great significant association with the use of ANC services (AOR = 1.544, 95% CI = 1.045 -2.283,)

**Table 3: Measure of association of household food security status and ANC utilisation and selected variables in Gombora woreda Hadiya zone (South Ethiopia, 2015) (n=774)**

| variables | ANC | | COR | 95% C.I for EXP(B) | | AOR | 95% C.I for EXP(B) | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | | lower | upper | | Lower | Upper |
| | yes | no | | | | | | |
| **Household food security** | | | | | | | | |
| food insecure | 102 | 336 | | | 1 | | | |
| food secure | 165 | 171 | 3.179 | 2.336 | 4.325 | **2.537**\*\* | **1.792** | **3.592** |
| **Education of mother** | | | | | | | | |
| no education | 68 | 282 | | | 1 | | | |
| primary education | 119 | 161 | 3.065 | 2.149 | 4.373 | **2.528**\*\* | **1.702** | **3.754** |
| Secondary and above education | 80 | 64 | 5.184 | 3.399 | 7.906 | **3.763**\*\* | **2.322** | **6.098** |
| **Knowledge on ANC** | | | | | | | | |
| Poor knowledge | 19 | 95 | | | 1 | | | |
| Good knowledge | 248 | 412 | 3.010 | 1.794 | 5.048 | **2.417**\* | **1.348** | **4.334** |
| Wealth index | | | | | | | | |
| Lowest | 57 | 200 | | | 1 | | | |
| Middle | 83 | 179 | 1.627 | 1.098 | 2.410 | 1.314 | .852 | 2.025 |
| Highest | 127 | 128 | 3.481 | 2.373 | 5.107 | **2.104**\*\* | **1.347** | **3.286** |
| Wontedness of pregnancy | | | | | | | | |
| No | 80 | 218 | | | 1 | | | |
| yes | 187 | 289 | 1.763 | 1.286 | 2.417 | **1.544**\* | **1.045** | **2.283** |

**Number of children**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| no child | 36 | 51 | 1.869 | 1.045 | 3.341 | .517 | .188 | 1.419 |
| one child | 34 | 79 | 1.139 | .649 | 2.001 | .535 | .243 | 1.178 |
| 2-4 child | 163 | 287 | 1.503 | .969 | 2.332 | 1.057 | .603 | 1.853 |
| >=5 child | 34 | 90 | | | 1 | | | |
| **Husband education** | | | | | | | | |
| no education | 43 | 132 | | | 1 | | | |
| primary education(1-8) | 169 | 322 | 1.611 | 1.089 | 2.383 | 1.066 | .685 | 1.660 |
| secondary and above | 55 | 53 | 3.186 | 1.912 | 5.308 | 1.278 | .691 | 2.363 |
| **Husband occupation** | | | | | | | | |
| farmer | 215 | 441 | | | 1 | | | |
| Other occupation§ | 52 | 66 | 1.616 | 1.085 | 2.407 | 1.294 | .783 | 2.139 |
| **Age of the mother** | | | | | | | | |
| age 15-24 | 53 | 38 | 1.043 | .643 | 1.691 | .916 | .440 | 1.908 |
| age 25-34 | 162 | 331 | 0.838 | .567 | 1.238 | .718 | .436 | 1.182 |
| age above 35 years | 52 | 89 | | | 1 | | | |
| **Gravidity** | | | | | | | | |
| Gravida_1 | 36 | 51 | 1.542 | .924 | 2.574 | 1.835 | .664 | 5.073 |
| Gravida 2-4 | 34 | 79 | 1.440 | 1.047 | 1.981 | 1.366 | .869 | 2.148 |
| Gravida >=5 | 34 | 90 | | | 1 | | | |

Note:   ** p value<=.001,     * p value <.05, § civil servant, merchant, daily laborer, preachers, carpenters

## Chapter 6 : DISCUSSION

Improving maternal health care, particularly providing antenatal and delivery care, is important mechanism identified to reduce maternal mortality. Antenatal care allows for the management of pregnancy, detection and treatment of complications, and promotion of good health. According to the WHO recommendation, every pregnant woman should receive at least four ANC visits during pregnancy. However, in most of the cases women didn't recognize childbearing as problem and therefore do not attend ANC. In this study, almost seven in ten women did not attend antenatal care during their current pregnancy.  Even among the users of ANC, only 12% of women made their first antenatal visit according to WHO recommendation (less than four months of pregnancy) and only 12% of women attended four and more antenatal care services during their current pregnancy. In addition, 88% of the women started using antenatal care services later than the recommended time by WHO. They started mostly   in their second and third trimester of pregnancy, which is in agreement with the findings of other studies in Ethiopia (17, 19, 21, 23, 24, 27).

The reason for this low antenatal attendance might be late initiation/booking, lack of knowledge on the correct time when to start ANC and on advantage of attending ANC. The overall utilization of ANC on this study from skilled health worker  was 30.6%, which is similar to the report from Mini -EDH 2014 south region result which is 35.9% and   with the rural coverage report of mini-EDHS(35%) but lower  from Yem Special Woreda, Southwestern Ethiopia study (40%) of mothers had ANC visit (11, 32).

In this analysis, we found that more than half women were living in food insecure households in the month during the survey. ANC attendance was significantly lower (23%) among food insecure pregnant women when compare with 49% of their counter parts. Only 41(20%) women

from moderately food insecure household, 36(20%) from severely food insecure household and 25(47%) from mild food insecure household women attended ANC service.

The results of multivariable logistic regression also showed that being from food secure household increased ANC utilization / attendance by about 2.54 times than from food insecure household. This is consistent with study done in Zimbabwe in which study food insecure (FI) women were more likely to never have attended ANC compared with food secure women (14)

Similarly, in Armenia and America during food insecure condition people reduce health service utilization as coping mechanisms (13, 36). The reason for low utilization of antenatal care among food insecure household women might be giving their attention on the coping strategy for food rather than going to seek care from health institutions. It might also be opportunistic cost like travel time .food insecure households women may have to go to the market to earn a daily living and to go to work as daily laborer, to work for food during food insecurity as coping strategy and might be due to powerlessness to walk on foot as a result of hunger as a result of not getting adequate food i.e. during food shortage they skipped meals or reduce meal size.

