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Factors Associated with Dietary Diversity among Pregnant Women in Cheha Woreda, Gurage Zone, Central Ethiopia

A Thesis Submitted to School of Graduate Studies, in Partial Fulfillment of The Requirements for the Degree of Master of Public Health (MPH) in Public Health Nutrition

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ABBREVIATIONS AND ACRONYMS

ANC	Ante Natal Care
AOR	Adjusted Odd Ratio
DDS	Dietary Diversity score
FAO	Food and Agriculture Organization
FDG	Focus Group Discussion
LBW	Low birth weight
LMIC	Low and Middle Income Countries
MDD-M	Minimum Dietary Diversity for women
NGO	Non-Governmental Organization
PTB	Preterm baby
WHO	World Health Organization

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ABSTRACT

Background: Pregnancy and lactation require more nutrients than any other period of a woman's adult life. For the fetus to grow and for the mother's tissues to develop that support fetal development, extra nutrients are needed during gestation. The nutritional condition of a mother during pregnancy is influenced by a variety of circumstances. Both the mother and the child may have some health issues as a result of the mother's unhealthy diet or inability to meet nutritional needs. Due to economic and cultural difference between this study area and others as well as an increasing of food price which has an effect on dietary diversity practice, this research being done in this field in the study area.

Objective: The aim of this study was to assess the prevalence of sub-optimal dietary diversity and associated factors among pregnant women in Cheha woreda, Central Ethiopia, 2022.

Method: A cross-sectional institutional study involving 406 pregnant women receiving prenatal care in health facilities was done. Random sampling procedure was used. A systematic questionnaire was used to gather the data, and version 23 of the statistical program for social science was used to analyze it. To find factors linked to pregnant women's dietary diversity, bivariate and multivariate logistic regression models were used. Thematic analysis was used to examine qualitative data.

Result: Among 406 pregnant women, 184(45.3%) had inadequate dietary diversity. Rural dwellers [AOR=3.7, (95% CI: 2.22, 6.28)], lack of nutritional counseling [AOR=1.6 (95% CI: 1.03, 2.79)] and having less than three meals per day [AOR=3.8, (95% CI: 2.15, 6.77)] are predictors of inadequate dietary diversity.

Conclusion: Overall, it was discovered that there was inadequate dietary diversity being consumed by pregnant women in the study area. Maternal nutrition counseling is crucial, and health providers should view it as one of the core ANC treatment packages. Improved dietary diversity for pregnant women can result from encouraging agriculture and home gardening among vulnerable households.

1. INTRODUCTION

1.1 Background of the study

Pregnancy represents a time of rapid change in maternal physiology and nutritional requirements [1]. Nutrients need increase during pregnancy and lactation than during any other stage in woman's adult life. Additional nutrients are required during gestation for growth of the fetus as well as for the development of maternal tissues that support fetal development. The nutritional ingredients required for this rapid growth and development depend on the support from maternal diet [2]. Unhealthy nutrition of the mother or an inability to meet the nutritional requirements may cause some health problems that can affect both the mother and the infant [3].

The capacity of the mother's body to create the necessary conditions for fetal growth is one of the great miracles of life. There are limits, however, and the health of the child may suffer in obvious and not so-obvious ways if certain thresholds for nutrients are not met. Although a pregnant body has an amazing ability to compensate for nutrient deficiencies and excesses, a woman cannot provide essential nutrients for the child if she herself is deficient in them. Many factors influence a mother's nutritional status during her pregnancy. The mother's own health before conception, her health during pregnancy, life-style choices, and environmental exposures can all change what and how much she eats and limit precious, nutrients available for the growing fetus [4].

According to different scientific pieces of evidence, there is a growing worldwide consensus to increase the dietary diversity of women (consuming more food groups), especially lactating mothers, which can help to improve their diet quality and infants. Since no single food group can contain all nutrients required for the healthy functioning and performance of the body, there is, therefore, the need for more food groups to be included in the daily diet to meet their nutrient requirements [5].

1.2 Statement of the Problem

Undernutrition is a major public health concern due to its association with the mortality and disease burden of women and children [6]. During pregnancy, deficiencies in essential vitamins and minerals, such as iodine, iron and calcium, are also linked to poor health outcomes, such as

miscarriage, stillbirths, congenital defects, LBW, infant mortality, impaired cognitive development, and cardio metabolic risks in adult life [7]. Poor maternal diets are a major risk factor for poor health before and during pregnancy and can contribute to poor pregnancy outcomes. Babies born small at birth have an increased risk of mortality, morbidity and suboptimal growth and cognitive development throughout childhood, thus perpetuating the intergenerational cycle of growth failure [8]. Across countries, women's diets are lacking in diversity, with limited intake of vegetables, meat, dairy and fruits. This results in micronutrient deficiencies due to gaps between daily nutrient requirements and the intake of quality nutrients such as, vitamin A, B-vitamins, calcium, iron and zinc) [9].

Maternal undernutrition remains a critical public health problem across the globe. Malnutrition, including underweight, short stature, anemia and overweight, affects millions of women around the world including during the nutritionally demanding periods of pregnancy and breastfeeding. Approximately 170 million women (9.1%) are underweight. Anemia affects 520 million women (32.8%) and 7 % of women aged 20–49 years in LMICs have short stature. Each year, about 20 million babies are born with low birthweight, an early form of malnutrition that is closely linked to the nutritional status of women before and during pregnancy. Africa was home to about one quarter of all low birthweight newborns, with the majority born in Eastern and Western Africa [10].

There are large regional and within-country disparities in the burden of underweight, with the highest burden among the poorest women in the poor countries [11]. In Africa, maternal malnutrition was estimated to be 23.5%. The pooled prevalence of malnutrition is higher in Ethiopia, 26% [12]. Studies showed adverse pregnancy outcomes such as inadequate gestational weight gain, maternal anemia, low birth weight and preterm are associated with inadequate dietary diversity. Prevalence of newborn babies' low birth weight measured at birth in Sub-Saharan Africa is 9.76%. The highest LBW was recorded in Ethiopia, 9.89 % [13]. In some district level studies of Ethiopia, the magnitude of poor dietary diversity is 55.2% [14].

These unacceptably high maternal malnutrition estimates stressed the need for priority interventions targeted to improve maternal nutrition during pregnancy. Investing on maternal nutrition is also a key strategy to reduce LBW, preterm baby, and to break its inter-

generational effect [15]. World Health Assembly Resolution 65.6 endorsed a comprehensive implementation plan on maternal, infant and young child nutrition, which specified a set of six global nutrition targets [16].

The government of Ethiopia recognizes that addressing malnutrition is essential to achieve sustainable development. As a result, bold actions were taken in health and other nutrition specific sectors to put in place policies, programs and large scale interventions to reduce all forms of malnutrition among the most vulnerable groups including pregnant women [17]. Although several nutritional intervention programs have been introduced to improve maternal nutrition globally and regionally, the problem has been increasing [15]. The prevalence of anemia among girls and women of reproductive age remains worrying: not only has there been no progress toward lowering prevalence but, on the contrary, by 2025 the increased prevalence observed over recent years will lead to a prevalence of more than double the agreed target level (31.2% instead of 14.3%) [18].

According to a base line survey done in south region of Ethiopia, only 28% of pregnant and recently delivered women had achieved minimum dietary diversity. The survey shows that only 13% and 23% of pregnant mothers are consumer of egg and meat and poultry respectively. Approximately 29% of expectant mothers were counseled to eat at least five different food groups each day [19].

There are some quantitative studies that are done in some part of Ethiopia. But there is no such type of research in this study area. There can be some socioeconomic and cultural differences between Cheha Wearda and the research locations. Progressive increasing of food price also has great impact on dietary diversity practice of the population [20] [21]. So, this study was conducted in Cheha woreda.

1.3 Significance of the study

The result of this study is important for different stakeholders. This study helps Cheha woreda health office in designing appropriate nutrition interventions among pregnant women. Health care providers may use the as base line for health education and other activities to improve pregnant women dietary diversity. This will also serve as basis for the

subsequent/further studies within the district or in the next level concerning dietary diversification issues.

1.4 Objective of the study

1.4.1 General objective

To assess the prevalence of sub-optimal dietary diversity associated factors among pregnant women attending ANC in health facilities in Cheha woreda, Central Ethiopia, 2022.

1.4.2 Specific objectives

- To assess the prevalence of sub-optimal dietary diversity among pregnant women attending antenatal care in health facilities in Cheha woreda, Central Ethiopia, 2022.
- To assess factors associated with sub-optimal dietary diversity of pregnant women attending antenatal care in health facilities of Cheha woreda, Central Ethiopia, 2022.

2. LITERATURE REVIEW

2.1 Measurement of dietary diversity

Dietary diversity is defined as the number of individual food items or food groups consumed over a given period of time. Dietary variety, a term often used in the literature, is considered here to be synonymous with dietary diversity [22].

The relationship between diet and health can be examined at the level of food components, foods and dietary patterns. Until recently, the study of food components, particularly nutrients, has been the dominant approach in nutritional epidemiology. This approach has clear advantages. If the development of a disease is causally related to the intake of a food component, the examination of that food component will be the approach with the greatest power to identify its effect. In addition, results for food components can be compared with associations observed in other populations, data from mechanistic studies and health effects found in intervention studies [23].

