DSpace Institution

DSpace Repository **http://dspace.org**

School of Public Health Thesis and Dissertations

2022-08-06

Dietary Practice and Associated Factors Among Elderly People in Woreta Town, Northwest Ethiopia, 2022: Mixed Design

Adane, Ambaye

http://ir.bdu.edu.et/handle/123456789/14698

Downloaded from DSpace Repository, DSpace Institution's institutional repository

BAHIR DAR UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF Nutrition and Dietetics

Dietary Practice and Associated Factors Among Elderly People in Woreta Town, Northwest Ethiopia, 2022: Mixed Design

By Adane Ambaye Kassa (Bsc In Ph)

A THESIS RESEARCH SUBMITTED TO THE DEPARTMENT OF NUTRITION AND DIETETICS, SCHOOL OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES, BAHIR DAR UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN PUBLIC HEALTH NUTRITION

AUGUST, 2022

BAHIR DAR, ETHIOPIA

INVESTIGATOR NAME AND ADDRESS	NAME: ADANE AMBAYE KASSA EMAIL: adaamba12@gmail.com CELL PHONE NUMBER: +251912894213
FIRST ADVISOR'S NAME AND ADDRESS	NAME: DR. YESHALEM MULUGETA (PhD, ASSOCIATE PROFESSOR) EMAIL: yeshalem_mulugeta@yahoo.com
SECOND ADVISOR'S NAME AND ADDRESS	NAME: MR. MULAT TIRFIE (MSC IN NUTRITION, ASSISTANT PROFESSOR) EMAIL: mulatbonny@gmail.com
ADVISOR NAME AND ADDRESS	NAME: MS. HANNA DEMELASH (MPH IN NUTRITION, ASSISTANT PROFESSOR) EMAIL: Hanna.Demelash@bdu.edu.et

Acknowledgment

First of all, my gratitude goes to my advisors; Dr. Yeshalem Mulugeta, Mr. Mulat Tirfie, and Ms. Hanna Demelash for their continuous guidance and encouragement provided throughout the study. I would like to thank Bahir Dar University College of Medicine and Health Sciences, School of Public Health, department of nutrition and dietetics that gives this golden opportunity.

Special thanks to all the respondents who agreed to participate in this study. Most sincerely, I appreciate the hard work and resilience demonstrated by the data collectors and the supervisor throughout the data collection period. Finally, I acknowledge my friends who helped me by giving me valuable advices and support throughout the thesis work.

Table of Contents

Title **Page**

Acknowledgment III

Table of Contents IV

Abbreviations and Acronyms VII

List of Tables VIII

List of Figures IX

Abstract X

1. Introduction 1

1.1 Background of the study 1

1.2 Statement of the problem 2

1.3 Significance of the study 4

2. Literature Review 5

2.1 Magnitude of dietary practice 5

2.2 Factors affecting dietary practice 5

2.2.1 Socio-demographic related factors 5

2.2.2 Economic related factors 6

2.2.3 Psychosocial related factors 6

2.2.4 Health related characteristics 6

2.2.5 Meal related factors 6

2.2.6 Behavioral related factors 7

2.2.7 Household food security status related characteristics 7

3. Conceptual Framework 8

4. Objective 9

4.1 General objective 9
4.2 Specific objectives 9
5. Methods 10
5.1 Study area and settings 10
5.2 Study design and period 10
5.2.1 Source population 10
5.2.2 Study population 10
5.3 Inclusion and Exclusion criteria 11
5.3.1 Inclusion criteria 11
5.3.2 Exclusion criteria 11
5.4 Variables 11
5.4.1 Dependent variable 11
5.4.2 Independent variables 11
5.5 Operational definitions 11
5.6 Sample size determination 12
5.7 Sampling Techniques and procedures 13
5.8 Data collection procedures and variables measurement 14
5.9 Data Quality Control mechanisms 16
5.10 Data processing and analysis 17
6. Ethical Consideration 18
7. Results 19
8. Discussion 27
9. Strength and Limitation 30
10. Conclusion 31
11. Recommendation 32

12. References 33

13. Annex 36

Annex 1 36

Informed consent 36

Annex 2 37

English version quantitative questionnaire 37

የአማርኛ መጠይቆች 46

English version interview guide 54

የአማርኛ መጠይቆች 54

Annex 3 54

Declaration ..... **Error! Bookmark not defined.**

Acronyms

AOR	Adjusted Odds Ratio
CBHI	Community Based Health Insurance
CI	Confidence Interval
CMAM	Community Based Management of Acute Malnutrition
COR	Crude Odds Ratio
FANTA	Food and Nutrition Technical Assistance
FCS	Food Consumption Score
HFIAS	Household Food Insecurity Access Scale
HFSS	Household Food Security Status
IRB	Institutional Review Board
NCD	Non-Communicable Diseases
PCA	Principal Component Analysis
SPSS	Statistical Package for Social Science
WFP	World Food Program
WHO	World Health Organization

List of Tables

Table 1 Sample size calculation of the second objective for a study conducted on dietary practice among elderly people at Woreta town administration from May 20 to July 2, 2022. 12

Table 2 Socio-demographic, economic, and psychosocial related characteristics of study participants in Woreta town, Northwest Ethiopia, 2022 19

Table 3 Activities of daily living related factors of study participants in Woreta town, Northwest Ethiopia, 2022 20

Table 4 Dietary practice of the elderly people in Woreta town, Northwest Ethiopia, 2022 21

Table 5 Factors associated with dietary practices of the elderly in Woreta town, Northwest Ethiopia, 2022. 23

Table 6 A cross tabulation of with whom he/she is feeding and Living with whom study participants in Woreta town, Northwest Ethiopia, 2022 54

List of Figures

Figure 1: conceptual framework for dietary practice among elderly people in Woreta town administration, Northwest Ethiopia, 2022. 8

Figure 2 Schematic presentation showing sampling procedures in Woreta town, Northwest Ethiopia, 2022. 14

Figure 4 Frequency of consumption of various food groups by percentage in Woreta town, Northwest Ethiopia, 2022. 21

Abstract

, Ethiopia, Woreta,

Background: The planet earth's population is aging at an incredible speed. Poor dietary practice is a major problem in elders. However, there is a scarcity of literature for dietary practice in elders in the study area. Therefore, the results of this study may give information for decision makers.

Objective: The aim of this study was to assess dietary practices and associated factors among elderly people in Woreta town, Northwest Ethiopia, 2022.

Methods: A community-based mixed study design, quantitative study supplemented with qualitative study design, was employed among elderly people from May 20 to July 2, 2022. Systematic random sampling and purposive sampling techniques were used for selecting study participants in quantitative and qualitative study, respectively. Data were collected by using semi-structured questionnaire for quantitative and interview guide for qualitative part. Binary logistic regression analysis was used. P-value < 0.05 was used to declare statistically significant variables. Adjusted odds ratio with 95% confidence interval was used to measure the strength of association. Thematic analysis was used for qualitative data analysis.

Results: A total of 422 participants recruited for the study. Twenty six in-depth interviews were done. Prevalence of inadequate dietary practice was 45.5% [95% CI: (40.8, 50.2)]. It was significantly associated with family size five and above (AOR: 1.61; 95% CI: 1.0, 2.6), elders who didn't have access to credit services (AOR: 0.51; 95% CI: 0.3, 0.8), elders with chronic disease (AOR: 1.94; 95% CI: 1.2, 3.0), eating sometimes alone (AOR: 2.58; 95% CI: 1.5, 4.4), eating always alone (AOR: 5.40; 95% CI: 3.0, 9.5), and food insecure(AOR: 1.80; 95% CI: 1.1, 2.8). Thematic analysis revealed three themes that interfere with dietary practices of elders: taboos and cultural beliefs, barriers and experiences regarding dietary practices.

Conclusion: The prevalence of inadequate dietary practice was high. It was significantly associated with family size, access to credit services, chronic disease, with whom feeding, and household food security status. Taboos and cultural beliefs, barriers, and experiences hampered dietary practices of elders. Therefore, improving dietary practices of elders focusing on advanced

age, loneliness, food security, taboos and cultural beliefs, barriers and experiences regarding dietary practices should be done.