However, Ethiopian government is implementing a free service provision strategy and nutritional intervention during antenatal follows up such as micronutrient supplementation to reduce maternal mortality. Even if those strategies and interventions were there, ANC utilization was very low in the study area. Pregnant women who experience food insecurity are more likely to experience birth complications than women who are food secure (38) and they are at increased risk of morbidity and mortality. Pregnant women, who not attending ANC also miss many opportunities which may hinder the reduction of maternal mortality, so an intervention is needed specifically for food insecure households, pregnant women to improve antenatal care utilization.

In this study, from total ANC attends only 25% of women who had no education used skilled ANC compared with 45% of those with primary education. This is similar with mini EDHS finding which was 30.9%.Women's education of secondary school and above increased ANC use by 4.3times and primary level education by more than2.5 times than uneducated ones. This study is in line with reports of other studies (8, 17, 19-28). The possible explanation for this was education is likely to enhance female autonomy and help women develop greater confidence and capability to make decisions about their own health. Also educated women have better understanding of information and the better the knowledge about the importance of the services.

Knowledge of mothers was predictor of ANC utilization. Where having knowledge about ANC increased utilization by 2.42 times. It is clear that the better knowledge they have, the better the understanding and acceptance of the ANC service and more likely to be user

Wealth is one of determinant factor affecting antenatal cares service utilization. Those women living in the highest wealth index were utilizing antenatal care service more likely than poor household women. This is consistent with study done in Ethiopia, and Madhya Pradesh state of India (15, 16, 24).

Ethiopian government introduced the free maternal health policy with the assumption that there was a significant financial barrier to the use of maternal health services. Therefore, offering a free service will help women in their use of maternal health services. In such a case, the effect of wealth on the use of the service should be insignificant. The results however suggest that wealth still has a positive and significant influence on the use of ANC, contrary to expectation that it should not since the service is free. Women in higher wealth quintiles are more likely to make more ANC visits than women in the lowest wealth quintile. We can conclude that even though

the service is provided freely, it may come with opportunistic costs and those with the resources are more likely to afford it. Most women didn't go to spend the entire day at the health center for their check-ups because of the indirect cost (travel time) especially to the women in the informal sector and for food insecure who may have to go to the market to earn a daily living and to go to work as daily laborer, to work for food during food insecurity as coping strategy

Intended pregnancy encouraged to attend ANC services. In this study higher proportion of women, 187(70%), who wanted to get pregnant or planned a pregnancy used Antenatal care than mothers who had unintended (unplanned) pregnancy 80(30%). This was in line with study conducted in Yem special Woreda Southwest Ethiopia (32), Holeta Town, Central Ethiopia (31) and Ayder Kebelle, Mekelle City North Ethiopia (34). Those studies revealed that women who planed their pregnancies were more likely to use ANC than women who did not want their pregnancies. The possible explanation is that those mothers who had intended (planned) pregnancy might have a good awareness about advantages of antenatal care services utilization

Among the women who did not utilized antenatal care in this study, the major reasons reported for not utilizing antenatal care were due to lack of awareness about ANC initiation time, being busy, being in a state of good health, distance from health facility and pregnancy is an ordinary issue. These reasons are consistent with the findings of other studies in Ethiopia (17, 27)

# Chapter 7 : Conclusion and Recommendation

In conclusion this study has found that there are significant variations in the utilization of ante-natal care in food secure and food insecure household pregnant women in the study area. In addition, this study revealed that there is low utilization of ANC services in the study area when compared to the recommendation by world health organization (WHO) that every healthy pregnancy women should get at least four visits. Even though a minimum of four visits are recommended during pregnancy, the proportion of mothers having four and above visits were still very low. Also majority of the mothers who attend ANC initiated the visits later than recommended by the World Health Organization.

The main factors influencing the utilization of ANC are the respondent's level of education, food insecurity, Intendedness of current pregnancy and knowledge. In addition, low wealth, Lack of appropriate knowledge about the correct time to go for ANC, being too busy and being in a state of good health during pregnancy were major bottle necks for women that hinder them from attending ANC.

Therefore, efforts to bring about changes in these major predictors, emphasis should be given for those women living in food insecure household to achieve the planed maternal health goals by including them in safety net program or other nutritional interventions. Next, behavioral change communications (BCC) are recommended at individual and community level (community education about Advantage of attending ANC).

Regional health Bureau, Zonal health department and Woreda health office should enforce education sector at each level to implementation Adult education in the woreda.

In addition further studies (longitudinal) suggested understanding additional factors for the low antenatal utilization among food secure and insecure household pregnant women in Gombora Woreda Hadiya Zone South Ethiopia. Zonal Health Department and Woreda Health Office should also evaluate the health extension program in the area for functionality and strengthen by providing support on regular base.

## Strength of the study

The measurement of food security is strength of this study because women themselves reported household food security status, the individuals who are typically responsible for a household's food supply and meal preparation. Less recall bias for ANC frequency

## Limitations of the study

Due to cross sectional nature of the study, temporal relationships of the outcome variable and the predictor variables cannot be established.

There may be recall bias on the frequency of coping strategy they used

This study was done in pregnant women who reported pregnant, so pregnancy is self-reported and not determined by pregnancy test or ultrasound could be a limitation

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## Annex : Questioners

### Annex 1. English version:

Questionnaire for community based survey on antenatal care utilization and food security status of households in Gombora woreda Hadiya zone

**Verbal consent**

Greeting

Hello! My name is _____ from Hadiya zone Gombora woreda health office. I am working in research team of Jimma university public health Faculty. We are conducting a study on mothers' antenatal care utilisation and household food security status on pregnant women, and factors affecting utilization of antenatal care services and household food security. You are kindly requested to be included in the study, which will have importance in improving maternal and child health services. The interview will take about 30-40 minutes. No information concerning you, as individual will be passed to another individual or institution without your agreement. Your participation is voluntary and you have the right to not participate fully or partially. If you agree to be included in the study I will start my questions by asking general identification points. Only honest answers would contribute to improvement of health planning.

The study has approval from Jimma University. "May I continue?"