2.2. Dietary diversity adequacy

An institutional based cross sectional study conducted in Pakistan showed that around 89% of pregnant women had medium, while only 5% had low and high dietary diversity score (DDS) respectively [24]. In Burla, another urban community-based cross-sectional study design shows that 47.3% of women of reproductive age achieve the required level of dietary diversification. Moreover, all women of reproductive age consumed cereals as their predominant food group, whereas eggs, nuts and seeds were least consumed food groups [25]. Another study conducted in Northern Ghana showed that more than half of the mothers interviewed having their dietary diversity score falling below five [26].

Further research carried out in South Africa revealed that starchy staples, mostly maize meal, dominated the diets of most women in the town who were of reproductive age. Merely 25% of women reported consuming a sufficiently diverse diet, and the average dietary variety score across the municipality was less than four [27]. According to cross-sectional study conducted in Kenya, 60.6% of pregnant women in the country were consumed optimum dietary diversity with the mean dietary diversity of around seven food groups out of fourteen food groups. In regard to consumption of food by groups, the most commonly consumed

foods were cereals (starchy staples) other vegetables, while foods of animal origin were the least consumed food groups [28].

More than half of the pregnant women in a comparable study done in Dire Dawa City had inadequate dietary diversity during their pregnancy. The study also showed that 16.3% of pregnant women consumed eggs; all pregnant women consumed cereals, white roots, and tubers. [29]. A community based cross-sectional study conducted in East Gojjam, Northwest Ethiopia indicates slightly more than half (55%) of pregnant women had inadequate dietary diversity during pregnancy. Legumes, nuts, and seeds (85.5%), were commonly consumed food groups followed by starchy staples [30].

2.3 Factors affecting dietary diversity adequacy of pregnant women

2.3.1 Socio-demographic factors

Several studies report show that there is an association between women dietary diversity and socio-demographic factors. Study done in Rio de Janeiro, Brazil showed that pregnant women who completed high school education had more likely to have adequate dietary diversity [31]. Another study carried out in rural Bangladesh discovered that women who lived in families with four or more family members, had husbands who worked in the business world, and had achieved secondary or higher education had reached the minimum dietary variety for women [32]. According to study conducted in Tanzania educational level of head of house hold showed significant effect on household dietary diversity [33].

2.3.2. Socio-economic factors

Health survey conducted in Ghana indicates source of drinking water and household livestock production, as significant socioeconomic determinants of dietary diversity among reproductive age mothers [34]. An institutional-based cross-sectional study carried out in the Tigray region of Ethiopia revealed that nursing mothers who did not practice home gardening and whose main source of drinking water was an unprotected source had significantly lower dietary diversity than those who reported using tap water for their primary source of drinking water. Also, women in household monthly incomes of less than1500 Ethiopian birr were more likely to have low dietary diversity than those who had household monthly income above 1500 ETB [35]. Likewise, in the Bale Zone of Ethiopia, home gardening and owning a toilet were linked to pregnant women achieving greater dietary diversity [36].

2.2.3 Food security factors

There is a favorable correlation between household food security and dietary diversification. Pregnant women with household food insecurity were less likely to have an acceptable dietary diversity, and those who report moderate to severe food insecurity are more likely to not consume eggs, according to a cross-sectional study design carried out in rural Malawi [37]. Another longitudinal analysis in rural Bangladesh showed that maternal dietary diversity decreases with decreased household food security. Compared with women from food-secure households, women from mild food unsecured household were less likely to have consumed dairy products, fish, egg, dairy, and meat food-group [38].

2.3.4 Pregnancy and feeding pattern factors

Study conducted in Hossana town, South Ethiopia indicates that, pregnant women who consumed meal three and/or more times per day were more likely to had adequate dietary diversity compared to those who had less than two times meal per day. Pregnant women who had got health education about consuming additional and dietary diversity intake during pregnancy had more likely to have adequate dietary diversity as compared to those who didn't get the information [39].

A community based cross-sectional study conducted in Dessie town; northeastern Ethiopia showed that pregnant women with no history of illness two weeks before the date of data collection were less likely to have poor dietary diversity practice compared to those without history of illness. Also pregnant women at their first trimester of pregnancy were less likely to have poor dietary diversity practice as compared to those in third trimester of pregnancy [40].

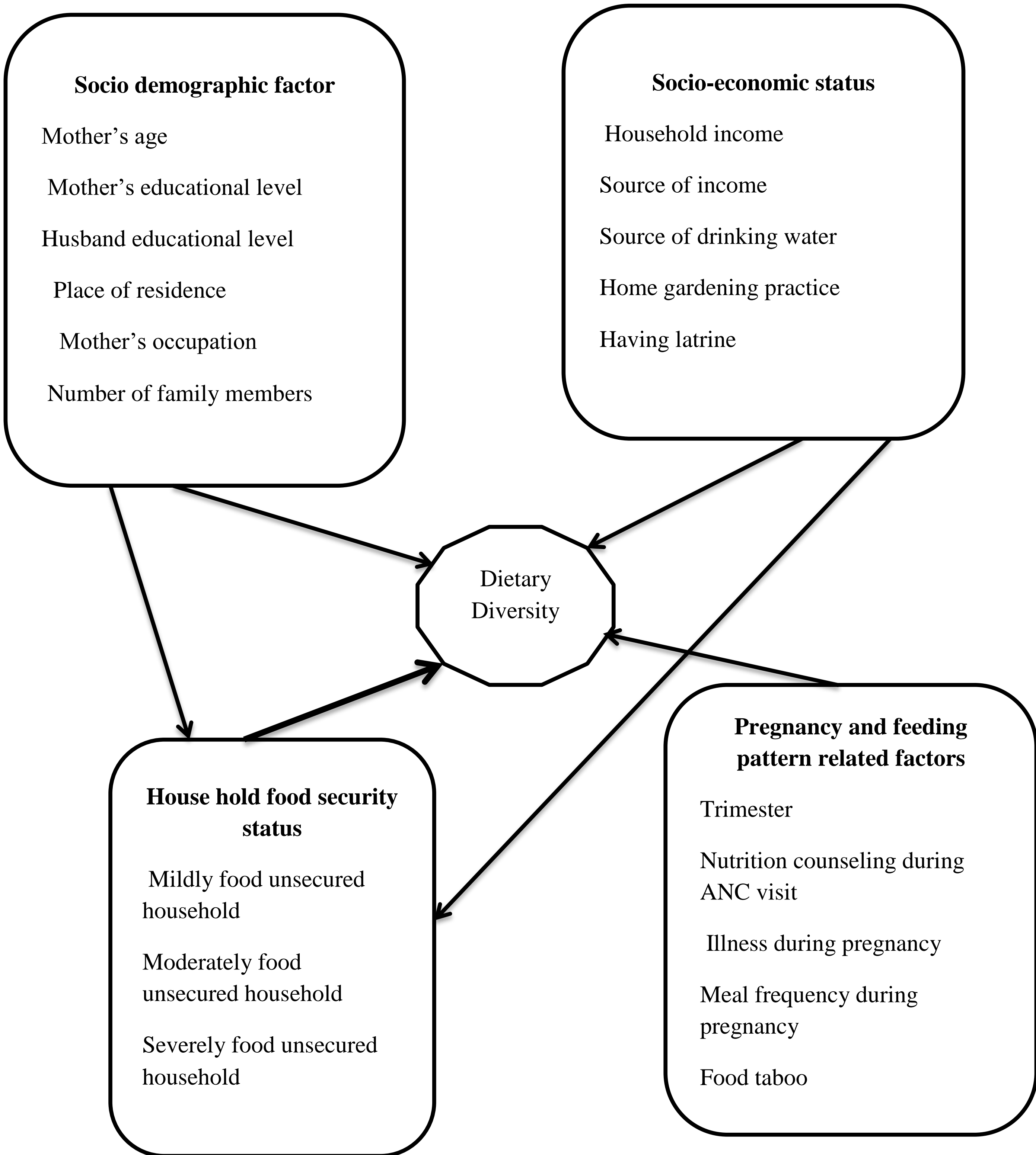

Figure 1 Conceptual Framework for Factors Associated with Pregnant women Dietary Diversity

3. METHODS AND MATERIALS

3.1 Study area and study period

From April 18 to June 7, 2022, the study was conducted in Cheha woreda, which is located in Gurage Zone, Central Ethiopia. Cheha woreda is located 185 kilometers from Ethiopia's capital city. Atat General Hospital is the only hospital, and Emdiber, Wurer ber, Yeshere, Megenasse, Aftir, Yejoka, and Dakuna are the other seven health facilities. Each one of them offers ANC. The Cheha woreda administrative office has reported that there are 165967 people living there, 84643 of them are female. Cheha woreda health office report showed that there was likely being 5742 pregnant women in the district in 2022. There were 4986 ANC attendants in that year. In this district, the main crops farmed include enset, khat, maize, teff, wheat. Avocado and is well known growing fruit in the district. According to the data from custom and tourism office of Cheha woreda, *kocho* is local traditional food which is consumed by the majority of the community.

3.2 Study design

Institutional based cross-sectional study complemented by explanatory qualitative study was conducted.

3.3 Source population

All pregnant women of Cheha woreda, Gurage zone, Central Ethiopia, 2022.

3.4 Study population

All pregnant women who attended ANC follow up during data collection period in health facilities of Cheha woreda, Gurage zone, Central Ethiopia, 2022

3.5 Inclusion criteria

The pregnant women attended ANC service at health facilities during the study period.

3.6 Exclusion criteria

The study excluded pregnant women who had diabetes mellitus because the illness has known impact on an individual’s food consumption. Pregnant women who had special diets on celebrations and festivals in previous 24 hours were also excluded from the study.