Keywords: Dietary practice, Elderly people

1. Introduction

1.1 Background of the study

The planet earth's population is aging at an incredible speed. The number and percentage of older adults are rising in all countries, and these trends are expected to continue(1, 2). The proportion of adults aged 65 and older in the global population (9.3%) would have surpassed that of children under the age of five (8.7%) in 2020. By 2050, the proportion of people aged 65 and older (15.9%) will be more than double that of children under the age of five (7.1%), and will also outnumber young adults aged 15 to 24(13.7%)(1).

Over the next three decades, Africa's elderly people are anticipated to expand faster than any other continent. In contrast to a consistent reduction in all other regions, the number of elderly Africans is anticipated to rise by at least 40% every ten years(3).

According to the Ethiopian population census commission report of 2007, the proportion of population aged 65 years and above was 3.2%(4).

Elders are defined differently in different purposes. In many texts(5), research works, and organizations, elders are defined based on their purpose; for example some use chronological age, others use functional age or retirement age. According to the world health organization definition, elders are those people whose age is 65 years and above(6). In Ethiopia, Ethiopian population census commission used this category (4).

As more people reach old age, they become more vulnerable to age-related chronic diseases like cardiovascular disease, cancer, and stroke(7). Older people are more prone than younger people to suffer from a variety of age-related diseases and functional impairments that can make it difficult to maintain a healthy diet practice(8).

A healthy diet helps to prevent from malnutrition and non-communicable diseases (NCDs) like diabetes, heart disease, stroke and cancer(9). Diet can also help to modify age-related changes in body composition, metabolism, and tissue function. Changes in food consumption practice occur as people get older(10).

More nutrient-dense diets can help elderly people fulfill their decreased energy needs. Reduce their risk of disease by eating plenty of vegetables, fruits, and whole grains, and maintaining a healthy fat balance. The longevity of the elderly is linked to the quality of their diet(11).

Generally, elders are more vulnerable to poor dietary practices due to changed sensory functions (eg. taste and smell), poor oral health and functionality, change of satiety due to hormone-related changes, difficulty in preparing foods, limited financial resources, loss of role functions caused by changes in employment status (e.g., retirement), an altered family structure, loss of independent living, loneliness and social isolation due to the death or divorce or departure of family members and/or friends, and caregivers(12).

Dietary practice is defined as an observable actions or behavior of dietary habit and can be classified as good dietary practices and poor dietary practices. They are the quantities, proportions, variety or combinations of different foods and beverages in diets, and the frequency with which they are habitually consumed. It is a complex interplay of physiologic, psychological, social and genetic factors that influence meal timing, quantity of food intake, food preference, and food selection. They can also be referred to as the habitual decisions of individuals or group of people regarding what foods they eat(9, 13). Frequency of meal and food consumption score (FCS) were used to assess dietary practices of the elderly (13-16).

1.2 Statement of the problem

Poor dietary practice is a problem in the elderly people(17). In Nepal, poor dietary practice was 58.2%; whereas, in Ghana, it was reported as 53.3% among elders(15, 16).

Evidences revealed that there is a significant association between dietary practices and malnutrition among elderly people. Poor dietary practices is a major risk factor for under nutrition in the elderly people (16, 17). Under nutrition in elders is a huge health problem in our country; that ranges from 17.6% to 26.6% (18-20). This under nutrition may be due to the impact of poor dietary practices(12, 17).

Poor dietary diversity was also linked to poor overall cognitive function among Chinese elderly, especially among the oldest(21). Studies indicated that unhealthy dietary patterns are associated with a greater risk of coronary heart disease, high cholesterol, hypertension, stroke, diabetes, cancer, anxiety, depression, osteoporosis, memory problems, diseases of the skin, hair and nails,

vision problems, under nutrition, low life expectancy, decreased life satisfaction, and unhealthy aging (16, 17, 22, 23).

Factors significantly associated with unhealthy dietary practices are older age, sex, illiteracy, insufficient food quantity and poorer quality, food cost, lower household food expenditure, family income, skipping meals, snacking less, higher alcohol consumption, living alone, and disease. Marital status and strong cultural and religious beliefs were also identified as possible determinants(22, 24). Different scholars reported inconsistent findings regarding the factors associated with dietary practice of the elders.

Even though national food and nutrition policy of Ethiopia accommodates lifecycle approach and dietary practices have gotten attention, elderlies did not consider as a vulnerable segment by the policy(25). The Ethiopian national nutrition strategy did not put the elders issue separately and extensively. The strategy put its stand by "The elderly, prisoners, students at boarding schools, children in orphanages and hospital inpatients as well as other population groups who are exposed to malnutrition must receive adequate attention"(26). The country also gave less emphasis towards elderly nutritional services by its national nutrition program, by simply stated as "improve nutritional services for the elderly"(27).

HelpAge international attempted to improve elderly dietary practice through community based management of acute malnutrition (CMAM) approach which is in line with HelpAge guidelines. However, the full CMAM guidelines did not implemented due to the lack of a national guideline and low health workers commitment(28).

Even though limited in number, capacity, and accessibility, researches showed there are institutional care schemes like Mekedonia humanitarian association that give different services for the elderlies: food provision services, health care service, hygiene facilities, shelter, clothes provision services, recreational facilities and funeral ceremonies when they died (29).

Even though the elderly people are significant in number, elderly nutrition did not get attention of polices, strategies, programs, and projects of Ethiopia. Thus, this research will influence governmental and nongovernmental community for including the issues of the elderly in their policy, strategy, program, and project by giving scientific evidence.

The present study is carried out to identify factors associated with inadequate dietary practice in elderly people and contribute to fill information gaps and suggest possible problem solving approaches. It is also essential to identify level of dietary practice and factors among elderly people since the results may give information to develop and inter into nutrition intervention activities for Woreta town administration health office in order to optimize dietary practice for the elderly people.

1.3 Significance of the study

There is limited information in Ethiopia in general and particularly in the study area about the dietary practice and associated factors among elderly people. Most number of studies concerning elderly people focused on nutritional status. This study focused on dietary practice of the elderly people which is a significant risk factor of malnutrition for them.

The study can have a direct and indirect impact on the lives of many elderly people by finding comprehensive factors associated with elderly dietary practice and supporting decision makers to develop strategies to overcome dietary practice barriers. The finding of this study also gives information for Woreta health office, South Gondar health department and Amhara regional health bureau to implement strategies that could optimize nutrition, social support and economic intervention activities among elderly people.

In addition, it might serve as a resource for academics to conduct additional research.

2. Literature Review

2.1 Magnitude of dietary practice

Changes in food consumption practice occur as people get older and their longevity is linked to the quality of their diet(10, 11). The elderly people across the world are eating less healthy diets. Although there are regional variations in healthy eating patterns, some components (such fruits and vegetables) are common to all healthy dietary patterns(22).

Regarding dietary practice, different scholars reported inconsistent findings about dietary practice of elders. In Nepal, poor dietary practice was 58.2%; whereas, in Ghana, it was reported as 53.3% among the elderly (15, 16).

A study indicated that dietary protein intakes were significantly lower in the elderly people, approximately fifty percent, 46%, of the elderly did not meet their protein intake recommendations(30). Even though the Swiss Food Pyramid recommended three or more portions of milk and dairy products per day, 93% of elders did not get; according to a study done in Switzerland. Also, 68% did not have the meat, egg, or seafood recommendations. Overall, 83% of them did not consume three portions of cereals and legumes per day and vegetable and fruit consumption was also below the recommendations(31).

Different scholars reported inconsistent findings regarding the food groups eaten. In Bangladesh, fruits and vegetables (97.1% males and 99.3% females), legumes and egg(75% males and 70% females) were the most eaten food groups and milk, meat, fish were the least eaten food groups; whereas, in Kenya, fat, milk, and dry beans-73.7%, 65%, and 60%-were commonly eaten(32, 33).

2.2 Factors affecting dietary practice

Dietary practices and food choices of the elderly people are determined by many factors including physical health, mental health, society, the food environment, and economic systems(34).

2.2.1 Socio-demographic related factors

Being female, older age, and illiteracy were identified as possible determinants for poor dietary practices (22, 24, 32, 34).