1/ If yes, continue interviewing,                    2/ If No, thank and stop interviewing

Name of the interviewer _____ Sign _____ Date of interview_____

Name of the supervisor _____Sign _____ Date_____

Households Identification

001. Questionnaire Code_____

002. Residence _____region _____Zone ____woreda _____Kebele_____ goat ___

003. House number _____

004. How long have been living in this area _____less than six month preceding the study next house

|       | Date                                              |                          |        |  |
|-------|---------------------------------------------------|--------------------------|--------|--|
| S.no  | Question                                          | Response                 | Remark |  |
|       | **Section 1: Socio-economic and Demographic Characteristics of Respondents.** |  |  |  |
| 101   | Head of HH?                                       | 1. Male   2 female       |        |  |
| 102   | What is your Age?                                 | age ----------------     |        |  |
| 103   | What was your monthly average income in ET birr? | ------------------------ |        |  |
| 104   | What is your current occupation?                  | 1) House wife<br>2) Civil servant<br>3) Merchant<br>4) Farmer<br>5) Other Specify |  |  |
| 105   | What is your husband's current occupation?        | 1) Farmer<br>2) Merchant<br>3) Civil servant<br>4) Other Specify |  |  |
| 106   | What is your religion?                             | 1) Protestant<br>2) Catholic<br>3) Orthodox<br>4) Traditional<br>5) Other |  |  |
| 107   | What is your ethnicity?                            | 1) Hadiya<br>2) Kembata<br>3) Gurage<br>4) Silite<br>5) Other specify |  |  |
| 109   | What is your marital status?                      | 1) Married<br>2) Divorced & separated<br>3) Widowed<br>4) Never married |  |  |
| 110   | What is your educational status?                  | 1) No education<br>2) Primary (1-8)<br>3) Secondary(9-12)<br>4) More than secondary |  |  |
| 111   | What is your husband's educational status?        | 1) No education<br>2) Primary (1-8)<br>3) Secondary(9-12)<br>4) More than secondary |  |  |
| 112   | How many persons usually live in your household?  | ------------- |  |  |

| 113 | The number of persons living in the household | 1) age = <15------------------<br>2) age 15-64---------------<br>3) age>64-------------------- | | |
|---|---|---|---|---|
| | Parity (what is the order of your current pregnancy? | --------------- | | |
| **Part 2** | | | | |
| 201 | How many months pregnant are you? Record number of completed months | 1) Months . . . . . . . . . . . . | | |
| 202 | When you got current pregnancy did you want to get pregnant at this time? | 1) Yes<br>2) No | | |
| 203 | Have you ever had a pregnancy that miscarried, was aborted, or ended in a stillbirth? | 1. Yes<br>2. No | | |
| 204 | Have you started ANC for your current pregnancy? | 1) Yes<br>2) No | | |
| 205 | If "yes" for question 205 for how many times did you attend ANC? | 1. Number of times………..<br>2. Don't know | | |
| 206 | What is the main reason you initiated for ANC follow up? | 1) Fear of problem<br>2) To take vaccination<br>3) To take iron for anemia prevention<br>4) For checkup/ start regular check up<br>5) To confirm pregnancy<br>6) To have healthy child<br>7) To be counseled and tested for HIV/AIDS<br>8) Felt discomfort/illness/ Health problem | | |
| 208 | At what gestational age did you start attending ANC service?(booking) | 1) ----------------- | | |
| 210 | Whom did you see? | 1) Skilled Health professional<br>2) HEWs<br>3) Other Specify | | |
| 211 | Where did you receive ANC for the pregnancy? | 1) Government hospital/clinic<br>2) Government health center<br>3) Government health post<br>4) At Home<br>5) Other public specify | | |
| 212 | Means of transport to health facility | 1) By foot/Walk<br>2) By mule/Animal-drawn cart<br>3) By Vehicle | | |

| 213 | Time taken to the nearest Health facility | 1) < 1 hour  3) > 1 hour<br>2)  equal to 1 hour | | |
|---|---|---|---|---|
| 214 | If "no" to question 204 What was the Reason for no ANC?<br>        (Multiple responses are possible)(Don't read the choice) | 1)  No or little knowledge about ANC<br>2)  Being in a state of good health<br>3)  Too busy to attend ANC<br>4)  Expenses for ANC are unaffordable<br>5)  ANC clinic is too far from home<br>6)  Waiting time is too long at ANC<br>7)  Husband disapproval<br>8)  Poor quality of the service<br>9)  Because of religion or cultural reason<br>10) Pregnancy  is  ordinary  issue<br>11) Others specify---------------------- | | |
| 215 | Who in you family usually decised on the Health care  utilization for yourself? | 1)  My husband<br>2)  My self<br>3)  Both of us | | |
| | | KNOWLEDGE QUESTIONS | | |
| 301 | Do you know that ANC services is availabile in the nearest health facility? | 1)  Yes<br>2)  No | | |
| 302 | Do you know that ANC has an advantage? | 1)  Yes<br>2)  No | | |
| 303 | If ''yes'' to the above question which of the advantages of ANC do you know? then probe | 1)  To detect & treat problems/ complications  during pregnancy<br>2)  To get information where to deliver<br>3)  To check conditions of fetus<br>4)  Others, specify | | |
| 304 | From where do you heared/get information for the first time about  ANC? then probe | 1)  Health institutions(HCs &hospital)<br>2)  Radio\TV<br>3)  HEWs(heath post)<br>4)  friends and relatives<br>5)  Don't remember | | |
| 305 | Do pregnant women need to go for ANC? | 1.  yes<br>2.   no | | |
| 306 | If yes, is it requared to go for ANC even if  there is no complication/iliness during pregnancy? | 1.  Yes<br>2.  no | | |
| 307 | At what gestational age did a pregnant woman should start attending ANC service? | 1)  ≤4  months/ 8-12 weeks<br>2)  4 – 6 months  /24-26 weeks<br>3)  6 - 7  months/28-32weeks<br>4)  ≥8 months/32-38weeks<br>5)  Don't know | | |
| 308 | How many  ANC viste recommended for a healthy | 3.  ------------------ | | |