3.7 Sample Size Determination for dietary diversity

Sample was determined by using single population proportion formula by taking the prevalence of inadequate dietary diversity practice as 57.4 % during pregnancy [41]. To obtain the maximum sample size with 5% marginal error, 95% CI, a non-response rate of 10%. Based on this, the actual sample size for the study was determined by using the formula:

$n = (z\alpha/2)^2 \, p\,(1-p)/d^2$

n=is the desired sample size

Z = Standard normal variable at 95% confidence level (1.96)

d = Margin of error (0.05)

p = Proportion of pregnant women with inadequate dietary diversity that is 57.4 %

$n = (1.96)^2 (0.574)\,(1-0.574)/(0.05)^2$

n= 376

Finally, a sample size of 376 pregnant women was selected for the study. Due to the possibility of non –response rate 10% was added. That is 376+38=414.

3.8 Sampling technique

Based on who owned them, the health facilities in Cheha woreda were divided into two groups: governmental and non-governmental (NGO). As a result, there are three non-governmental and five governmental health facilities. Samples were taken from the facilities that had name lists in the sampling frame for government and non-government health facilities. Five facilities were chosen using the simple random sample method, three of which were government-run and two of which were not. Respondents were chosen using a systematic random sampling. The sampling interval was calculated by dividing the 2 month attendants for ANC follow up at each health facility to proportionally allocated sample size. The first study participant was selected in each health facility by lottery method during ANC follow-up and continued at every interval until the required numbers of samples was met.

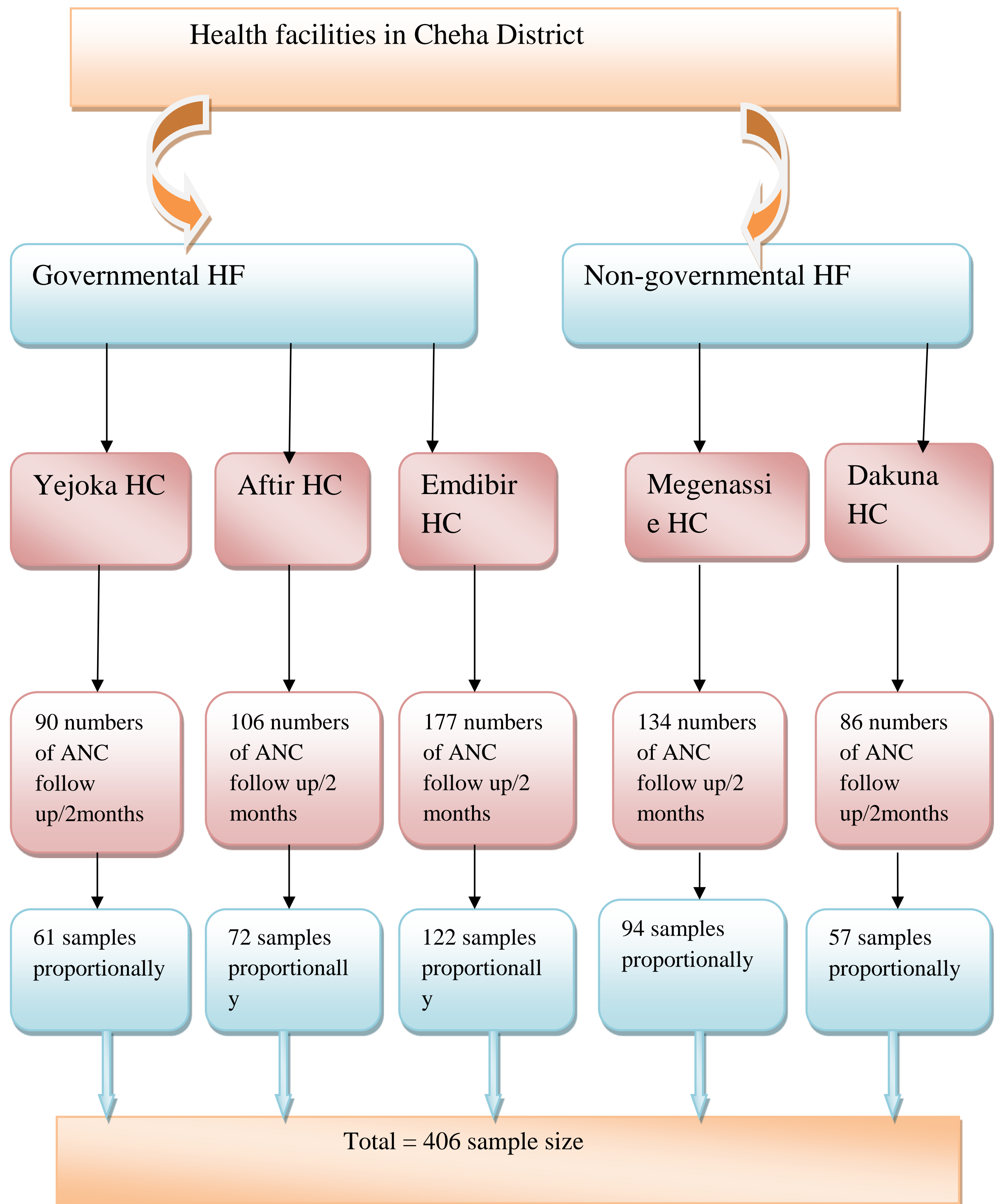

Figure 2 Proportional Sample Size Allocations' of Pregnant Women in Who attended ANC, in HF of Cheha , Woreda

3.9 Variables of the study

3.9.1 Dependent variable

Dietary diversity adequacy of pregnant women

3.9.2 Independent variables

Age of women, religion, place of residence, women educational level, husband educational level, women's occupation, number of family members, average monthly income, household food security status, meal frequency, history of illness, gravidity, nutritional counseling

3.10 Operational definitions

Minimum Dietary Diversity for Women (MDD-W): A dichotomous indicator of whether or not women who are 15-49 years of age have consumed at least five out of ten defined food groups during the previous day and night., the food groups are: 1. Grains, white roots and tubers 2.Pulses(beans, peas and lentils) 3. Nuts and seeds, 4.Dairy products 5. Meat, poultry and fish 6.Eggs 7.dark green leafy vegetables 8.vitamin A-rich vegetables and fruits 9.Other vegetables 10.Other fruits. [23].

Adequate dietary diversity :- when the proportion of pregnant women who reach the minimum dietary diversity (consumed five or more food groups) in the previous 24 hours, which is one important dimension of diet quality.

Inadequate dietary diversity :- when the proportion of pregnant women who did not reach the minimum dietary diversity (consumed less than five food groups) in the previous 24 hours.

Household Food Insecurity Access Scale Score:- a continuous measure of the degree of food insecurity (access) in the household in the past four weeks. A HFIAS score variable is calculated for each household by summing the codes for each frequency-of-occurrence question. Nine occurrence questions are asked and followed by each occurrence questions to determine how often the condition occurred. The collected response were coded as 0 (no) or 1(yes) corresponding to the occurrence questions and 1 (rarely), 2 (sometimes) and 3 (often) corresponding to the frequency of occurrence questions and if the occurrence question answered 0 (no) to the occurrence questions then the frequency of occurrence question was skipped but if the occurrence questions was answered 1 (yes) to the occurrence questions

then the frequency of occurrence questions could be 1 (rarely) or 2 (sometimes) or 3 (often). After summing the codes for each frequency of occurrence questions, households were categorized into four food security categories as:

Food Secure: If [(Q1a=0 or Q1a=1) and Q2=0 and Q3=0 and Q4=0 and Q5=0 and Q6=0 and Q7=0 and Q8=0 and Q9=0]

Mildly Food Insecure Access: if [(Q1a=2 or Q1a=3 or Q2a=1 or Q2a=2 or Q2a=3 or Q3a=1 Or Q4a=1) and Q5=0 and Q6=0 and Q7=0 and Q8=0 and Q9=0]

Moderately Food Insecure Access: if [(Q3a=2 or Q3a=3 or Q4a=2 or Q4a=3 or Q5a=1 or Q5a=2 or Q6a=1 or Q6a=2) and Q7=0 and Q8=0 and Q9=0]

Severely Food Insecure Access: if [Q5a=3 or Q6a=3 or Q7a=1 or Q7a=2 or Q7a=3 or Q8a=1 or Q8a=2 or Q8a=3 or Q9a=1 or Q9a=2 or Q9a=3] [42].

3.11 Data collection tools and procedures

3.11.1 Quantitative data collection tools and procedures

An interviewer-administered structured questionnaire was used to collect the data. The questionnaire was prepared in English and translated to Amharic, then translated back to English to keep the consistency of the questions. Dietary diversity was measured using the World Health Organization (WHO) and Food and Agriculture Organization (FAO) 24-h dietary recall. Household food insecurity was assessed using the Household Food Insecurity Access Scale (HFIAS).

3.11.2 Qualitative data collection tools and procedures

Three groups were formed purposively. The composition of focus group discussion participants was pregnant mothers, who were homogenous with respect to socio-economic subgroups. The qualitative data was collected using the semi-structured interview and FGD until the saturation of idea has attained. Data was collected by audio record.