Being female prevents adherence to some dietary patterns and it promotes adherence to some other dietary patterns. Also, advanced age prevents adherence to some dietary patterns and it promotes adherence to some other dietary patterns(35, 36). Dietary practice reduced with increase in age of the elderly people(32). Likewise, dietary protein intakes were significantly lower in older age groups. Participants consuming protein below the recommended intake level had significantly poorer diet quality across all age groups of the elders(30). As well, individuals with the highest education levels prevents adherence to some dietary patterns and it promotes adherence to some other dietary patterns(35, 36).

2.2.2 Economic related factors

In elderly people, socioeconomic status appears to be the most significant barrier to healthy eating practice(22). The factor significantly associated with unhealthy dietary practices is poor household income (22, 24, 34). Family income prevents adherence to some dietary patterns and it promotes adherence to some other dietary patterns (35, 36).

2.2.3 Psychosocial related factors

The most significant factor which associate with unhealthy dietary practices is being loneliness(22, 24, 34).

2.2.4 Health related characteristics

Older adults limit foods intake because of oral and gastrointestinal disorders(37). As more people reach old age, they become more vulnerable to age-related chronic diseases like cardiovascular disease and stroke(7). Older people are more prone than younger people to suffer from a variety of age-related diseases and functional impairments that can make it difficult to maintain a healthy diet practice(8).

2.2.5 Meal related factors

Eating alone reduces food consumption and dietary quality (38, 39). Eating with family and friends was a useful determinant factor for the elderly's good dietary practices. Eating alone was demonstrate as a risk factor for poor dietary practices(34). In contrast to the article stated above, meals eaten alone was linked with feelings of contentment and peacefulness. Furthermore, freshness and variety of foods were given higher priority than commensality(38).

According to one study done in South Africa, 66% of individuals had three meals per day(40). However, a study conducted in Kenya showed 73.4% of individuals did not eat three meals per day; specifically 41.2% of study participants ate two meals per day(17).

2.2.6 Behavioral related factors

Factors significantly associated with unhealthy dietary practices are higher alcohol consumption(22, 24).

2.2.7 Household food security status related characteristics

Due to poor household food security and limited access to food, the majority of elderly don't eat three meals as indicated by the study done in South Africa and Kenya(17, 40). Factors significantly associated with unhealthy dietary practices are insufficient food quantity and poorer quality, food cost and lower household food expenditure (22, 24, 34).

3. Conceptual Framework

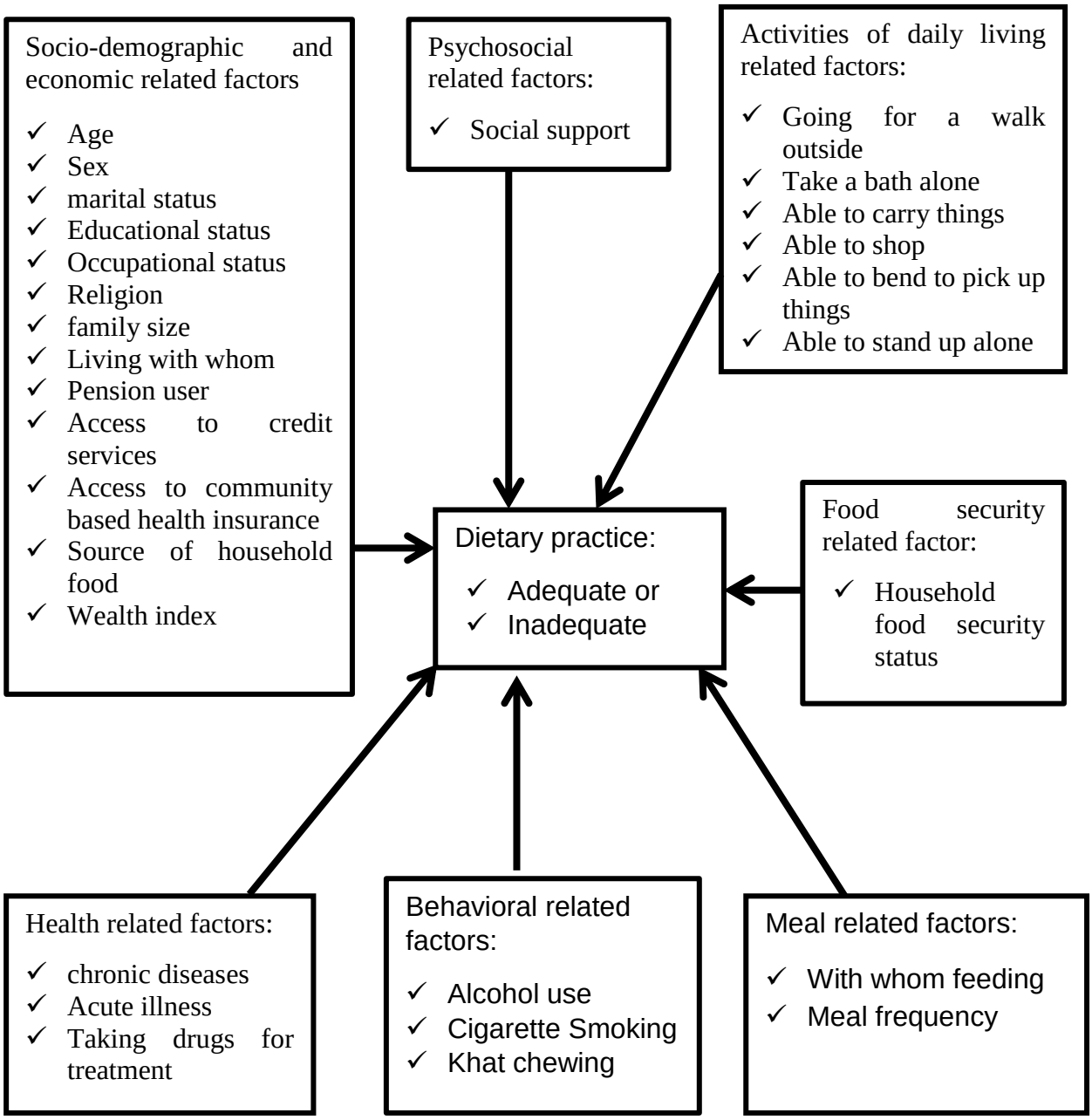


Figure 1: conceptual framework for dietary practice among elderly people in Woreta town administration, Northwest Ethiopia, 2022.

Source: Adapted from different literatures (17, 22, 24, 30, 31, 34, 38).

4. Objective

4.1 General objective

- To assess dietary practices and associated factors among elderly people in Woreta town, Northwest Ethiopia, 2022.

4.2 Specific objectives

- To determine dietary practices among elderly people in Woreta town, Northwest Ethiopia, 2022.
- To find out associated factors of dietary practices among elderly people in Woreta town, Northwest Ethiopia, 2022.
- To explore lived experiences of dietary practices among elderly people in Woreta town, Northwest Ethiopia, 2022.

5. Methods

5.1 Study area and settings

The study was conducted in Woreta town administration. Woreta, the town of Fogera district, is 55 and 625 kilo meters away from Bahir Dar and Addis Ababa respectively. Woreta is located east of Lake Tana, west of Farta district, north of Dera district and south of Libo Kemkem district. Woreta town had an altitude and longitude of 11o55'N 37o42'E with an elevation of 1828 m above sea level. The weather condition is categorized as Woyna Dega(41).

Teff, rice, lentil, sorghum, maize, oats, chickpea, nuts, other cereals, other legumes, fruits, and vegetables are the common food sources in the area. Fish and other seaweeds are found in the area even though they are not the usual foods in the community(42).

Woreta town has 4 kebeles, the smallest administrative units, with a total population of 55,043. Woreta town administration has 1933 elderly people. It has one primary hospital, one health center and four health posts(43).

5.2 Study design and period

A community-based mixed study design was employed from May 20 to July 2, 2022. A community-based cross-sectional study was used for the quantitative part and phenomenology was used for qualitative part among elderly people.

Source population and study population

5.2.1 Source population

- All elderly people age ≥ 65 years in the town administration were the source population for both quantitative and qualitative part.

5.2.2 Study population

- All elderly people age ≥ 65 years in the town administration, found during the data collection period, were the study population.
- All elderly people age ≥ 65 years in the town administration were the study population for qualitative part.

5.3 Inclusion and Exclusion criteria

5.3.1 Inclusion criteria

- All elderly aged ≥ 65 years people who lived in Woreta town administration were included in the study residing a minimum of six months.