| | pregnant women throughout here pregnancy? | 4. Don't know | | |
|---|---|---|---|---|
| 309 | Do you know the right times of visting ANC 1,2,3,& 4 for woman without any problem? | 1 yes  2 No | | |
| 310 | If yes,tell the right time recomended time/weeks/month | First at----------------week/month<br>Second at------------ week/month<br>Third at--------------- week/month<br>Fourth at ------------ week/month | | |
| | **Food security questions** | | | |
| 501) | In the past four weeks, did you worry that your household would not have enough food | 0) No<br>1) Yes | (if no skip to Q 503) | |
| 502 | How often did this happen? | 1) Rarely (once or twice in the past four weeks)<br>2) Sometimes (three to ten times in the past four weeks)<br>2) Often (more than ten times in the past four weeks | | |
| 503 | 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<br>1) Yes | (if no skip to Q 505) | |
| 504 | How often did this happen? | 1) Rarely (once or twice in the past four weeks)<br>2) Sometimes (three to ten times in the past four weeks)<br>3) Often (more than ten times in the past four weeks | | |
| 505 | 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<br>1) Yes | (if no skip to Q 507) | |
| 506 | How often did this happen? | 1) Rarely (once or twice in the past four weeks)<br>2) Sometimes (three to ten times in the past four weeks)<br>3) Often (more than ten times in the past four weeks | | |
| 507 | 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<br>1) Yes | (if no skip to Q 509) | |
| 508 | | 1) Rarely (once or twice in the past four | | |

| | | | | |
|---|---|---|---|---|
| | How often did this happen? | weeks) <br> 2) Sometimes (three to ten times in the past four weeks) <br> 3) Often (more than ten times in the past four weeks | | |
| 509 | 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 <br> 1) Yes | (if no skip to Q 511 | |
| 510 | How often did this happen? | 1) Rarely (once or twice in the past four weeks) <br> 2) Sometimes (three to ten times in the past four weeks) <br> 3) Often (more than ten times in the past four weeks | | |
| 511 | 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 food4 | 0) No <br> 1) Yes | (if no skip to Q 513) | |
| 512 | How often did this happen? | 1) Rarely (once or twice in the past four weeks) <br> 2) Sometimes (three to ten times in the past four weeks) <br> 3) Often (more than ten times in the past four weeks | | |
| 513 | 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 <br> 1) Yes | (if no skip to Q 515 | |
| 514 | How often did this happen? | 1) Rarely (once or twice in the past four weeks) <br> 2) Sometimes (three to ten times in the past four weeks) <br> 3) Often (more than ten times in the past four weeks | | |
| 515 | In the past four weeks, did you or any household member go to sleep at night without eating anything because there was not enough food? | 0) No <br> 1) Yes | (if no skip to Q 517) | |
| 516 | How often did this happen? | 1) Rarely (once or twice in the past four weeks) <br> 2) Sometimes (three to ten times in the past four weeks) <br> 3) Often (more than ten times in the | | |

| | | past four weeks | | |
|---|---|---|---|---|
| 517 | 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<br>1) Yes | (if no skip to Q 519) | |
| 518 | How often did this happen? | 1) Rarely (once or twice in the past four weeks)<br>2) Sometimes (three to ten times in the past four weeks)<br>3) Often (more than ten times in the past four weeks | | |
| 519 | What strategies /measures did you used to copy during severe food shortfalls? | 1) Eating less preferred food<br>2) Reduced the proportions of the meals<br>3) Reduced number of meals per day<br>4) Skipped days without eating<br>5) Sell of livestock<br>6) Sell of household assets<br>7) Sell of fire wood, charcoal as a forage<br>8) Borrowing money to purchase food<br>9) Borrowing grain(food)<br>10) Purchased food on credit<br>11) Reduce health care cost & go to traditional medicine<br>12) Sent children to live with relatives<br>13) Migrate to work (seasonal)<br>14) Rented out land<br>15) Worked for food only<br>16) Work as a daily laborer<br>17) Other (Specify: _____) | | |
| | Wealth measurement questions | | | |
| 601 | What is the main source of drinking water for members of your household? | 1. Piped water into dwelling<br>2. Piped water to yard/plot<br>3. Public tap/standpipe water<br>4. Borehole water<br>5. Protected Dug well<br>6. Unprotected Dug well<br>7. Protected spring Water<br>8. Unprotected spring Water<br>9. River<br>10. other ( SPECIFY ) | | |
| 602 | What kind of toilet facility do members of your household usually use? | a. Pit latrine<br>b. Pit latrine with slab<br>c. Pit latrine without slab/Open pit<br>d. Composting toilet<br>e. Bucket toilet<br>f. Hanging toilet/hanging Latrine<br>g. No facility /bush/field<br>**h.** Other 96 | | |

| 603 | Do you share this toilet facility with other households? | 1. Yes<br>2. No | | |
|---|---|---|---|---|
| 604 | How many households use this toilet facility? | 1. No. Of households if less than 10 - ------<br>2. 10 of more households<br>Don't know | | |
| | | 1 yes    2. No | | |
| 605 | Does your household have: | a. Electricity?  1 yes       2 no<br>b. A watch/clock? 1 yes     2 no<br>c. A radio?    1 yes        2 no<br>d. A television?  1 yes        2 no<br>e. A mobile telephone? 1 yes 2 no<br>f. A table?      1 yes 2 no<br>g. A chair? `          1 yes 2 no<br>h. A bed with cotton/sponge/spring mattress?      1 yes 2 no<br>i. Spring mattress   1 yes 2 no<br>j. A kerosene lamp/pressure lamp? 1 yes 2 no<br>k. Lamp          1 yes 2 no | | |
| 606 | Main material of the floor.<br>Rescored observation | 1.Earth/sand<br>2.Wood<br>3. Cement , 4.Other 96 | | |
| 607 | Main material of the roof.<br>Record observation | 1.Thatch/leaf<br>2.Corrugated iron /metal | | |
| 608 | Main material of the exterior walls. Record observation. | 1. Natural walls<br>2. wood with mud<br>3. cement with concrete | | |
| 609 | Does any member of this household own:  An animal-drawn cart? | 1Yes    2No | | |
| 610 | Does any member of this household own any agricultural land? | 1. Yes<br>2. No | | |
| 611 | How many (LOCAL UNITS) of agricultural land do members of this household own? | Local units<br>1. Local units ----------------------<br>2. Don't know | | |
| 612 | Does this household own any livestock, herds, other farm animals, or poultry? | 1. Yes<br>2. No | | |

| 613 | How many of the following animals do this household own? | i. If none, enter '00'.<br>ii. If more than 95, enter '95'.<br>iii. If unknown, enter '98'.<br>  a. Milk cows, oxen or bulls? ---<br>  b. Horses, donkeys, or mules? --<br>  c. Goats? ------------------<br>  d. Sheep? -----------------<br>  e. Chickens? -------------- | | |
|---|---|---|---|---|
| 614 | Does any member of this household have a bank or microfinance saving account? | 1/YES  2/No | | |
| 615 | Is your household receiving cash or food from the Safety Net Program? | 1/Y ES  2/NO | | |