3.12 Data processing and analysis

3.12.1 Quantitative data processing and analysis

Data was cleared, coded, and entered into Epi-data version 4.6.0.6 software and exported to SPSS version 23 for analysis. Descriptive statistics like mean, standard deviation, frequencies, and percentages was computed. The dietary diversity score was computed and categorized as adequate and inadequate dietary diversity of pregnant women. Adequacy of food intake was considered for those women who ate at least five food groups out of 10 food groups. The score below five was considered as inadequate dietary diversity. Bivariable analysis was done primarily to check which independent variables had an association with that of the dependent variable. Independent variables with P value of <0.25 in the bivariable analysis were entered into a multivariable logistic regression analysis in order to detect association with dietary diversity practice of pregnant women. The Hosmer-Lemeshow test was used to check model fitness. A p-value of <.05 considered statistically significant and AOR with 95% CI was calculated to determine association.

3.12.2 Qualitative data processing and analysis

Word Transcription from audio records was done in Amharic language each day at the end of data collection and translated to English language in the word document. The data was analyzed by thematic analysis using Open code software. After coding and generating different themes, analysis was done to explain different factors of dietary diversity practice among pregnant women. Finally, the qualitative study's findings were triangulated with the quantitative findings.

3.13. Quality assurance mechanisms

To maintain the quality of data, the questionnaire was adopted from standard data collection tools, and it was pretested. Data collectors were trained. The data collection procedure was supervised by the principal investigator. The data collection team held daily meeting, and feedback was given daily. Double entry and verification was done.

3.14 Ethical consideration

Ethical clearance was gained from the ethical board of university of Wolkite and submitted to Cheha woreda health office. Prior to data collection, respondents were informed about the right to not participate in the study or that they can withdraw any time they want with no

repercussion on the quality of ANC or other services they received. Confidentiality was maintained by excluding personal identifiers from the data collection form.

4. RESULT

4.1 Socio-demographic characteristics of the respondents

From the total of 414 pregnant women, 406 participated in this study making the response rate of 98%. Regarding the marital status, 398(98%) of the study participants were married and living with their husbands and the rest were unmarried, divorced and widowed. The average family size of the study subjects was 5.5 ± 1.6, with a maximum family size of 9 and a minimum of 3. The majority, 161 (39.7%) of the study participants were Orthodox religious followers, 123(30.3%) were Muslims, 82(17.2) were protestants and the rest 40(9.8) were Catholics.

Table 1 **Socio-Demographic Characteristics of Pregnant Women at ANC clinic in Cheha district, Gurage Zone, Central Ethiopia, 2022**

Variables	Frequency (n)	Percentage (%)
Age groups (years)		
18_24	187	46.1
25_34	187	46.1
35 and above	32	7.8
Religion		
Orthodox	161	39.7
Muslim	123	30.3
Protestant	82	17.2
Catholic	40	9.8
Residence		
Urban	169	41.6
Rural	237	58.4
Educational status		
No formal education	236	58.1
primary school	89	21.9
Secondary school	56	13.8
College and above	25	6.2
Family size		
1-5	209	51.5
>5	197	48.5
Occupation		
Housewife	40	9.9
Merchant	129	31.8
Employed	89	21.9
Farmer	116	28.6
Other	32	7.9
Educational status of husband (n=398)		

No formal education	112	27.6
Primary education	188	46.4
Secondary education	73	18.0
College and above	25	6.0
Occupation of husband		
Farmer	171	42.1
Merchant	121	29.8
Employed	58	14.3
Other	48	11.8
Income (ETB)		
<1500	155	38.2
1501_3000	112	27.6
3001_4500	98	24.1
>4501	41	10.1

4.2 Maternal health service and related characteristics of respondents

The majority of the study subjects 295(72.7%), were multi para. For the last two weeks prior to interview, 33(8%) of subjects developed some type of illness, but 373(92%) did not. Majority, 253(62.3%), of respondents did not get nutritional counseling at least one time during antenatal visit. According to the study, 229(56.4%) participants had more than three meals in 24 hour. The rest 177(43.6%) had three or less than three meal frequencies. Some, 73(18%), of respondents avoided certain types of foods during their pregnancy.

4.3 Dietary Diversity related

The Mean dietary diversity score ($\pm$SD) of pregnant women in the study area was 4.54$\pm$1.33 with a range from 2 to 7 food groups. Grains, white roots and tubers are food groups consumed by the majority (79.8%) of study subjects. Conversely, the dietary groups that are least consumed are fish, poultry, and meat.

Food Groups consumed by pregnant women who attended ANC in health facilities of Cheha woreda in 24 hrs, 2022

Table 2 **Frequency of pregnant women in Cheha worda who consumed each food groups, 2022**

Food Groups consumed	Frequency of pregnant women	Percent
Grains, white roots and tubers	324	79.8
Pulses (beans, peas and lentils)	163	40.1
Nuts and seeds	228	56.2
Dairy products	115	38.2
Meat, poultry and fish	99	24.4
Eggs	113	27.8
Dark green leafy vegetables	228	56.2
Vitamin-A rich vegetables	196	48.3
Other vegetables	204	50.2
Other fruits	113	32.8

4.4 Household Food Security Status

According to the house hold food insecurity access scale 235(57.9%) of the households were food secured, 107(26.3%) were mildly, 40(9.9%) were moderately and 24(5.9%) were severely food insecure.

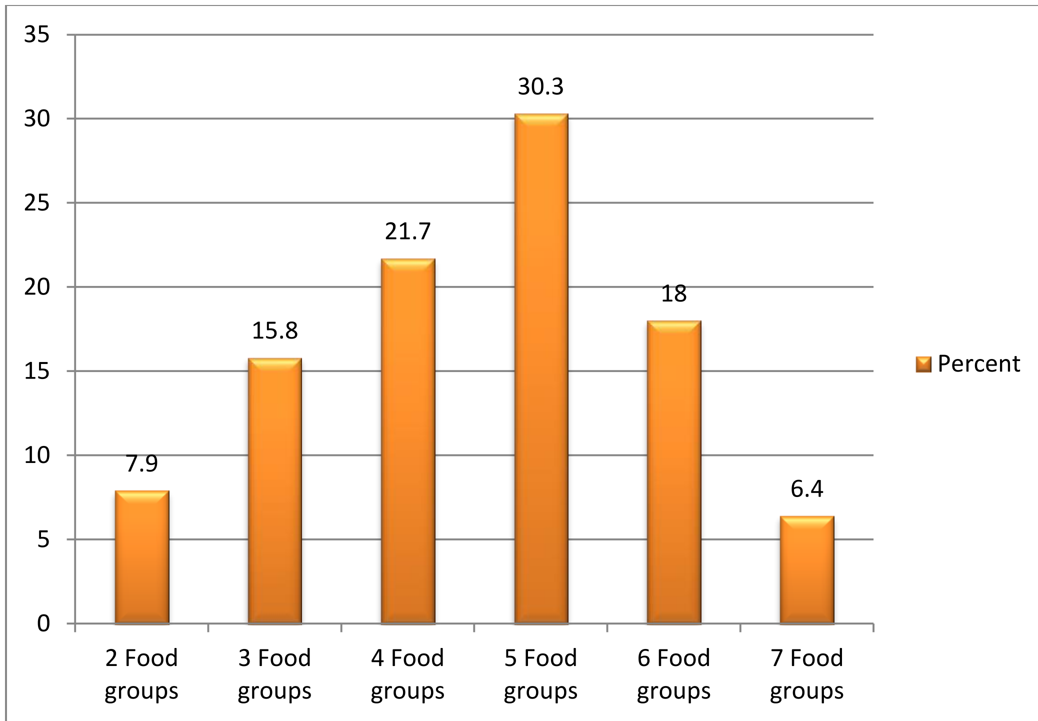

Figure 3 Number of Food Groups Consumed by Pregnant Women within 24 hrs Prior to Data Collection

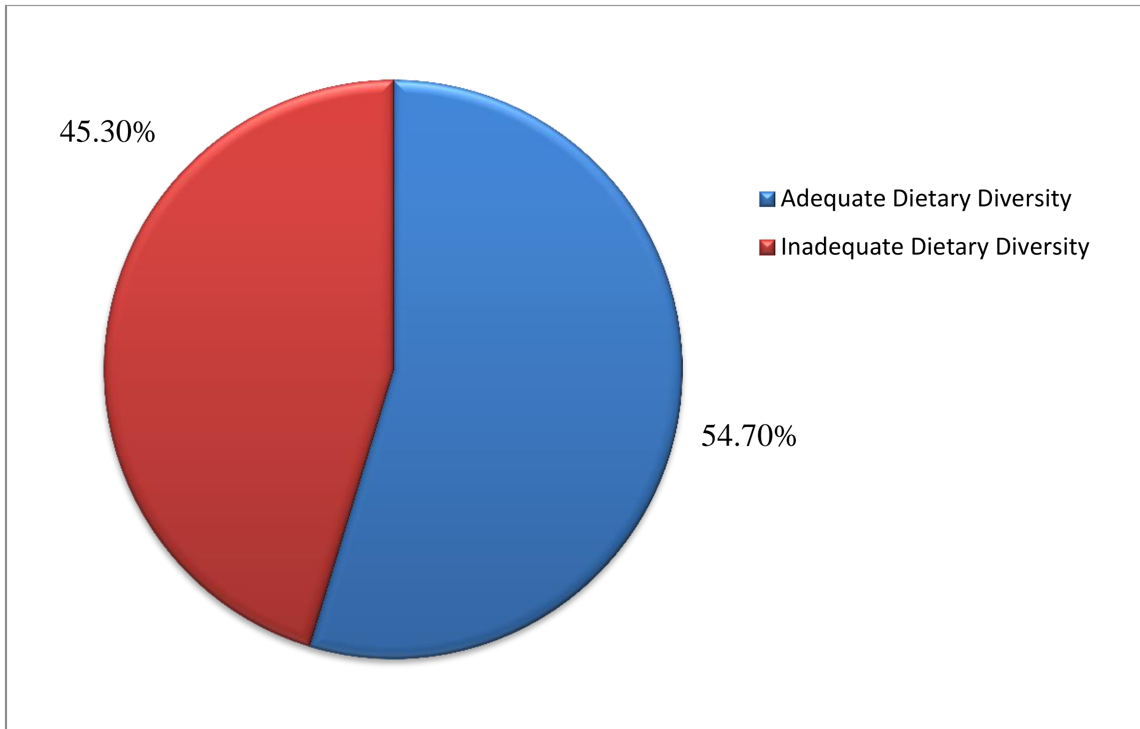

Figure 4 Proportion of Dietary Diversity Adequacy among Pregnant Women in Cheha Woreda, 2022

4.5 Factors Associated with Dietary Diversity

Both Bivariable and multivariable logistic regression analyses were employed. In the bivariable logistic regression, analysis all variables were checked for whether they were determinant factors of sub-optimal dietary diversity or not. Variables with a p-value of < 0.25 in the bivariable logistic regression analysis were entered into multivariable logistic regression analysis.