5.3.2 Exclusion criteria

- All elderly aged ≥ 65 years people who lived in Woreta town administration for less than 6 months were excluded in the study. Because dietary practices are influenced by local culture, this study excluded elderly people who have lived in the kebele for less than 6 months.

5.4 Variables

5.4.1 Dependent variable

Dietary practice status (Adequate/Inadequate)

5.4.2 Independent variables

- Socio-demographic and economic factors: age, sex, marital status, religion, educational status, occupation, family size, living with whom, pension user, access to credit services, access to community based health insurance, source of household food, household wealth index
- Psychosocial related factors: social support
- Activities of daily living related factors: going for a walk outside, take a bath alone, able to carry things, able to shop, able to bend to pick up things, able to stand up alone
- Food security related factor: Household food security status
- Health related factors: chronic diseases, acute illness, taking drugs for treatment
- Behavioral related factors: alcohol use, cigarette smoking, khat chewing
- Meal related factors: with whom feeding, meal frequency

5.5 Operational definitions

- Adequate dietary practice: when the elderly has at least three meals daily and acceptable food consumption score (FCS); whereas inadequate dietary practice: when the elderly has less than three meals daily and/or unacceptable FCS (13-16).

- Acceptable FCS: when the elderly's FCS is >35; whereas unacceptable FCS: when the elderly's FCS is 0-35(44, 45).
- Social support: the help provided by family, friends, groups, or communities. A person who is considered as social support gives a support of any aid, healthcare service, and support on food preparation and washing clothes or any other support(46).
- Elderly: people whose age is ≥ 65 years(47).Their age can be classified as young old (65–74 years), middle old (75–84 years), and oldest old (> = 85 years)(20).

5.6 Sample size determination

For the first objective, the sample size was computed based on a single population proportion formula assuming the prevalence (p) of dietary practice 50% (because there was no previous study conducted in Ethiopia), 95% confidence level (1.96), and 5% margin of error.

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

Where;

n = estimated sample size

Zα/2 = a standard normal value which corresponds 95% of confidence level = 1.96

p = estimated prevalence of dietary practice is 0.5.

d = tolerable sampling error = 0.05

After substitution, the estimated sample size is 384. Taking 10% of non-response rate, the sample size is 422.

Sample size for the second objective was determined using double population proportion formula by using Epidemiology Information (Epi infoTM) version 7 statistical calculation considering 95% confidence level, 80% power, and exposed and non-exposed ratio is 1:1.

Table 1 Sample size calculation of the second objective for a study conducted on dietary practice among elderly people at Woreta town administration from May 20 to July 2, 2022.

Variables	95% CI	Power	Ratio	Proportion in unexposed	Proportion in exposed	OR	Non-response	Sample size

							rate	
Chronic disease	95	80	1:1	53.7	88.0	6.32	10	70
Household wealth index	95	80	1:1	73.1	87.3	2.53	10	301
Food security	95	80	1:1	69.7	86.0	2.67	10	249
Live alone	95	80	1:1	65.0	86.2	3.36	10	161

N.B: The sample size of the second objective is found to be less than the first objective. Therefore, the final sample size was 422.

In-depth semi-structured interviews were conducted among 26 elderly individuals. The interviews ceased when data saturation was achieved since in determining the sample size of the qualitative research, what matters was theoretical data saturation(48).

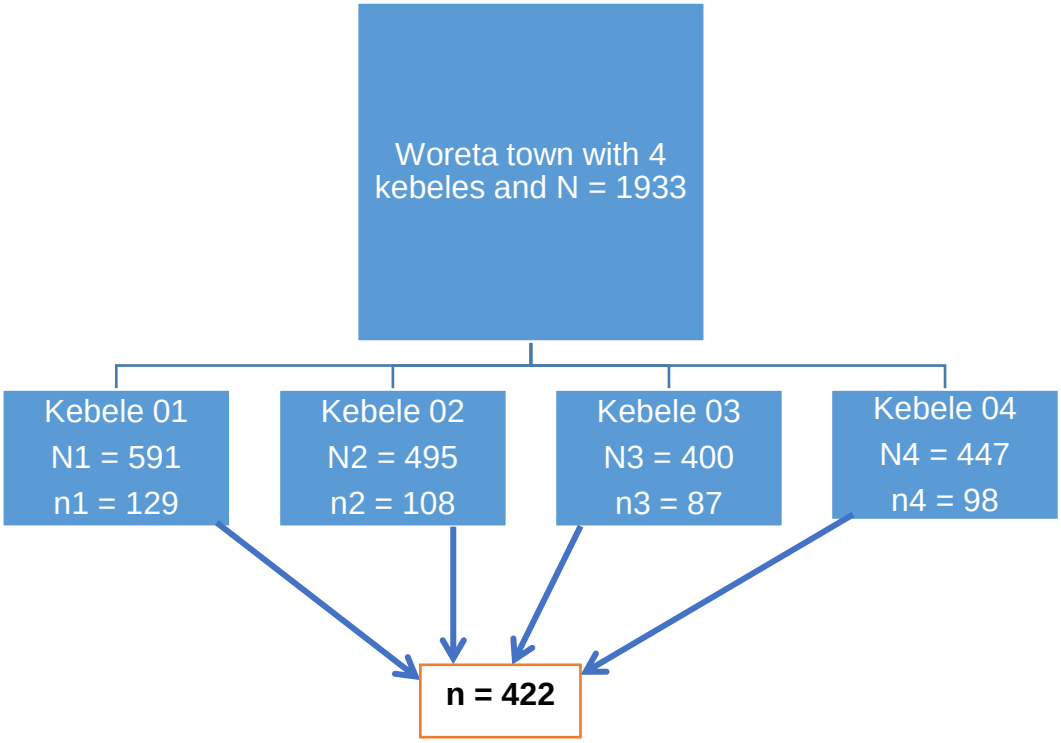
5.7 Sampling Techniques and procedures

Systematic random sampling technique was used to select the quantitative study participants. The total sample size was proportionally allocated for each kebeles based on their catchment number of elderly people to obtain required number of study participants. The total numbers of elderly people, which are 1933, were taken from the health extension workers of each kebeles.

The sampling interval of households in each kebele was determined by dividing the total number of households which has eligible elderly people to the allocated sample size meaning to select the study units (elderly people). Systematic random sampling was used with sampling interval k^{th} which was calculated as k = 1933/422 = 4.58 = 5.

Out of the first 5 elderly people, the initial one was determined by using the lottery method. For households with multiple elderly people, one elderly person was selected by lottery method.

Finally, a systematic random sampling technique was used for the selection of individual study participants until having the sample of 422 participants.



Note:

- N = total elderly people in the town, n = sample elderly people
- N = N1 + N2 + N3 + N4
- n = n1 + n2 + n3 + n4

Figure 2 Schematic presentation showing sampling procedures in Woreta town, Northwest Ethiopia, 2022.

In-depth interview participants were chosen using a purposive sampling technique.

5.8 Data collection procedures

An interviewer administered, pre-tested and semi-structured questionnaires were used to collect the quantitative data. The questionnaire was constructed into eight major parts, such as socio-demographic and economic related factors, psychosocial related factor, activities of daily living related factors, health related characteristics, meal related factors and food consumption score (FCS) related characteristics, wealth index related characteristics, behavior related factors, and household food security status (HFSS) related factors.

A total of five nurses as data collectors and one environmental health science professional as a supervisor were recruited for quantitative data collection. Two data collectors for kebele 01 and one data collector for each kebele for kebeles 02, 03, and 04 were assigned. House to house data collection was done.

The FCS is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups. The interviewed was asked about frequency of consumption (in days) over a recall period of the past 7 days. Food items are grouped into 8 standard food groups with a maximum value of 7 days/week. The consumption frequency of each food group is multiplied by an assigned weight that is based on its nutrient content. Those values are then summed to have FCS(49).

Food consumption score is defined as poor food consumption score: 0 to 21, borderline food consumption score: 21.5–35 and acceptable food consumption score: > 35. To assess FCS, the participants were asked to recall the food items they consumed in the previous seven days before the survey. Each food item is given a score of 0 to 7 depending on the number of days it is consumed. Food items were grouped into food groups and the frequencies of all the food items surveyed in each food group was summed. Any summed food group frequency value over 7 was recorded as 7. For each participant, the food consumption score was calculated by multiplying each food group frequency by each food group weight, and summed these scores into one composite score(45).