## Annex 2: Hadiyisa version

Eeyyax xaimchch formma

Qa'll illage issakam fayya'oo'm egeechchi awwaadoo **hurbaati gaga xanimm bikkina** Gombo'l woraxxi minaadaphphi woronne issakam saarayyaxx xa'mmichuwwaa

Xummaato

Xummi ki'nnena ihona! I summi_____yamamoommo    .waarummok

| | Qabale'e-------------------- | Xa'michch asheru aman-------------------- | Bedu aman--------------- |

Hadiyyi zoonanne gombo'l woraxxi Fayya'ooma egechi kitaaphi miniinsette.    Ka ammanenne Jimmi Yuniversite'enne la'm digere'e losummuuyyette ihaa, Jimmi yuniversite'enne minaadaphi fayya'ooma ecgechi kollejji gaalchanne saarayyimma asheerummisa la'isummuyya, ka gaalchanne yoomine'i saarayyaaniinse an saarayyoommok ,ni uulane amoi qaroo'in illage issoo fayyaoo'm egechcha teim lam foor ihaa hee'ukuyi issoo fayaooi'm egechcha issameena hooroo annann annann luwuwannee minenne awwaaxxakkam ichchi hurbaaxxi gaga xanimmane saarayyummuyya sidamoommo. Ee'isannem ka saarayyimmina awwaadoo xa'mmichuwwa dabarimminne hara'mmati issittakkamisina haydimminne xa'mminoommuuyya, ku xa'mmichuwwim amo'ikaa ciilluwwi fayya'oomanne moo'amoo hawwo axisimmina lobakata awwaadoohane.ku xa'mmichuwim massoo amman 30 daqiiq ihaa,ka xa'mmichchuwwina uwwitoo dabachcha ki eeyyite bee'e ayyenam higisakka'a uwwakkam bee'an ihukkisa la'isummuuyya, xa'mmichchuwwa dabarimmi ki eeyyitinnetti ihaa hincu xa'mmichuwwina hundoomam te'im kollo dabarimmi xansiisookko. Xa'mmichuwwa dabarimmina ki eeyyit danaam ihulas hundi amaxxi xa'mmichuwwa xa'immima asheeroommo. Hanqo'i dabachi xale'i uwwimmi fayya'oomanne        yoo        hawwo        axisimmina        awwaadoo'isa        la'isoommo. Jimmi yuniversite'i ka soroobina eeyyite uwwukkisa la'isummuyya, xa'mmicha xa'mmeena saamo uwwitakkamonnihe?

1) Eeyya yakkolas xa'mmichcha asheere        2)ihooyyo yakkolas xa'mmichcha uullise

Xa'mmaanch summi_____ furma'i. _____ xa'immakko'i ball_____

Do'aanch summi. _____ furma'i. _____ ball_____silk xig…………

 Minii mine annann isaanuwwa        001. Xamichchi annann mare'e (koodda) _____

 002. Heechi ga'nna_____gassi qooxo'o_____zoon_____woradi_qabale'i _____ gooxi_____

003. ka beyyonne hinkaa'nni ammanii ki'issakka hee'llakko'o?_____. (lohi aganii hoffan ihulas awwonoo mine xa'mme).

hadiyissa

| x.xigo | Xa'mmichcha | Dabachcha | Tisisha |
|---|---|---|---|
| | Balla | | |
| | Xa'mmichcha | Dabachcha | Tisisha |
| | **Awwonsi 1. Heechch gatti xaimichchuwa.** | | |
| 101 | Mi'n gassaanchi? | 1.gooncho   2 meenticho | |
| 102 | Umur mee'o? | --------------- umura | |
| 103 | Agananne mee'i  Tophphe'I bira siiddoo? | ------------------------ | |
| 104 | Ka ammanenne ki baxi maruchcho? | 1 Mi'n amatte<br>2  Adi'l baxaancho<br> 3 Daddaraancho<br>4 abuullaancho<br>5 mullek yoolas kure---------------------------------- | |
| 105 | Ki mi'n annik baxi maruchcho? | 1)Abuullaancho<br> 2) Daddaraancho<br>3) Adi'l Baxaancho<br> 4)  Mullek   yoolas kure--------------------------------------------- | |
| 106 | Ki amma'nnat marucho? | 1Amma'nnaancho<br> 2 kaatoliika              3 Ortodoksa<br>4) fandaannano<br> 5)mulleki yoolas kure | |
| 107 | Ki shumo'i maruchcho? | 1)Hadiya      2)Kembaata              3) Guraage'e<br>4) Silixe'e              5)  Mullani ihulas kure | |
| 108 | Min issimm duuha'i hinkide? | 1)Min ihaammo      2)Aagisa tiraammo<br>3) buubeesaancho     4) minina hore'em ihummoyyo | |
| 109 | Ki losa'n gabali hinkaa'nna? | 1)Losumbee'ane          2)Luxxi-la'm gabala (1-8)<br>3) La'm gabala(9-12)     4) La'm gabalii hanaanette | |
| 110 | Ki mi'n anni losa'n gabal hinkaa'nna? | 1)Losubee'ane          2)Luxxi la'm gabala (1-8)<br>3) La'm gabala (9-12)     4)La'm gabalii hanaanette | |
| 111 | Ki minenne mee'i manni yookko? | ------------- manni | |
| 112 | Minenne hee'oo manni dutooma. | 1)umur = <15------   2)umur 15-64---------   3)umur>64------- | |
| | **Awwonsi 2:**  Qa'l illage issakam /**Lamfoolla'n fayya'ooma egechcha awwaaxximma** | | |
| 201 | kuki mee ko'lli lamfollano? | --------------- | |
| 202 | Lam foor ikkittanni mee'I  agana? | 1) . . . . . . . . . . . . . agana | |
| 203 | Ka lam foollano hassaattoohan hee'ukko? | 1)    Hasaatette(yes)     2) Hasoo'nnette(no) | |
| 204 | Kanneen illageen godaphisa ikkaa ,te'im qaramaa lasage lehaa te'im fissiisaa hee'ukko? | 1)    Hee'ukko(yes)<br>2)    Hee'ukkoyyo(no) | |
| 205 | Ka lam foollanina fayyaoo'm  egechchi minn marrimma  asheetta ? | 2.    Asheeraammo(yes)<br>3.    asheerummoyyo(no) | Asheettobeelas xa'mmichi 214nne hige |
| 206 | Asheeraamoo yititlas mee'i kore mattaa? | 1)    Mee'I kore ………………… (2) La'ummoyyo | |
| 207 | Qa'l illage issakam fayya'oom egechcha awwaaximma  mee'I agana asheettitto? | -------------------------------aganan- | |
| 208 | Lamikoree lamii hanaan ihulas mee'i agana agana matitto? | 1/ 1$^{ka}$----------------------- agananne<br>2/ 2$^{ka}$--------------------- agananne<br>3/ 3$^{ka}$--------------------- agananne<br>4/ 4$^{ka}$---------------------- agananne<br>5/ 5$^{ka}$---------------------- agananne     6/ laummoyyo | |