Rural resident pregnant women had more likely to have sub-optimal dietary diversity than urban ones [AOR = 3.7, 95% CI: (2.22, 6.28)]. Pregnant women who did not get nutritional counseling during pregnancy had 3.8 times more likely to have sub-optimal dietary diversity than other. [AOR = 3.8, 95% CI: (2.15, 6.77)]. Those who had less than or three meals in 24 hours had greater odds to have sub-optimal diversity in their diet compared with those who had more than three meals [AOR =4.2, 95% CI: (2.56, 7.05)]. Women from households with monthly income of less than 1500 Birr had higher odds of sub-optimal dietary diversity [(AOR=3.0, 95% CI: (1.34, 7.36)]. Women from households of family size more than five had higher odds of sub-optimal dietary diversity than others [(AOR=1.6, 95% CI: (1.03, 2.79)]

Table 3 Bivariable and Multi-Variable Logistic Regression Model Showing Predictors of Dietary Diversity among Pregnant Women Attending Antenatal Clinics in Cheha woreda, Guraghe zone, Central Ethiopia, 2022

Variables	Dietary diversity		COR (95% CI)	AOR (95% CI)
	Optimal	Suboptimal		
Residence				
urban	117	52	1	1
rural	105	132	2.8 (1.86,4.28)	**3.7 (2.22,6.28)**
Family size				
1-5	129	80	1	1
>5	93	104	1.8 (1.21,2.67)	**1.6 (1.03,2.79)**
Nutritional counseling				
Yes	105	48	1	1
No	117	136	2.5 (1.66,3.87)	**3.8 (2.15,6.77)**
Frequency of meal				
<=3	73	104	2.6 (1.77,3.97)	**4.2 (2.56,7.05)**
>3	149	80	1	1
House hold food security				
Food secure	147	88	1	1
Mild insecurity	51	56	1.8 (1.15,2.91)	1.1 (0.58,1.92)
Moderate insecurity	16	24	2.5 (1.26,4.97)	2.2 (0.95,5.30)
Severe insecurity	8	16	3.3 (1.37,8.12)	0.8 (0.29,2.25)
Income(EB)				
<1500	75	80	1.6 (1.82,3.36)	**3 (1.34,7.36)**
1501-3000	64	48	1.2 (0.56,2.43)	1.9 (0.79,4.75)
3001-4500	58	40	1.1 (0.51,2.27)	2 (0.83,5.12)
>4501	25	16	1	1

4.6 Qualitative result

In the qualitative study, 26 participants were involved in three focus group discussions, two of which were held with rural residents and the other with urban. In rural resident groups, eight pregnant women participated in each group discussions and ten participants involved in urban group. The majority of participants (56.3%) were between the age of 21-30 years and the remaining under 20 and above 30 years. About 32.4% and 44.7% of participants were with no formal education and attended primary education respectively, while 18.4% and 4.5% were attended secondary and college and above. About 19% of them were employed, 27% merchant, 38% farmers and the remaining were housewives.

4.6.1 Dietary diversity practice

According to focused group discussion the practice of dietary diversity differs from mother to mother due to different reasons. All most, all of the participants agreed that pregnant mother should have a variety of food items in order to be healthy and have a healthy baby. However, they were unable to practice nutritional diversification due to various personal, family, and social issues.

4.6.2 Financial factors

One of the key variables influencing access to food is low socioeconomic level. Women who have low household incomes find it difficult to eat a variety of foods.

A 38-year-old rural mother said, "*Most mothers in our community are housewives and do not have their own income, so they cannot buy food commodities as they want*."

"*My monthly pay of 2000 Birr is insufficient to cover my expenses. Purchasing a recommended food item is really challenging*". A 31-year-old an employed mother

"*Some women in our neighborhood are financially dependent on their husbands or older children*" according to a mother who is 25 weeks pregnant.

4.6.3 Access to food

"*Buying interesting food items is challenging in rural areas because there are no nearby markets or shops*." Another participant: "*Milk is a crucial food for pregnant women, but it's not always available, even in the city, where there aren't enough milk products in bottles*." A 25 years old rural mother

"*Milk is a crucial food for pregnant women, but it's not always available, even in the city, where there aren't enough milk products in bottles*." A 30 years old woman

4.6.4 Food taboos

According to the focus group discussion, participants suggested that a pregnant woman should avoid or minimize eating or drinking certain foods that have potential effects on the health of the fetus as well as in the progress of labor. Women avoided certain meals out of concern for fear of three potential outcomes: miscarriage, labor difficulties, and abnormal birth outcomes. The individuals named well-known items including milk, yogurt, cheese, bananas, and mangos as the cause of the issue.

A 32-year-old pregnant woman from an urban area claimed, "*Some older people told me that eating banana, avocado, cheese, and drinking milk during pregnancy is dangerous, such types of food may plaster on the head of fetus, so I avoided them*."

"*I had not been drinking enough water until a doctor advised me while I was in hospital admission for kidney infection*," said the 27-year-old, primary-educated urban resident. "*I thought that drinking plenty of water will make the fetus bigger and this will result in a complicated labor*."

4.6.5 Gender role

According to the discussion, women's capacity to feed themselves is impacted by disparities in access to and control over assets. Access to land, education, knowledge, credit, technology, and decision-making is restricted for them. Their main responsibilities are taking care of the home and raising their kids.

"*I never consume anything before I serve my spouse and kids*." A rural mother

"*The custom is that the husband, who is the leader of the household, receives the nicest food before anybody else in the family*." A 28 years urban mother

5. DISCUSSION

This study has determined the level of sub-optimal dietary diversity and its determinants among pregnant mothers attending antenatal care service in health facilities of Cheha woreda,Gurage zone, Central Ethiopia. The finding of the study showed that about 47.8% of the respondents had sub-optimal dietary diversity during their pregnancy. The finding was agreed with the report of study conducted in rural communities of Jimma Zone, Southwest Ethiopia, which is 48.33% [43], whereas it was higher than the prevalence reports from Kolfe keranio health center, Addis Ababa, Ethiopia (39.1%) [44], Alamata General Hospital, Raya Azebo Zone, Tigray Region 38.8% [45]. Nepal 44.9% [46]. On the other hand, it was lower than the observations reported from East Gojam Zone, Ethiopia (55.7%) [47], West Gojam zone, Ethiopia (77%) [48], North East Ethiopia (69.6%) [49], Ghana (56%) [50]. This discrepancy might be due to difference in study period, geographical area, and/or socio-cultural factors [51].

The average dietary diversity score in this study was 4.54±1.33. This is consistent with the study result reported from Dire Dawa city administration [29]. But, it is higher than that of study conducted in Afar, Ethiopia [14]. And lower than study in Kenya [52]. The discrepancy between the study areas may be due to the difference in the number of recommended food groups from which scoring was done. Grains, white roots and tubers were food groups consumed by the majority of study subjects and this is similar with evidence obtained from study conducted in Eastern Cape, South Africa [53], rural Malawi [37]. And Abala, Afar, Ethiopia [54]. Meat and eggs were the least consumed food groups out of the ten food groups. This finding strengthens similar study conducted in Rongai Sub-County, Nakuru, Kenya [55] and Dire Dawa City Administration, Eastern Ethiopia [29]. According to the qualitative part of the study some traditional believes in the community prohibit pregnant women consuming high micronutrient rich food groups. Food taboos, excluding necessary foods and/or beverages, have a significant negative impact on pregnant women nutrition. It is passed on from generation to generation and is harmful to the health of expectant moms about the traditional and nutritional habits among pregnant women in a rura

In this study, sub-optimal dietary diversity during pregnancy was significantly associated with rural residence. The odd of rural resident pregnant women was more likely to have little

food diversity than urban ones. This difference is also noticed by study carried in Afar region of Ethiopia [56]. The discussion of rural groups revealed that there is limited access to purchase variety of food in the community. As food access is the main factor, lack of opportunity for market has great impact on the habit of dietary diversity. This study clarified that decreasing meal frequency minimize pregnant women dietary diversity, as those who had three or less meals per day had more likely to have inadequate dietary diversity. As being patriarchal society and women more engagement in home activities they are prone to miss their meals. Other evidences also suggest that missing meal is the one that affect women dietary diversity. This finding is consistent with the findings from previous studies done in East Gojjam zone, Northwest Ethiopia [57]. Pregnant women who did not get nutritional counseling during pregnancy were more likely to have suboptimum dietary diversity than other. [AOR = 3.4, 95% CI: (1.95, 8.31)]. The finding of research in Southwest Ethiopia and Kolfe Keranio showed similar result [44] [58].