The household wealth index was computed using indicators for semi-urban residents. The wealth status was determined through principal component analysis (PCA). The responses of all non-dummy variables were classified into two parts. Codes were given as 1 for the highest scores and 0 for the lower scores. In PCA, those variables having a communality value of greater than 0.5 were used to produce factor scores. Finally, the score for each household on the first principal component was used to create the wealth score. Terciles of the wealth score were created to categorize households as poor, medium, and rich.

Household food security status (HFSS) of participants was measured by using the food and nutrition technical assistance (FANTA) household food insecurity access scale (HFIAS). It is specifically designed to measure household limited access to food in the previous one month. The tool is constructed from 9 food insecurity occurrence questions with 27 frequencies of

occurrence questions. A HFIAS score variable was calculated for each household by summing the codes for each frequency of occurrence question. The maximum score for a household was 27 (the household responded to all nine frequency of occurrence questions was “often”, coded with response code of 3); the minimum score was 0 (the household responded “no” to all occurrence questions, frequency of occurrence questions were skipped by the interviewer, and subsequently coded as 0 by the data analyst.) The higher the score, the more food insecurity the household experienced. The lower the score, the less food insecurity a household experienced. Then, HFSS was categorized as; “Food Insecure” (when a household scored ≥2) and “Food Secured” (when a household scored ≤1) (50).

The qualitative data were collected by using unstructured guide. It was performed using an in-depth interview with participants recruited from the community. The data were collected by the principal investigator.

5.9 Data Quality Control mechanisms

The data collection tools were adapted from different literatures and guidelines and prepared by English language. They were translated into Amharic, the local language of the study area, and then back to English language to see their consistency.

Training was given for the supervisor and data collectors for one day on data collection tools, ethics, approach in interviewing techniques, how to probe, and how to use local event to remember elders.

Pre-test was done on 21 study participants. Then modification was done on data collection tools accordingly.

Regular supervision and reviewing the completed questionnaire on daily basis was done by the investigator and the supervisor to maintain the quality of data.

The interview guide was prepared by English language and translated to the local language, Amharic, and back to English to see their consistency.

During qualitative data collection, tape-recording and field notes were taken. Transcription was done on the same day of data collection. To assure trustworthiness, the qualitative data were

triangulated with the quantitative data. We also used purposive sampling technique to enhance its trustworthiness.

5.10 Data processing and analysis

Data were cleaned and entered into the Epi-Data version 3.1statistical software and were exported to statistical package for social science (SPSS) statistical software package, version 26 for analysis. Before analysis, missing values and outliers were checked. Frequency and cross tabulations were used to summarize descriptive statistics. Frequencies, proportions, means, and standard deviations were used to summarize variables; and presented using texts, tables, and figures. A binary logistic regression model was fitted to identify factors associated with dietary practice. Variables with a p-value of < 0.20 in the bi-variable logistic regression analysis were fitted into the multivariable logistic regression analysis. Both crude odds ratio (COR) and adjusted odds ratio (AOR) with the corresponding 95% confidence interval (CI) was calculated to measure the strength of association. Finally, a p-value of < 0.05 was used to determine if the association was statistically significant. Model fitness was checked using Hosmer Lemishow test ($p = 0.113$).

Atlas.ti7 software was used to quote, code, to make theme (family), and analysis for qualitative data. Thematic analysis was used for qualitative data analysis.

6. Ethical Consideration

Institutional Review Board (IRB) of Bahir Dar University approved the study. Permission was obtained from Woreta town mayor office and each kebele administrations. Written informed consent was secured from the study participants. Confidentiality was maintained by excluding personal identifiers from the data collection form.

Permission was obtained from in-depth interview participants. Written informed consent was also secured from these participants. Interviewing and recording was not done without permission from interview participants.

7. Results

Socio-demographic, economic, psychosocial, and HFSS related characteristics of the elderly people

A total of 422 people aged ≥ 65 years participated in this study with a response rate of 100%. Sixty four percent of respondents were females. The mean (±SD) age of the respondents was 74.26(±8.67) years. More than half, (54.0%) of the respondents were married. About sixty five percent, (65.2%), of the respondents were Orthodox Christians in their religion. Seventy eight percent of respondents were illiterate. Regarding credit services, about two third, (66.4%), of the respondents had no access to credit services. Nearly one fourth, (23.9%), of respondents didn't have social support (Table 2).

Table 2 Socio-demographic, economic, and psychosocial related characteristics of study participants in Woreta town, Northwest Ethiopia, 2022

Variables		Frequency (n = 422)	Percent (%)
Sex	Male	152	36.0
	Female	270	64.0
Age in years	65-74	262	62.1
	75-84	94	22.3
	≥85	66	15.6
	Mean (±SD*)	74.26(±8.67)	
Family size	family size < 5	289	68.5
	family size ≥ 5	133	31.5
Marital status	Married	228	54.0
	Widowed	171	40.5
	Divorced	23	5.5
Religion	Orthodox	275	65.2
	Muslim	135	32.0
	Protestant	12	2.8
Living with whom	With Partner	239	56.6
	With Children	141	33.4
	Alone	25	5.9
	Others*	17	4.0
Educational status	Unable Read And Write	221	52.4
	Read And Write	108	25.6
	Primary School (1-8)	39	9.2
	Secondary School (9-12)	31	7.3
	Diploma And Above	23	5.5
Occupation	Housewife	221	52.4

	Merchant	77	18.2
	Employed	28	6.6
	Daily Laborer	21	5.0
	Farmer	8	1.9
	Retired	67	15.9
Head of the household	Father	251	59.5
	Mother	110	26.1
	Children	44	10.4
	Relative	17	4.0
Access to credit services	Yes	142	33.6
	No	280	66.4
Pension user	Yes	67	15.9
	No	355	84.1
Access to CBHI*	Yes	258	61.1
	No	164	38.9
Social support	Yes	321	76.1
	No	101	23.9
Wealth index	Poor	137	32.5
	Medium	143	33.9
	Rich	142	33.6
Food secured	Yes	160	37.9
	No	262	62.1

SD* = Standard deviation; others* = relative; CBHI* = Community based health insurance

Activities of daily living related characteristics of the elderly people

Activities of daily living related characteristics of the study participants are illustrated in Table 3.

Table 3 Activities of daily living related factors of study participants in Woreta town, Northwest Ethiopia, 2022

Variables		Frequency (n = 422)	Percent (%)
Able to walk outside	Yes	362	85.8
	No	60	14.2
Able to bath alone	Yes	361	85.5
	No	61	14.5
Able to carry things	Yes	319	75.6
	No	103	24.4
Able to shop	Yes	322	76.3
	No	100	23.7
Able to pick up things	Yes	330	78.2
	No	92	21.8
Able to stand up alone	Yes	374	88.6
	No	48	11.4

Health related characteristics of the elderly people

About 32.5% and 7.3% of the respondents had a history of chronic diseases and acute illness during the interview respectively. Regarding chronic disease types, 56(13.3%) had hypertension, 47(11.1%) had diabetic mellitus, 6(1.4%) had tuberculosis, and 7(1.7%) had HIV/AIDS. Almost thirty five percent, (35.3%), of the respondents took drugs for treatment for acute and chronic diseases during the interview.

Behavioral related characteristics of the elderly people

About 2.6%, 17.8%, and 15.6% of the respondents had a history of cigarette smoking, alcohol use, and chew khat during the interview period respectively.

Dietary practices and meal related characteristics of the elderly people

About 25.1% and 50.0% of participants ate their meal always alone and sometimes alone respectively. Frequency of consumption of various food groups is stated in Figure 4.