| 209 | Qa'l illage issakam fayya'oom egechcha awwaaximina hakii'm mine mattoo'isina issukki horoor mashikka'i marucho? | 1. Hawwi afoohaannina baddaa<br>2. Kittibaata qasixxeena<br>3. Xiiqqi hoffech kiniina a'lleena<br>4. Moamena qail ilaqqi fayaooim egerim awado asherena<br>5. Lamfoori ihummisa qoosseena<br>6. Fayya'oomi egeramaakko ciil qaramoo'isina Sogitanino siixxeena<br>7. HIV moo'ameena<br>8. Orachcho fayya'oomi bee'ukkaa/xissukkaa | Annanni annan dabachi xanamookko |
| --- | --- | --- | --- |
| 210 | Qa'l illage issakam fayya'oom egechcha awwaado ayye moo'anttitto? | 1. Booradamaakko fayya'oo'm egeraaninne<br>2. Ekisteenshii'n baxaaninne<br>3. Mulleki yoolas kure | |
| 211 | Hinka fayya'ooma egerimmi minenne asheettitto? | 1. Adi'l hospitaalanne<br>2. Adi'l xeenaa xaabaanne<br>3. Xeena'l kellanne<br>4. Ki'n minenne<br>5. Mulleki yoolas kure | |
| 212 | Qa'l illage issakam fayya'oom egechcha awwaaximina hakii'm mine Mahinne mattakko'o | 1. Lokkinne<br>2. baqullinne<br>3. kaame'inne | |
| 213 | Fayya'oom mine afimmina massukki ammane | 1. < 1 sa'ata (2) 1 sa'ata (30) > 1 sa'ata | |
| 214 | Xa'mmichi 205 asherummoyyo yitlas mashika'I marucho?<br>(Matii hanaan ihaakkoo dabacha uwwimm xansiisookko) | 1. Qail ilagge isakam fayaoom eggechcbikina ashsheero amane lachch hoonge<br>2. Kaba yoo fayya'oom danaam ihu bikkina<br>3. Lobakata matayyum bikkina/Baxx lophaate<br>4. Fayya'oom egechi min miqisoo diinat bashil ihi bikkina<br>5. Fayya'oom min I minii qee'l ihu bikkina<br>6. Lobakat egessiiso bikkina<br>7. I manchi ha'yyobee bikkina<br>8. Danaam awwaado uwwamoobee bikkina<br>9. Amma'nat uwwoobee bikkina<br>10. Lamfooroma losammi ihu bikkina<br>11. Mulleki yoolas kure------------------------ | |
| 215 | Ayyi eeyyatine Qail ilagge isakam fayaoom eggechcbikina Fayya oo'm minn mattotoki? | 1. imanch (2) igagim (3) Lamim atoraala | |
| 216 | Ka Lam foolannone afuu fayyao'm qedi/hawi heukkonihe? | 1) Heeukkoo<br>2) bee'e | Beelas xa'mmichi 301nne hige |
| 217 | Yookko yitlas hinka keeno? (uwwamu dabacchina kululees isse.) | 1/ matsanine xigi dunamimma<br>2/ ke'mal horoil damumi<br>3/ illi bizsizi yimma<br>4/ huxissima<br>5/ sumine saninne himba ebisima<br>6/ angi loki dashshimma<br>7/ ke'malisa ebisimma<br>8/ gagga/tiro hushima<br>9/ foshech kedomi heimma<br>10/ keimmalilisa hogissima<br>11/ ke'mal godapi xisimma<br>12/ Tsins mikimikat lobakata edim/mikimikat hofeim<br>13/ Mulleki yoolas kure----------------------- | |

## Awwonsi 3:   Qa'l ilagge isakam fayao'm eggechch  lachchi xa'mmichcha

| | | | |
|---|---|---|---|
| 301 | Ki minina hincoo fayya'oo'm egechi minenne lam foor amo'ina  Qa'l ilagge isakam fayao'm eggechchna uwwakkam awaadduwwi yooisa  laqoo? | 1.  La'oommo<br>2.  La'oommoyyo | |
| 302 | Qa'l ilagge isakam fayao'm eggechch   awwaadi yookkoo yitohoniyee? | 1.  Eeyya  yookkoo<br>2.  Bee'e | *Laqqambeelas xa'mmichchi 304 hige* |
| 303 | La'oommo yitlas hinka awwaaduwwa  laqoo? | 1.  Lam foollanonne moo'amoo hawwuwwa  shollisimma<br>2.  Hinke'e foorgatakkamda'e la'immina<br>3.  Ciilichi bikkina la'immina<br>4.  Mulleki yoolas kure | *Annanni annan dabacha dabarimm xanamookko* |
| 304 | Qa'l ilagge isakam fayao'm eggechch  awaximbikkina luxxeka hanni macceesitto ? | 1.  Fayya'ooma egechi minenne<br>2.  Rado'onne / telvejiinanne<br>3.  Xeena'I ekisteenshiininse<br>4.  Niinn /iinn hosoo beshshuwwiinse<br>5.  sawwoommoyyo | |
| 305 | Ki issinna Lami foor amo'i fayya'oo'm mine marimm hasisookko yitto? | 1.  Hasisookko/eeyya<br>2.  hasisooyyo | *Hasisooyyo yitlas 307 hige* |
| 306 | Eeyya yitlas xissoo'nim fayya'oo'm mine marimmi hasisoo? | 1.  Hasisookko   (2) hasisooyyo | |
| 307 | Lam foori ikko meenticho hinka ammanii ki'issa'a fayya'oo'm mine marimmi asherimi  hasisookkiS? | 1.  ------------------------<br>2.  La'oommoyyo | |
| 308 | Fayya'i Lam for meenticho mee'I kore  fayya'oom mine marimmi hasisookkoo yitoo? | 5.  -----------------<br>6.  La'oommoyyo | La'oommoyyo y itolas 401nne hige |
| 309 | La'oommo yitlas hinka ammani $1^{ka}$ , $2^{ka}$, $3^{ka}$, $4^{ka}$, $5^{ka}$  marimmi hasisooda'e kure | luxxeka----------------saanta/agananne<br>la'mmeka --------saanta/agananne<br>saxxeka--------------- saanta/agananne<br>soo'lleka ------------  saanta/agananne | |