Low household income and lack of women empowerment are factors that can influence mothers' food choice. Avoiding certain type of foods during pregnancy due to food taboos is a common practice that can affect dietary diversity. Women are more responsible than their family members, as a result most of the time they are engaging in different types of home works. So they skip meal, serve their family before them. Such types of practices affect their dietary diversity.

LIMITATION OF THE STUDY

As the main method of data collection for this study is dietary recall, it may prone to recall bias. As being cross-sectional study in nature, it might have drawbacks on the actual situation of the seasonal difference of the food availability in the study area.

6. CONCLUSSIONS AND REOMMENDATIONS

This study suggested that overall consumption of adequate dietary diversity was found to be low. Bing rural dweller, lack of nutritional information, having fewer than three meal frequencies per day, family size of more than five and low income were determinant factors of sub-optimal dietary diversity of pregnant women. There are problems of accessibility, availability and consumption of foods which can affect optimum food diversity.

Maternal nutrition counseling is crucial, and health providers should view it as one of the core ANC treatment packages. Strengthening rural agriculture and home gardening practice among vulnerable household can improve pregnant women dietary diversity. Women empowerment and asset building should be emphasized by the concerned body. Further research is recommended to address seasonal variability and other variables that were not included in this study.

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APPENDIX I: ENGLISH VERSION CONSENT INFORMATION SHEET

My name is ____________ I am working with Zerihun Gebre who is doing a research as partial fulfillment for the requirement of Master's Degree in Public Health at Wolkite University. I am interviewing pregnant women here about their dietary practice and measuring their upper arms. To attain this purpose, your honest and genuine participation by responding to the question prepared is very important & highly appreciated.

Title of the study:Factors Associated with Dietary Practice and Nutritional Status of Pregnant Women in Cheha worda, Gurage Zone, South Ethiopia

Purpose of the study: The finding of this study can be a prominent importance for health planers to plan intervention programs improve dietary practice of pregnant women and prevent under nutrition. More over the aim of this study is to write a thesis as a partial requirement for the fulfillment of a Master's program in Public health nutrition for principal investigator.

Procedure and duration: Today, I will be here to collect data on dietary practice among pregnant women in this facility. There are about 40question and I will finish the questioners in about 40 minute. Then I will measure the circumference of your upper arm. I do not want write your name.So that I kindly ask you to give me this timefor the interview.

Risk and Benefit of the study: Participating in this study can't cause any risk, but only taking a few minute from your time and there will no any in kind or in cash payment for your participation.

Confidentiality: We will keep confidential the information you give us for this study and no information will be identified at individual level. The result of this study is general to the community. We will not take any identification that links you to this study personally. So don't hesitate to give as information.

Right: I would like to inform you that, Participation for this study is fully voluntary. So that you have the right to declare your refusal any time if you don't want to participate.

APPENDIX II: ENGLISH VERSION QUESTIONNAIRE

Socio demographic characteristics questionnaire		
1	How old are you?	-------------- in years
2	What is your current marital status?	1. Single 2. Married 3.Widowed 4.Divorced
3	What is your religion	1. Orthodox 2. Muslim 3. Protestant 4.Catholic
4	Where is your place of residence?	1.Urban 2.Rural
5	What is the highest educational level you completed?	1. No formal education 2. Primary education 3. Secondary education 4.College and above
6	What is the highest educational level does your husband completed?	1. No formal education 2. Primary education 3. Secondary education 4.College and above
7	How many people are living in your household (total number of family members)?	---------------------- by numbers
8	What is the occupation of your husband	1. Farmer 2. Government employed 3. Merchant 4. Other
9	What is your current main occupation?	1.House wife 2.Government employee 3. Merchant 4.Farmer 5.Others
Socio economic characteristics questionnaire		
1	What is the main source of income to the family?	1. Farming or livestock 2. Trade and private enterprise 3. Employed (government and non- government) 4. Daily laborer 5. Other (specify
2	What is your total monthly family (household) average income in ETB birr (approximately)?	________________ETB birr/month
3	What is the main Source of drinking water to the household?	1.Tap water 2.Pumping water 3.Protected well 4. others(specify)--------------
Pregnancy related characteristics questionnaire		
1	What is the age of your current pregnancy (approximated by mother)?	------------------------ month/s
2	Have you been unwell (history of illness)	1. Yes 2. No
3	What is your daily eating pattern in the previous day	1.Three meals and/or less 3.More than three meals
4	Have you ever been received dietary intake counseling during your ANC visit?	1. Yes 2. No
5	Did you avoid food during pregnancy?	1. Yes 2. No

2. DIETARY DIVERSITY QUESTIONNAIRE. INSTRUCTIONS ONE:

Please describe the foods (meals and snacks) that you ate or drank yesterday during the day and night, whether at home or outside the home. Start with the first food or drink of the morning. Write down all foods and drinks mentioned. When composite dishes are mentioned, ask for the list of ingredients. When the respondent has finished, probe for meals and snacks not mentioned

Breakfast	Snack	Lunch	Snack	Dinner	Snack

INSTRUCTION TWO:

When the respondent recall is complete,fill in the food groups based on theinformation recorded above. For any food groups not mentioned, ask the respondent if a food item from this group was consumed.

	Food group	Items	Consumed Yes =1 No=0
1	Grains, white roots and tubers, and plantains	Barley, corn, millet, maca, oats, sorghum, teff, wheat, potatoes, sweet potato, rice, and food made from this such as Porridge, bread, pasta/noodles or other foods made from grains White yams, manioc/cassava/yucca, cocoyam, taro or any other foods made from white-fleshed roots or tubers, or plantains	
2	Pulses (beans, peas and lentils)	Mature beans or peas (fresh or dried seed), lentils, soybean, or bean/pea products, including hummus, tofu and tempeh	
3	Nuts and seeds	Any tree nut, groundnut/peanut or certain seeds, or nut/seed "butters" or pastes Flaxseed, pumpkin, sesame seed, sunflower seed.	
4	Dairy	Milk, cheese, yoghurt or other milk products	
5	Meat, poultry and fish	Liver, kidney, heart or other organ meats or blood- based foods, including from wild game Cow, ox, sheep, goat, beef, pork, lamb, wild game meat, chicken, duck or other bird Fresh or dried fish, shellfish or seafood	
6	Egg	Raw eggs and foods prepared from eggs	
7	Dark green leafy vegetables	Spinach, kale, romaine and bibb lettuce	
8	Other vitamin A-rich fruits	Carrots, pumpkin, red sweet pepper, mangoes, papaya, and deep yellow- or orange-fleshed squash	

		and fruit juice made from this group.	
9	Other vegetables	other vegetables (e.g. green pepper, mushroom, cucumber, okra, tomato, onion) , fresh/green pod of bean, pea, corn, etc.	
10	Other fruits	Apple, banana, lemon, watermelon, mandarin, grapes, pears, melon, muskmelon, fruits and berries, dried fruits and berries, raisins, oranges, cherries, figs, plum, pomegranate, prune	

3. FOOD SECURITY QUESTIONARIE

S.No	Question	Response options
3.1	In the past four weeks, did you worry that your HH would not have enough food?	0 = No (skip to Q2.2) 1=Yes
3.1a	How often did this happen?	1 = Rarely (once or twice in the last 4 weeks) 2=Sometimes(3-10 times) 3=Often (more than ten times)
3.2	In the past four weeks, were you or any HH member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No (skip to Q2.3) 1=Yes
3.2a	How often did this happen?	1= Rarely (once or twice) 2=Sometimes (3-10 times) 3=Often (more than ten times)
3.3	In the past four weeks, did you or any HH member have to eat a limited variety of foods due to a lack of resources?	0 = No (skip to Q2.4) 1 = Yes
3.3a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3 = Often (more than ten

		times
3.4	In the past four weeks, did you or any HH 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 (skip to Q2.5) 1 = Yes
3.4a	How often did this happen?	1 = Rarely (once or twice) 2=Sometimes (3-10 times) 3=Often (more than ten times)
3.5	In the past four weeks, did you or any HH member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No (skip to Q2.6) 1 = Yes
3.5a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3=Often (more than ten times)
3.6	In the past four weeks, did you or any other HH member have to eat fewer meals in a day because there was not enough food?	0 = No (skip to Q2.7) 1 = Yes
3.6a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3=Often (more than ten times)
3.7	In the past four weeks, was there ever no food to eat of any kind in your HH because of lack of resources to get food?	0 = No (skip to Q2.8) 1 = Yes
3.7a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3=Often (more than ten

		times)
3.8	In the past four weeks, did you or any HH member go to sleep at night hungry because there was not enough food?	0 = No (skip to Q2.9) 1 = Yes
3.8a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3=Often (more than ten times)
3.9	In the past four weeks, did you or any HH member go a whole day and night without eating anything because there was not enough food?	0 = No 1 = Yes
3.9a	How often did this happen?	1 = Rarely (once or twice) 2 = Sometimes (3-10 times) 3=Often (more than ten times)