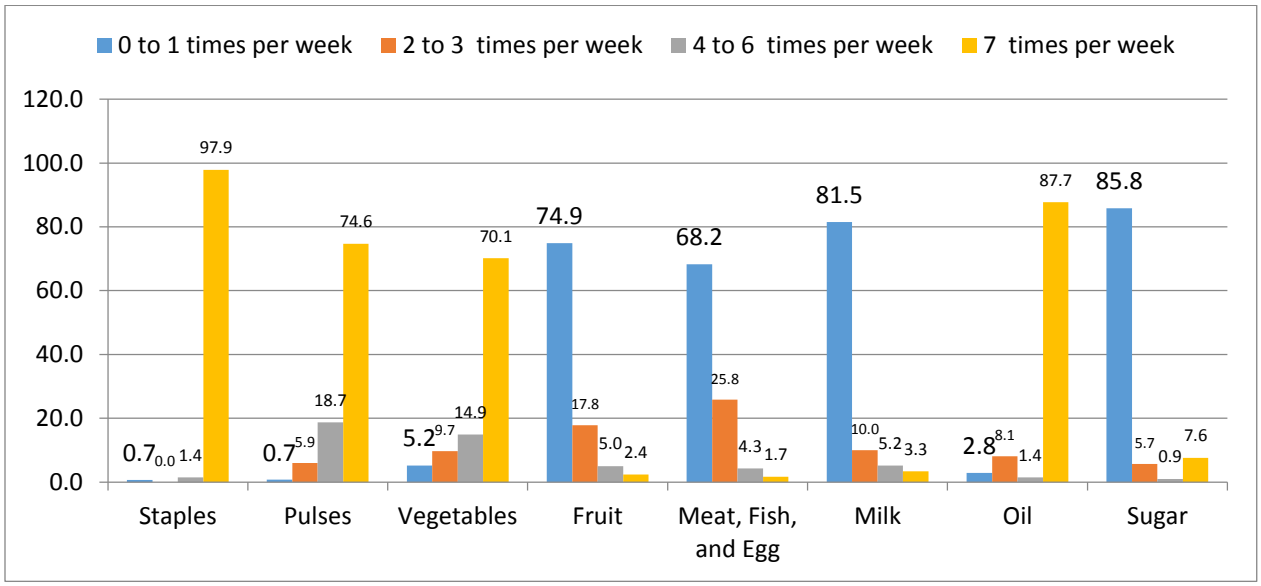


Figure 3 Frequency of consumption of various food groups by percentage in Woreta town, Northwest Ethiopia, 2022.

Regarding dietary practices, 45.5% [95% CI: (40.8, 50.2)] of people aged ≥ 65 years had inadequate dietary practice (Table 4).

Table 4 Dietary practice of the elderly people in Woreta town, Northwest Ethiopia, 2022

Variables		Frequency (n = 422)	Percent (%)
Dietary practice	Inadequate dietary practice	192	45.5
	Adequate dietary practice	230	54.5
FCS*	Unacceptable FCS*	63	14.9
	Acceptable FCS*	359	85.1
Frequency of meal/day	Less than three meals per day	191	45.3
	Three or more meals per day	231	54.7

FCS* = food consumption score

Factors associated with dietary practices

In the bi-variable logistic regression analysis, sex, family size, pension, access to credit services, chronic diseases, with whom feeding, and food security status had a p-value of < 0.20. In the multivariable logistic regression analysis, family size, access to credit services, chronic diseases, with whom feeding, and food security status were remained significantly associated with dietary practices.

The odds of inadequate dietary practice were 1.61 times higher among elders with family size five and above (AOR: 1.61; 95% CI: 1.0, 2.6) as compared to elders with family size less than five.

The odds of inadequate dietary practice were 0.51 times lower among elders who didn't have access to credit services (AOR: 0.51; 95% CI: 0.3, 0.8) as compared to elders who had access to credit services.

Likewise, the odds of inadequate dietary practice were nearly two times higher among elders with chronic disease (AOR: 1.94; 95% CI: 1.2, 3.0) as compared to elders with no chronic disease.

In addition, the odds of inadequate dietary practice were 2.58 times higher among people eating sometimes alone (AOR: 2.58; 95% CI: 1.5, 4.4) than eating always with family members. Also, the odds of inadequate dietary practice were 5.4 times higher among people eating always alone (AOR: 5.40; 95% CI: 3.0, 9.5) than eating always with family members.

Furthermore, the odds of inadequate dietary practice were 1.8 times higher among those food insecure participants (AOR: 1.80; 95% CI: 1.1, 2.8) than food secure participants (Table 5).

Table 5 Factors associated with dietary practices of the elderly in Woreta town, Northwest Ethiopia, 2022.

Variables		Dietary practice		COR* (95% CI*)	AOR* (95% CI*)
		Inadequate	Adequate		
Sex	Male	56	96	1.00	1.00
	Female	136	134	0.57(0.3,0.8)	0.88(0.5,1.4)
Family size	family size < 5	141	148	1.00	1.00
	family size ≥ 5	51	82	1.53(1.0,2.3)	1.61(1.0,2.6)**
Pension	Yes	23	44	1.00	1.00
	No	169	186	0.57(0.3,0.9)	1.14(0.6,2.1)
Access to credit services	Yes	43	99	1.00	1.00
	No	149	131	0.38(0.2,0.5)	0.51(0.3,0.8)**
Chronic diseases	Yes	50	87	1.72(1.1,2.6)	1.94(1.2,3.0)**
	No	142	143	1.00	1.00
Feeding with	Always with family members	73	32	1.00	1.00
	Sometimes alone	98	113	2.63(1.6,4.3)	2.58(1.5,4.4)**
	always alone	21	85	9.23(4.9,17.3)	5.40(3.0,9.5)**
Food security status	Food insecure	161	101	2.10(1.4,3.1)	1.80(1.1,2.8)**
	food secure	69	91	1.00	1.00
COR* = Crude odds ratio; CI* = Confidence interval; AOR* = Adjusted odds ratio; ** = P-value < 0.05					

Three themes and five sub-themes were identified by the qualitative study findings. These themes are taboos and cultural beliefs regarding dietary practices, barriers of dietary practice and experiences with regard to elderly dietary practice of the elderly people.

Theme 1: Taboos and cultural beliefs

A majority of in-depth interviewees mentioned that there were taboos and cultural beliefs which favor inadequate dietary practices of the elderly. Taboos and cultural beliefs were major factors that affect dietary practices of the elderly.

Perception

Some of the elderly food preferences are different from the age lower than adults and less.

Elderly people do not grow so that they should not eat nutritious food. Nutritious food should be given to the growing population segment (a 74 years old man). If a young man eats, he will defend anything; and if he catches, he will be snatched away (a 66 years old nun).

Religious reasons

Elderly people are more engaged in their supernatural power. In doing so there are activities that hamper adequate dietary practices.

Eating too much is forbidden in Holly Kuran (a 65 years old Muslim man). I used to eat meat, poultry, and egg; since being monk I had stopped to eat them; it is enough after being monk (an 86 years old monk).

Fasting prevented the elderly from eating animal products like milk and milk products, meat, egg, and fish. It also prevented them from having more meals per day. Most of the respondents had only two meals during the fasting periods.

I eat meat, egg, and fish in non-fasting periods. Also I did not have three meals (a male 65 year old retired man).

Theme 2: Barriers

The study participants reported that individual, economic, societal, and physiological factors are barriers affecting the dietary practices of the elderly. They could be presented by sub-themes as:

Economic factors

All of the qualitative study participants stated that food insecurity was the main constraint of having adequate dietary practice.

My pension is run out in 15 days; after the 15th day of my pension people may help me; other ways l may go to my bed without any food (A retired 74 years old man). I eat milk, egg, and meat in festive seasons only (75 years old woman). If there are foods, I eat three meals per day (a 65 years old nun).

Almost all of the qualitative study participants explained that unavailability of money was a major factor that decreases adequate dietary practice of the elderly people.

I eat banana if children bring it to me. I drink milk if my child brings it to me (a widowed 68 years old woman). I always eat shiro because there are no cattle which produce milk. If there are lentils, I need to eat lentils. I can't buy lentils. I eat meat only during festive season. I usually eat only one meal especially during fasting periods (a married 82 years man).

Societal factors

Almost all of the qualitative study participants stated that loneliness affected their dietary practice.

My grandchild supports me. If she is not found in the house, I will not eat anything alone (a widowed 68 years old woman). I live alone. My food is prepared by house rentals. If they didn't prepare my food, I go to my bed without food. If I get somebody who prepares my food, I eat three meals. If not, I eat only one meal (a female 75 years nun).

A qualitative study participant explained that being dependent negatively affected her dietary practice.