## Awwonsi  5 :  M'inni huribati gaga xanimma moo'isoo xa'mmichcha

| | | | |
|---|---|---|---|
| 502) | Higu  soor (4) saantuwwanne ki'n minenne hurbaat hoffe'aa loobakkata saawitakka'a heeukkoinhee? | 0 = Hoongummoyyo (No)<br><br>1 = eeyya(yes) | (hoffe'ukkoyy o yitlas 503 hige) |
| 502 | Mee'i ammane ka'isa  sawittaka'a? | 1)  Hoffi ammane (higu saantanne mataa te'im lamaa)<br>2)  Mat mat ammane(higu soor saantanne 3-10 amman afeebe'e)<br>3)  Lophphoo ammane (higu 4 saantane 10mii hanaan | |
| 503 | Higu soor saantanne ki'in mi'in abaroos **hassakko'i hagar/dannami hurbaata  doilittaka'a** ittakkeen hassakka'a hooggakka'a hee'ukko? | 0 = Hoongummoyyo (No)<br><br>1 = eeyya(yes) | (hoongummoy yoo yitlas 505 hige) |
| 504 | Mee'i ammane kidi ihoo? | 1.  Hoffi ammane (higu saantanne mataa te'im lamaa)<br>2.  Mat mat ammane(higu soor saantanne 3-10 amman afeebe'e)<br>3.  Lophphoo ammane (higu 4 saantane 10mii hanaan | |
| 505 | Higu soor saantanne mulli hagar hurbaat bee'ukka xale'I mat hagar hurbaata ittakka'a hee'llakko'o? | 0 = Intummoyyo  (No)<br><br>1 = eeyya(yes) | (intummoyyo yitlas  507 hige) |
| 506 | Higu soor saantanne<br>Mee'I ammane kidi ihaa hee'ukko ? | 1.  hoffi ammane (higu soor saantanne mataagge te'im lamaagge) | |

| | | 2. mat mat ammane ( higu 4 saantanne 3-10 amman afeebe'e)<br>3. lophphoo ammane (higu soor saantanne 10 korii hanaan) | |
|---|---|---|---|
| 507 | Higu soor saantanne hassakkami  hurbaat bee'ukka hassako'I bee'i hurbaata ittakka'a hee'ukko? | 0 = Intummoyyo （No)<br>1 =  eeyya(yes) | (intumoyyo yitlas 509 hige) |
| 508 | Higu soor saantanne Mee'i ammane kidi ihaa hee'ukko ? | 1).Hoffi ammane (higu soor saantanne mataagge te'im lamaagge)<br>2).Mat mat ammane ( higu 4 saantanne 3-10 amman afeebe'e)<br>3).lophphoo ammane (higu soor saantanne 10 korii hanaan) | |
| 509 | Higu soor saantanne ki'in mi'n abaroosi itimmi hasisahanni hoofoka ittakka'a hee'ukko? | 0 = Intummoyyo （No)<br>1 = eeyya(yes) | (ntummoyyo yitlas  511hige |
| 510 | Higu soor saantanne Mee'i ammane kida ihaa hee'ukko ? | 1).Hoffi ammane (higu soor saantanne mataagge te'im lamaagge)<br>2). Mat mat ammane ( higu 4 saantanne 3-10 amman afeebe'e)<br>3).lophphoo ammane (higu soor saantanne 10 korii hanaan) | |
| 511 | Higu 4 saantanneKi'in mi'in abaroosiinse keesem edaa hurbaat hoffe'ukka **winxxo'I hurbaata** ittakka'a hee'ukko? | 0 = Intummoyyo （No)<br>1 =  eeyya(yes) | (Intumoyyo yitlas  513 hige) |
| 512 | Higu soor saantanne Mee'i ammane kidi ihaa hee'ukko ? | 1).hoffi ammane (higu soor saantanne mataagge te'im lamaagge)<br>2).mat mat ammane ( higu 4 saantanne 3-10 amman afeebe'e)<br>3).lophphoo ammane (higu soor saantanne 10 korii hanaan) | |
| 513 | Higu soor saantanne hurbaat bee'ukkaare ittakkoo'n higissakko'I amman hee'ukko? | 0    = Bee'e (NO)<br>1    = Yookko (YES) | Bee'e yitl Q 515 hige |
| 514 | Higu soor saantanne Mee'i ammane kida ihaa hee'ukko? | 1).hoffi ammane (higu soor saantanne mataagge te'im lamaagge)<br>2).mat mat ammane ( higu 4 saantanne 3-10 amman afeebe'e)<br>3).lophphoo ammane (higu soor saantanne 10 korii hanaan) | |
| 515 | Higu soor saantanne ki'in mi'n abaroosiinse hurbaat bee'ukkaare hiimo ittoo'n diriiruk /garukki manchi hee'ukko? | 0    = Bee'e (NO)<br>1.    = Yookko (YES | (bee'e yitlas 517 hige) |
| 516 | Higu soor saantanne<br>Mee'I ammane kida ihaa hee'ukko? | 1).hoffi ammane (higu soor saantanne mataagge te'im lamaagge)<br>2).mat mat ammane ( higu 4 saantanne 3-10 amman afeebe'e)<br>3).lophphoo ammane (higu soor saantanne 10 korii hanaan) | |
| 517 | Higu soor saantanne ki'in mi'n abaroosiinse hurbaat bee'ukkaare hiimoo ballaa  ittoo'n hosaa garu amman yoo? | 0    = Bee'e (NO)<br>1.    = Yookko (YES | (beelas 519 hige) |
| 518 | Higu soor saantanne | 1).hoffi ammane (higu soor saantanne mataagge te'im | |