APPENDIX III: AMHARIC VERSION CONSENT INFORMATION SHEET

የሆስፒታሉ /ጤናጣቢያ ስም________________________________መለያ ኮድ________

ጤና ይስጥልኝ ስሜ ____ይባላል፡፡

እዚህ የመጣሁት በወልቂጤ ዩንቨርሲቲ በህክምና እና ጤናሳይንስ ኮሌጅ በህብረተሰብ ትምህርት ክፍል ሁለተኛ ዲግሪውን የሚሰራዉ ተማሪ ዘሪሁን ገብሬ ለሚያሰራው ጥናት መረጃ ለመሰብስብ ነዉ፡፡

የጥናቱ ርዕስ፡በቸሃ ወረዳ ባሉ ጤና ተቋማት ለእርግዝና ክትትል የሚመጡ ነፍሰጡር እናቶች የአመጋገብ ሁኔታ እና ተያያዥ ምክንያቶች ለመለየት ነው፡፡

የጥናቱ ዋና አላማ፡የዚህጥናት ግኝት በመስኩ ያሉ ባለሙያዎች ስለ ነፍሰጡር እናቶች የአመጋገብ ሁኔታ ለማሻሻልና የምግብ እጥረት ለመከላከል ለሚያወጡት ፖሊሲ አጋዥ ይሆናል ተብሎ ይታሰባል፡፡

ሊ. ሊደርስ የሚችል ጉዳትና የሚገኝ ጥቅም

ይህ ጥናት ከጊዜዎ ላይ 30 ደቂቃ ከመውሰዱ ውጭ በእርስዎ ላይ ሌላ ጉዳት አያመጣም፡፡በዚህጥናት በመሳተፍዎ በቀጥታ የሚያገኙት ክፍያ የለም፡፡ነገር ግን የዚህ ጥናት ውጤት ለወረዳው ጤና ጽ/ቤትና እቅድ አውጭ የመንግስት አካል ጠቃሚ መረጃ ሊሰጥ ይችላል፡፡

ሐ. ምስጢራዊነት፡የሚሰጡትን መረጃ ሚስጥራዊነት የሚጠበቅ ሲሆን እንደግለሰብ ተለይቶ የሚወሰድ መረጃ የለም፡፡የጥናቱ ውጤት የነፍሰጡር እናቶች አጠቃላይ ሁኔታ እንጂ የአንድን ግለሰብ ምንም ነገር አያንጸባርቅም፡፡የተሳታፊዎችን ስምለማሳየት ለመጠይቆቻችን የራሳችን ቁጥር ሰጥተናቸዋል፡፡የጥናት ተሳታፊዎችን ከምርምሩ ጋር በማጣቀስ የሚሰጥ የቃልም ይሁን የፅሁፍ ሪፖርት የለም፡፡

መብት

በዚህ ጥናት ላይ መሳተፍ ሙሉ በሙሉ በፈቃደኝነት ላይ የተመሰረተ ሲሆን በጥናቱ ለመሳተፍም ሆነ ላለመሳተፍ የመወሰን መብት አለዎት፡፡ በፈለጉት ጊዜ ከጥናቱ መውጣት ይችላሉ፡ይህን በማድረግዎም ማግኘት የሚገባዎትን ጥቅም አያስቀርብዎም፡፡፣በጥናቱ ወይንም በመረጃ አሰባሰቡ ጥያቄ ያልተብራራ ነገር ካለ በሚከተለው አድራሻ ያግኙን

ዋና አጥኚ፡ ዘሪሁን ገብሬ **ኢሜል**:zerihung34@gmail.com

ስልክ 0935162252

APPENDIX IV: AMHARIC VERSION QUESTIONNAIRE

የማበራዊ ኑሮ ሁኔታ ለመዳሰስ የተዘጋጀ መጠይቅ		
ተ.ቁ	መጠይቅ	አማራጭ መልሶች
1	አድሜዎ ስነት	------------አመት
2	የጋብቻ ሁኔታ ምን ይመስላል	1. ያላገቡ 2. ያገቡ 3. የሞተባቸዉ 4. የተፋቱ
3	የሚከተሉት ሃይማኖት ምንድነው?	1. ኦርቶዶክስ 2.ሙስሊም 3. ፕሮቴስታነት 4.ካቶሊክ
4	አሁን የሚኖሩበት ቦታ	1. ከተማ 2.ገጠር
5	ያጠናቀቁት ከፍተኛ የትምህርት ደረጃ ምንድነ	1.ያልተማረ/ መጻፍና ማንበብ ብቻ የሚችል 2. አንደኛ ደረጃ 3.ሁለተኛ ደረጃ 4. ኮሌጅና ከዚያ በላይ
6	የባለቤትዎ የትምህርት ደረጃ ስንት ነው?	1.ያልተማረ/ መጻፍና ማንበብ ብቻ የሚችል 2. አንደኛ ደረጃ 3.ሁለተኛ ደረጃ 4. ኮሌጅና ከዚያ በላይ
7	የቤተሰብ አባላት ብዛት ስንት ነው? (ጠቅላላ የቤተሰቡ አባላት ቁጥር)	------------------------
8	አሁን ስራዎ ምንድን ነው?	1.የቤት አመቤት 2.ነጋዴ 3. ተቀጣሪ 4. ገበሬ 5.ሌላ ይገለፅ....................
9	የባለቤትዎ ስራ ምንድን ነው?	1.ገበሬ 2.ሰራተኛ(የመንግስት/የግል) 3. ነጋዴ 4.ሌላ ይገለፅ....................
የእኮኖሚ ሆኔታ ለመዳሰስ የተዘጋጀ መጠይ		
1	የቤተሰብዎ ዋነኛዉ የገቢ ምነጭ ምንድን	1. ግብርና 2. የንግድ ስራ 3. የመንግስት ስራ 4.የቀን ስራ 5. ሌላ ካለ (ይገለፅ.................
2	የቤተሰብዎ አማካይ ገቢ በወር ስንት ነዉ?	---------- ብር/ወር
3	የመጠጥ ዉሃ ምንጭ ከየት ነዉ የሚያገኙት?	1.የቧንቧ ዉሃ 2.የኩሬ ውሀ 3.በደንብ የተጠበቀ ምንጭ 4. ሌላ ካለ (ይገለፅ.................)

ከእርግዝና ጋር የተያያዜ ሁኔታ ለመዳሰስ የተዘጋጀ መጠይ		
1	የፅንሱ ዕድሜ	--------------ወር
2	ባለፉት ሁለት ሳምንታት ውስጥ ታመው ነበር?	1.አዎ 2.የለም
3	ባለፉት 24 ሰአታት ውስጥ ምግብ ስንት ጊዜ ተመገቡ?	1. ሶስት ጊዜና ከዛ በታች 2. ከሶስት ጊዜ በላይ
4	ለቅድመ ወሊድ አገልግሎት የመጡት ግዜ የምግብ አመጋገብ ምክር አግኝተዉ የዉቃሉ?	1. አዎ 2.የለም
5	በእርግዝና ወቅት የማይመገቡት የምግብ አይነት አለ?	1. አዎ 2.የለም

2.የአመጋገብ ሁኔታ ለመዳሰስ የተዘጋጀ መጠይቅ

መመሪያ አንድ፡እባክዎን ትናንት ቀንም ሆነ ሌሊት በቤት ዉስጥም ሆነ ከቤት ዉጭ የበሉትን ወይም የጠጡትን ምግቦች ያብራሩ ። ሁሉንም ምግቦች እና መጠጦች ይጻፉ።

ቁርስ	መክሰስ	ምሳ	መክሰስ	እራት	መክሰስ

መመሪያ ሁለት፡ መልስ ሰጪዉ ሲታወስ ከዚህ በላይ በተመዘገበዉ መረጃ ላይ በመመርኮዝ የምግብ ቡድኖችን ይሙሉ። ላልተጠቀሱት ማንኛዉም የምግብ ቡድኖች ተጠቅመው ከሆነ ይጠይቁ፡

ተ.ቁ	የምግብ ምድብ	ዝርዝሮች
1	እህል እና የእህል ዘሮች	ጤፍ፣ስንዴ፣ገብስ፣ማሽላ፣በቆሎ፣ሩዝ፣፣ማስላ፣ዳጉሳ፣ድነች፣እና ከእነዘህ የሚሰሩ ምግቦች በሙሉ(ገንፎ፣ዳቦ፣ፓስታ፣ መኮረኒ ፣ እንጀራ፣ቂጣ፣ ንፍሮ እና ወዘተ ምግቦች
2	ጥራጥሬ	የበሰላ ባቄላ፣ አተር፣ ምስር፣ እና ከእነዘህ የሚሰሩ ምግበቾ በሙሉ(ንፍሮ ፣ ቆሎ ፣ ክክ ወጥ እና የመሳሰሉት)
3	ለዉዝና የቅባት አህሎ	ኑግ፣ተልባ፣ሰሊጥ፣ሱፍ፣ዱባ፣ኦቶሎኒ
4	ወተትና የወተት ተዋጽዎች	ወተት፣ አይብ፣ዕርጎ፣አሬራ፣ አጉዋት፣ ወይም ልላ የወተት ተዋጽ
5	ስጋ አሳ እና የሚበሉ አእዋፋት	የሰዉነት ክፍሎች (ጉበት፣ኩላሊት፣ልብ፣ደም ወይም ልላ አካል) የበሬ ፣የአሳማ ፣የበግ ፣የፍየል ፣ የግማል ፣የዶር፣ የቆቅ ፣ የጅግራ ስጋ እና ከእነዘህ የሚሰሩ ማናቸዉም ምግቦች በሙሉ(ወጥ፣ ጥብስ፣ቅቅል፣ ወዘተ ምግቦች ትኩስ (ፍረሽ) አሳ ወይም የደረቀ ወይም የባህር አሳ
6	እንቁላል	የዶሮ፣የቆቅ፣የጅግራ እንቁላል(የተቀቀለ፣ፍርፍር፣ዋይም እንቁላል ከልሎች ምግቦችጋር የተሰራ
7	አረንጓዴ አትክልቶች	ጎመን፣ሰላጣ፣ቆስታ፣ሳማ፣ጥቅል ጎመን
8	በቫይታሚን ኤ የበለጸጉ ፍራፍሬ እና የጓሮ አትክልቶች	የበሰለ ማንጎ ፣ፓፓያ፣ካሮት፣ቀይሰር፣ዱባ እና ግሸጣ
9	ልሎች አትክልቶች	ቲማቲም፣ሽንኩርት፣ ቃሪያ፣ የበቆሎ ፣የአተር ፣የምስር እና የባቄላ እሸት፣ ወዘተ እሸቶች
10	ሌሎች ፍራፍሬዎች	ፖም፣ሙዝ፣ሀብሀብ፣ሎሚ፣መንደሪን፣ሽክኒት፣ብርቱካን፣ወይን