Since I live with children, I do not want to ask the food what I want (a widowed 70 years old woman).

Majority of the qualitative study participants reported that no social support for the elderly was the main constraint of having adequate dietary practice.

I can't get breakfast timely because there is no person that helps us to prepare food ……. I always eat lunch and dinner (A retired 65 years man).

Interpersonal relationship refers to the elderly residents' relationships established with their companions such as their families, friends or other residents. One respondent expressed that a food item which is disliked by his intimate friend also disliked by him.

I do not eat lentil for long period of time because my intimate friend didn't like to eat it (an 86 year old monk)

Physiological factors

Almost all of the qualitative study participants stated that physiological factors affect their life in lowered their physical capacity.

> *I did not go to church which is around 100 meters away from my home (a widowed 75 years old woman). Most of my teeth are lost. I eat injera fitfit (an* 86 monk)….

Most of the qualitative study participants stated that loss of appetite was a factor which decreases adequate dietary practices of the elderly.

> *I used to finish one injera, currently I can't finish a half of it (a widowed 68 years old woman). Elderly need tasty foods because they are with loss of appetite. Even though elderlies need many meals as children, I have loss of appetite (an 85 years old nun).*

Majority of the qualitative study participants stated that illness were factors which hamper adequate dietary practices of the elderly.

> *I can't eat all food items (soft drinks, salt, and meat) since I have hypertension and gastritis (a widowed 70 years female interviewee).*

Theme 3: Experiences with regard to elderly dietary practices

All study participants in the in-depth interviews mentioned that there were inadequate dietary practices of the elderly. A 70 years old woman in-depth interviewee said: *I always eat injera with shiro. The amount and frequency of meals are less during elderly compared with the people younger than me.…*

8. Discussion

In this study 45.5% [95% CI: (40.8, 50.2)] of respondents had inadequate dietary practices. This was similarly reported by the qualitative study participants that support the existence of inadequate dietary practices in the elderly people.

> *I always eat injera with shiro. The amount and frequency of meals are less during elderly compared with the people younger than me (a 70 years old woman).*

This is in disagreement with studies conducted in Ghana and Nepal(15, 16). This might be due to the study area is a surplus production area.

Majority, (97.9%), of the elderly took staples foods seven times per week. However, they occasionally took animal source foods. This may be due to food insecurity. This was also supported by qualitative study findings.

> *I eat milk, egg, and meat in festive seasons only (75 years old woman).*

Minority, (3.3%), of the study participants had milk and milk products seven times per week. Only 1.7% of the study participants ate meat, egg, and fish seven times per week.

These findings have a huge discrepancy with study findings done in Meru County, Kenya, Bangladesh, and Switzerland (31-33). This might be due to lower socio-economic status of the study participants; since in this study poor and medium wealth index and food insecurity were 66.4% and 62.1% respectively.

In addition, nearly fifty percent, 45.3%, of the study participants consumed less than three meals per day. This study's finding was higher than studies done in Meru County, Kenya in 2018(32) and South Africa(40). This might be due to most (65.2%) respondents in this study were Orthodox in their religion. The qualitative findings supplement that Orthodox followers had inadequate dietary practices since they skip at least their breakfast during fasting seasons.

> *''I eat meat, egg, and fish only in non-fasting periods. Also I did not have three meals during fasting periods (a 65 year old retired man).*

This might also be due to food insecurity that was supported by the qualitative findings.

> *If there are foods, I eat three meals per day (a 65 years old nun).*

However this report was better than a study done in Kiambu County, Kenya in 2021(17).

In this study, the likelihood of having inadequate dietary practices was higher among elderly people with family size five and above as compared to elderly people with family sizes less than five. This might be due to that they did not able to share their food for extra family members because most of our study participants were food insecure.

The likelihood of having inadequate dietary practices was lower among elderly people who didn't have access to credit service as compared to elders who had access to credit service. The probable reason for this is elderlies may fear for back payment of the debt and as result they do have lower appetite to be credit service user.

This study also revealed that the likelihood of having inadequate dietary practices was higher among elderly people with chronic disease as compared to elderly people with no chronic disease. This was supported by the qualitative findings.

> *I can't eat all food items (soft drinks, salt, and meat) since I have hypertension and gastritis (a widowed 70 years female interviewee).*

This might be due to that they did have fear of eating foods knowingly or unknowingly.

In addition, this study showed that the likelihood of having inadequate dietary practices were higher among elderly people who ate their meal sometimes alone and always alone than who ate always with family members. The qualitative findings supported that eating alone is the common factor for inadequate dietary practice in the elderly people.

> *My grandchild supports me. ……If she is not found in the house, I will not eat anything alone (a widowed 68 years old woman).*

This result is consistent with the study done in Thailand(34). However, it is in disagreement with some findings of a scoping review conducted by Björnwall A. et al, 2021(38). It may be due to the Ethiopian elderly people did not want to live and eat alone because they have experienced many social life in their early ages and show lack of interest in food and eating when they eat alone. Also, if they eat with other people, they are willing to cook and eat all meals for the sake of others. In addition, the problem gets amplified when living alone and eating alone are combined since people who live alone did not get a chance to eat with others (Table 6).

Ethiopian elders give special value for having meals with others and it is a special event for them.

Furthermore, the odds of inadequate dietary practice were 1.8 times higher among those food insecure participants (AOR: 1.80; 95% CI: 1.1, 2.8) than food secure participants

Lastly, this study demonstrated that food insecurity was the other significantly associated factor for inadequate dietary practice. This finding is supported by the qualitative study findings. Almost all of the qualitative study participants reported that the most major factor for inadequate dietary practice was food insecurity.

> *My pension is run out in 15 days; after the 15th day of my pension people may help me; other ways l may go to my bed without any food (A retired 74 years old man).*

This finding is similar with a review done by Nicola Veronese and Stefania Maggi(22). Likewise, it is in congruent with a study done in Thailand(34). This could be due to that food costs are increased across the globe in which elders can't afford the current food prices. Then, this might ultimately lead to inadequate dietary practice among the elders.

There was no significant association between sex and dietary practices of elderly people in this study. The reason for this might be equal support and attention given for both genders in this age group.

9. Strength and Limitation

This study was done by using mixed study design method which enables method triangulation between quantitative and qualitative methods. It has also 100% response rate. When using this report, the study's limitation should be kept in mind. Even though we gave training for the supervisor and the data collectors on how to use probing and local events to minimize bias, there could be a chance to commit recall bias since feeding practice measurements rely on memory.

10. Conclusion

The prevalence of inadequate dietary practice was high among the elderly people. Inadequate dietary practice was significantly associated with family size, access to credit services, chronic disease, with whom feeding, and household food security status. The qualitative study findings showed perception, religious reasons, economic factors, societal factors, and physiological factors were barriers that interfere with dietary practices of the elderly people.

11. Recommendation

We recommend to the ministry of health of Ethiopia and Amhara regional state health bureau to strengthen the existing policy, strategy, program, and project and implement these to improve dietary practice especially concentrating on family size, chronic disease, loneliness, economically disadvantaged elders, perception, religious factors, economic factors, societal factors, and physiological factors regarding elders dietary practice in improving food security and dietary practices of the elderly people. We also recommend to all hierarchy of the government to improve household economic and living standards of the elderly since it is a crucial measure to tackle the impact of inadequate dietary practice among the elderly people. In addition, we recommend to the local government to establish humanitarian association like Mekedonia. Furthermore, we recommend to the community and family members of the elderly to give nutritional and social support activities for the elderly people. It is also recommended to health professionals to give nutritional education for the elders. Lastly, we recommend to researchers to do further research by using longitudinal methods which may minimize recall bias and give strong evidence.