| | Mee'l ammane kidi ihaa hee'ukko? | | lamaagge) |  |
| | | | 2).mat mat ammane ( higu 4 saantanne 3-10 amman afeebe'e) |  |
| | | | 3).lophphoo ammane (higu soor saantanne 10 korii hanaan) |  |
| 519 | Lophphakkoo hurbaaxxi hoffechchi qooccamuta'n/afutta'n ee hawwo sholliisimmina hinkido qoorooma te'im googo awwaaxxitakkamo | | 1. Lobakata hasamoobee'l hurbaata itimma<br>2. Hurbaaxi qaxooma hoffisimminne<br>3. Qaxooma balla itakkamanii hofiisimma<br>4. Hurbaaxxi ammane higisimminne<br>5. Diinate biteesimminne<br>6. Mine yoo luwwa/mu'uta biteesimminne<br>7. Haqqa te'im kasal biteesimminne<br>8. Hurbata bitaa'immina bire liqayye aa'imminne<br>9. Hurbaata liqayye aa'imminne<br>10. Laso miqeena daddaraani hurbaata liqaayye aa'imminne<br>11. Fayya'oo'm minina fissakam diinate gatisimmina uull qaraare masimminne<br>12. Ooso qarinne hee'isimminne<br>13. Amma'n baxina mulli beyyo marimminne<br>14. Uulla amadiisimminne<br>15. Hurbaatina mann mine baximminne<br>16. Ball malaayye baximminne<br>17. Mulleki yoolas kure_____ |  |
| | **Awonnsi 6 : mi'n amaxxi haalata** | | | |
| 601 | Aggi wo'o hinke'iinse siiddakkamo? | | (**1**) Mateeyya awwaxxakam moto'l boombiinse<br>(**2**) Ootamm ba'll wo'o<br>(**3**) Ootamubee'i ba'll wo'o<br>(**4**) Ootamm bu'iinse<br>(**5**) Ootamubee'i bu'iinse<br>(**6**) daajjiinse<br>(**7**) mullek yoolas kure |  |
| 602 | Hinkido'l shu'm mine awwaaxxitakkamo? | | 1. Daphphakoo shu'm minenne<br>2. Daphphaakko islaab yoo shu'm minenne<br>3. Daphphit ihubee'l islaab bee'i shu'm minenne<br>4. Biiranne/haqqoro/weesoro/dubbonne/shifanne<br>**5.** mullek yyolas kure |  |
| 603 | Ka shu'm mine mulli mi'n manninne awwaaxxitakkamo? | | 1. Eeyya (2) awwaaxxinoommoyyo |  |
| 604 | Mee'i mann awwaaxxitakkamo? | | 1/ tommii hoffan ihulas mee'i mann -------<br>(2) 10mii hanaan (3) La'oommoyyo |  |
| 605 | Ki'n minenne | Elektriiqqi caakki yoo? | 1 yookko 0/ bee'e |  |
| | | Sa'at yoo? | 1 yookko 0/ bee'e |  |
| | | Ireedo'I yoo? | 1 yookko 0/ bee'e |  |
| | | Telezhisiin yoo? | 1 yookko 0/ bee'e |  |
| | | moobayi'l silk yoo? | 1 yookko 0/ bee'e |  |
| | | Xarapheezi yoo? | 1 yookko 0/ bee'e |  |
| | | Barcum yoo ? | 1 yookko 0/ bee'e |  |
| | | ara'ii firaashii yoo? | 1 yookko 0/ bee'e |  |
| | | Faanos yoo ? | 1 yookko 0/ bee'e |  |
| | | Kuraaza yoo? | 1 yookko 0/ bee'e |  |
| 606 | Mi'n woror | | a) Buchcha (b) Haqqinne baxamaakkoohane<br>c) Simintoi'nne (d) Mullek yoolas kure |  |

| 607 | Mi'n  iiman | 1.    Huqqa            (2)  Qoriqoro'o | |
|------|------------|----------------------------------------|---|
| 608 | Mi'n gorte'I biirinne. | 1.    Haqqi  gortann  xale'e <br> 2.    Hane haraa aphisako'o  haqqi gortanna <br> 3.    Kininnee simminto'inne baxamaakkoohane <br> 4.    Mullek yoolas kure_____ | |
| 609 | Saa'allakkam baqullo te'm farad yoo? | 1 yookko    2 bee'e | |
| 610 | Ki'nnena abuull uulli yoo? | 1 yookko    2 bee'e | |
| 611 | Ki'nni minina mee'I heektaar/xindi abuull ulli yoo? | 1.    ----------------------hectaara/xinda <br> 2.    Lao'omooyo | |
| 612 | Ka minenne  ki'nuwwiki  xale'i  lalleewwi, fella'i/ gereebbi, mulli abuulli diinat, te'm antabaa'i yoohonniye? | 1 yookko    2 bee'e            ➡ Dabach 2 ihulasi 613 hige | |
| 613 | Ka minenne yoo diinattuwwa kuttakkamo? | iv.     Beelas  "00" kitaabe <br> v.     95 iinse lophoolas "95" kitaabe. <br> vi.     La'akkam beelas "98" kitaabe <br> a)    Axxi lar,mirgo'uwwi,labeennuwwi? ---------- <br> b)    Faradi, halli, te'im  baqqulli? ------------ <br> c)    Fella'i? ------------------ <br> d)    Gereebbi? ----------------- <br> e)    Antabaa'i? -------------- | |
| 614 | Ka minenne   yoo mannina baankanne te'im oomo'onne bira disstakkam/idiiddakam dabitari yoohoniye? | 1 yookko    2 bee'e | |
| 615 | Ki'n mi'n manni bira te'im hurbaate seeftineetiinse a'lltakkamo? | 1 a'llnoommo    2 a'llinoommoyyo | |