ክፍል 3፡የቤተሰብ ምግብዋስትና ሁኔታለመዳሰስ የተዘጋጀ መጠይቅ

ተ.ቁ	**ጥያቄ**	አማራጭ መልስ
3.1	ባለፈው አንድ ወር ውስጥ በቤትዎ ወስጥ የምግብ እጥረት እንዳያጋጥሞት ተጨንቀው ያውቃሉ	0 አላውቅም(አላውቅም ካሉ ወደ ጥያቄ 2.2 ይዝለሉ) 1 አዎ
3.1a	*መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ* ተከስቷል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ በላይ
3.2	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ	0 አላውቅም(አላውቅም ካሉ

	የቤተሰብ አባል በምግብ እጥረት ምክንያት የሚፈልጉትን ምግብ ሳይመገቡ ቀርተው ያውቃሉ	ወደ ጥያቄ 2.3 ይዝለሉ) 1 አዎ
3.2a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከቷል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ
3.3	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ አቅርቦት ምክንያት የሚመገቧቸው የምግብ አይነቶችን ቀንሰዋል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ በላይ) 3.3 ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ አቅርቦት ምክንያት የሚመገቧቸው የምግብ አይነቶችን ቀንሰዋል 0 አላውቅም(አላውቅም ካሉ ወደ ጥያቄ 2.4 ይዝለሉ) 1 አዎ
3.3ሀ	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ በላይ
3.4	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ አቅርቦት ምክንያት የማይፈልጉትን የምግብ አይነት ተመግበው ያ	0 አላውቅም(አላውቅም ካሉ ወደ 2.5 ጥያቄ ይዝለሉ) 1 አዎ
3.4a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ በላይ
3.5	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ እጥረት ምክንያት የሚመገቡትን የምግብ መጠን ቀንሰዋል	0 አላውቅም(አላውቅም ካሉ ወደ 2.6 ጥያቄ ይዝለሉ) 1 አዎ
3.5a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ በላይ)
3.6	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ እጥረት ምክንያት በቀን ምግብ የሚመገቧቸውን ጊዜዎች ቀንሰዋል	0 አላውቅም(አላውቅም ካሉ ወደ 2.7 ጥያቄ ይዝለሉ) 1 አዎ
3.6a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷ	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ)

		3. ብዙ ጊዜ (ከ10 ጊዜ በላይ
3.7	ባለፈው አንድ ወር ውስጥ በምግብ እጥረት ምክንያት ማንኛውም የሚበላ ምግብ ከቤት ጠፍቶ ያውቃል	0 አላውቅም(አላውቅም ካሉ ወደ 2.8 ጥያቄ ይዝለሉ) 1 አዎ
3.7a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ በላይ
3.8	ባለፈው አንድ ወር ውስጥ እርሶ ወይም ሌላ የቤተሰብ አባል በምግብ እጥረት ምክንያት እየተራቡ ምግብ ሳይበሉ ተኝተዉ ያውቃሉ	0 አላውቅም(አላውቅም ካሉ ወደ 2.9 ጥያቄ ይዝለሉ) 1 አዎ
3.8a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (ከ10 ጊዜ በላይ
3.9	ባለፈው አንድ ወር ውስጥ ማንኛውም የቤተሰብ አባል በምግብ እጥረት ምክንያት እየተራቡ ቀንና ሌሊት ሙሉ ሳይበሉ ቀርተው ያወቃሉ	0 አላውቅም 1 አዎ
3.9a	መልስዎ አዎ ከሆነ ይህ ለምን ያህል ጊዜ ተከስቷል	1 ኣልፎ- ኣልፎ(አንዴ ወይም ሁለቴ) 2 የተወሰነ ጊዜ (ከ3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ(ከ10 ጊዜ በላይ)

ጥያቄዬን ጨርሻለው ፡፡ ለነበረን ቀይታ ከልብ አመሰግናለሁ

APPENDIXV The QUESTIONNAIRE DEVELOPED TO INVESTIGATE DIETARY DIVERSITY PRACTICE

Greetings and many thanks for offering to take part in this focus group discussion. The purpose of this is to evaluate your opinions and experiences about dietary diversity and the variables influencing it during pregnancy. We have requested your participation because we value your viewpoint. All the information was kept confidential, with the exception of recording the talk. Please make an honest effort to respond and remark. I'm grateful for your commitment. It would not take longer than 30 minutes to complete the interview.

S.No	Question	Response
1	Participant ID	
2	Gender	1. Male 2. Female
3	Age	-------------years
4	What is the highest level of school you attended	1. Illiterate 2. Primary school 3. Secondary school 4. College and above
5	Place of Residence	1. Urban 2. rural
6	Occupation	
7	How do you think a pregnant mother's diet should be during pregnancy?	--- --- --- ----------------------------------
8	What is the experience of pregnant mothers in your area in terms of eating different types of food?	--- --- --- ----------------------------------
9	What are the reasons that prevent a pregnant mother from eating different types of food?	--- --- --- ---------------------------------------
10	In your community, what are the types of food that a pregnant woman should not eat during pregnancy?	--- --- --
11	To what extent do you think the fact that a pregnant mother is a woman or has family responsibilities affects her ability to avoid eating different types of food during pregnancy?	--- --- --- --- --- --------------------------------

APPENDIX VI AMHARIC VIRSION OF QUESTIONNAIRE DEVELOPED TO INVESTIGATE DIETARY DIVERSITY PRACTICE

በዚህ የቡድን ውይይት ለመሳተፍ ፈቃደኛ ስለሆናችሁ ሁላችሁንም ከልብ እናመሰግናለን።የዚህ ውይይት አላማ በአካባቢያችሁ እናቶች በእርግዝና ወቅት ስለሚኖራቸው የአመጋገብ ስብጥር እና እዚህ ላይ ተጽእኖ የሚያሳድሩ ነገሮች ላይ አስተያየት እንድትሰጡና ተሞክሮአችሁን እንድታካፍሉ ሲሆን እያንዳንዳችሁ የምትሰጡት ሀሳብ ትልቅ ዋጋ ስለምንሰጠው ንቁ ተሳትፎ እንድታደርጉ በአክብሮት እንጠይቃለን።ንግግራችሁን ከመቅዳት በስተቀር ሁሉም መረጃዎች ምስጢራዊነታቸው የተጠበቀ ይሆናል።ይህንን ውይይት ለማጠናቀቅ ከ 30 ደቂቃ በላይ እንደማንጨርስ ለማሳወቅ እንወዳለን።

ተ.ቁ	ጥያቄ	መልስ
1	የተሳታፊ መለያ	
2	ጾታ	
3	እድሜ	
4	የትምህርት ደረጃ	1. መደበኛ ያልሆነ 2. አንደኛ ደረጃ 3. ሁለተኛ ደረጃ 4. ኮሌጅና ከዚያ በላይ
5	መኖሪያ አድራሻ	1 ከተማ 2 ገጠር
6	የስራ አይነት	
7	በእርግዝና ወቅት የአንዲት ነፍሰጡር እናት የአመጋገብ ሁኔታ እንዴት መሆን አለበት ብለው ያስባሉ?	
8	በአካባቢያችሁ ያሉ ነፍሰጡር እናቶች የተለያዩ የምግብ አይነቶች ከመመገብ አንጻር ያላቸው ልምድ ምን ይስላል?	
9	አንዲት ነፍሰጡር እናት የተለያዩ የምግብ አይነቶች እንዳትመገብ የሚያደርጉ ምክንያቶች ምን ምን ናቸው?	
10	በማህበረሰባችሁ ዘንድ አንዲት ነፍሰጡር በእርግዝና ወቅት መመገብ የለባትም ተብለው የተለዩ የምግብ አይነቶች ምን ምን ናቸው?	

11	አንዲት እርጉዝ እናት ሴት መሆኗ ወይም የቤተሰብ ሀላፊነት መሸከሟ በእርግዝና ወቅት የተለያዩ የምግብ አይነቶች እንዳትመገብ ምን ያህል ተፅዕኖ ይኖረዋል ብለው ያስባሉ?	