12.References

1. WHO. World health statistics 2021: monitoring health for the SDGs, sustainable development goals. Geneva: World Health Organization; 2021.; 2021.
2. Stephen Bardett R, Mary Marian M, RD, CNSD, Douglas Taren P, Myra L. Muratnoto M. Geriatric Nutrition Handbook. fifth, editor: International Thomson Publishing; 1998. 206 p.
3. Wan He IA, and Dzifa Adjaye-Gbewonyo. Africa Aging: 2020. U.S. Government Printing Office, Washington, DC, 2020.: U.S. Census Bureau; 2020.
4. Commission FDRoEPC. Summary and Statistical Report of the 2007 Population and Housing Census Results. 2008.
5. Stuart-Hamilton I. An Introduction to Gerontology. Stuart-Hamilton I, editor: Cambridge University Press 2011.
6. Paul Kowal, Dowd JE. Definition of an older person. Proposed working definition of an older person in Africa for the MDS Project. World health organization. 2001.
7. Connie Watkins Bales, Christine Seel Ritchie. Handbook of Clinical Nutrition and Aging. Bendich A, editor: Humana press; 2004.
8. Board FaN. The Role of Nutrition in Maintaining Health in the Nation's Elderly: NATIONAL ACADEMY PRESS Washington, DC; 2000
9. Nana A, Zema TJBp, childbirth. Dietary practices and associated factors during pregnancy in northwestern Ethiopia. 2018;18(1):1-8.
10. Danford HNMaDE. Nutrition, Aging, and the Elderly. 1st edition ed1989.
11. Judith E. Brown JSI, U. Beate Krinke,, Ellen Lechtenberg MAM, Carolyn Sharbaugh PLS, Jamie Stang NHW. Nutrition Through the Life Cycle. FOURTH EDITION ed. Judith E. Brown JSI, U. Beate Krinke,, Ellen Lechtenberg MAM, Carolyn Sharbaugh PLS, Jamie Stang NHW, editors: Cengage Learning; 2011.
12. Bales CW, Locher JL, Saltzman E. Handbook of Clinical Nutrition and Aging. third Edition ed. Bendich A, editor: Humana Press; 2015. 455 p.
13. Demilew YM, Alene GD, Belachew TJBP, Childbirth. Dietary practices and associated factors among pregnant women in West Gojjam Zone, Northwest Ethiopia. 2020;20(1):1-11.
14. Belachew T, Lindstrom D, Gebremariam A, Hogan D, Lachat C, Huybregts L, et al. Food insecurity, food based coping strategies and suboptimal dietary practices of adolescents in Jimma zone Southwest Ethiopia. 2013;8(3):e57643.
15. Pandey P, Thapa R, Joshi DJOHJoN. Nutrition Knowledge and Dietary Practice among the Elderly at Biratnagar Metropolitan City, Nepal. 2021;1(2):19-22.
16. Agbozo F, Amardi-Mfoafo J, Dwase H, Ellahi BJAhs. Nutrition knowledge, dietary patterns and anthropometric indices of older persons in four peri-urban communities in Ga West municipality, Ghana. 2018;18(3):743-55.
17. Kamwana WM, Mapesa J, Oirere N. Dietary practices associated with prevalence of malnutrition among the elderly in Kiambu County, Kenya. 2021.
18. Legesse M, Abebe Z, Woldie HJPO. Chronic energy deficiency and associated factors among older population in Ethiopia: A community based study. 2019;14(4):e0214861.
19. Tessfamichael D, Gete AA, Wassie MMJRW. High prevalence of undernutrition among elderly people in Northwest Ethiopia: a cross sectional study. 2014;244:32.2.
20. Abate T, Mengistu B, Atnafu A, Derso TJBg. Malnutrition and its determinants among older adults people in Addis Ababa, Ethiopia. 2020;20(1):1-9.
21. Yin Z, Fei Z, Qiu C, Brasher M, Kraus V, Zhao W, et al. Dietary diversity and cognitive function among elderly people: A population-based study. 2017;21(10):1089-94.
22. Veronese N, Maggi SJCOiCN, Care M. The diversity of healthy diets for older persons across the world. 2019;22(1):20-4.

23. Kourkouta L. OP, Monios A., Iliadis Ch. Nutritional habits in the elderly. Progress in Health Sciences. 2016.
24. Gissing SC, Pradeilles R, Osei-Kwasi HA, Cohen E, Holdsworth MJPhn. Drivers of dietary behaviours in women living in urban Africa: a systematic mapping review. 2017;20(12):2104-13.
25. Food and Nutrition Policy, (November 2018).
26. National Nutrition Strategy, (2008).
27. FDRE. NATIONAL NUTRITION PROGRAM 2. 2016-2020.
28. Weldeyohannis KN. Extending support through CMAM to older people in Ethiopia. 2016.
29. Tewodros HJGJHSH. Life after life: An assessment of elderly institutional care in Addis Ababa City (in particular reference to Mekedonia Home for the Elderly and Mentally Disabled). 2017;17(2):1-5.
30. Krok-Schoen J, Price AA, Luo M, Kelly O, Taylor CAJTjon, health, aging. Low dietary protein intakes and associated dietary patterns and functional limitations in an aging population: a NHANES analysis. 2019;23(4):338-47.
31. Gille D, Bütikofer U, Chollet M, Schmid A, Altintzoglou T, Honkanen P, et al. Nutrition behavior of the middle-aged and elderly: Compliance with dietary recommendations of the food pyramid. 2016;35(3):638-44.
32. Munoru FK, Kuria EN, Mbithe D. Dietary and care practices and nutritional status of the elderly in Meru County, Kenya. International Journal of Medical and Health Research. 2018.
33. Razon AH, Haque MI, Ahmed MF, Ahmed T. Assessment of dietary habit, nutritional status and common health complications of older people living in rural areas of Bangladesh. 2022.
34. Chalermsri C, Herzig van Wees S, Ziaei S, Ekström E-C, Muangpaisan W, Rahman SMJN. Exploring the experience and determinants of the food choices and eating practices of elderly Thai people: A qualitative study. 2020;12(11):3497.
35. FERREIRA PM, PAPINI SJ, CORRENTE JE. Diversity of eating patterns in older adults: A new scenario? 2014.
36. Ferreira MPdN, Previdelli ÁN, Freitas TId, Marques KM, Goulart RMM, Aquino RdCd. Dietary patterns and associated factors among the elderly. 2017.
37. M. H. Food and Nutrition Professionals Can Help Older Adults Improve Dietary Practices. 2017.
38. Björnwall A, Mattsson Sydner Y, Koochek A, Neuman NJIjoer, health p. Eating Alone or Together among Community-Living Older People—A Scoping Review. 2021;18(7):3495.
39. Kushida O, Moon J-S, Matsumoto D, Yamasaki N, Takatori KJN. Eating alone at each meal and associated health status among community-dwelling Japanese elderly living with others: a cross-sectional analysis of the KAGUYA study. 2020;12(9):2805.
40. Khorommbi T, Maluleke L. Nutritional Status and Dietary Pattern of the Elderly in Tshiulungoma and Maniini Village of Thulamela Municipality, Vhembe District. 2021.
41. Alelign A, Tekeste Z, Petros BJBPH. Prevalence of malaria in Woreta town, Amhara region, Northwest Ethiopia over eight years. 2018;18(1):1-6.
42. Akalu A. Vegetable market chain analysis in Amhara National Regional State: the case of Fogera woreda, South Gondar zone: Haramaya University; 2007.
43. Woretatownhealthoffice. Annual performance report for Woreta town health office. 2021.
44. WFP. Food consumption score-WFP Remote Access Secure Services2008. 102 p.
45. Fite MB, Tura AK, Yadeta TA, Oljira L, Roba KTJJoH, Population, Nutrition. Factors associated with food consumption score among pregnant women in Eastern Ethiopia: a community-based study. 2022;41(1):1-9.
46. Taylor SE. Social support: A review. 2011.
47. Scherbov S. SW. New Measures of Population Ageing. 2019.
48. Dworkin SLJAosb. Sample size policy for qualitative studies using in-depth interviews. Springer; 2012. p. 1319-20.

49. WFP. Food consumption score: Construction of the FCS. Rome: WFO-FAO; 2008.
50. Coates J, Swindale A, Bilinsky P. Household Food Insecurity Access Scale (HFIAS) for measurement of food access: indicator guide: version 3. 2007.
51. Ambaw MB, Shitaye G, Taddele M, Aderaw ZJBph. Level of food consumption score and associated factors among pregnant women at SHEGAW MOTTA hospital, Northwest Ethiopia. 2021;21(1):1-9.

13.Annex

Annex 1

Informed consent

Participant information sheet

Good morning? /Good afternoon? My name is ---------- I am a data collector and I am here on behalf of the principal investigator. I am going to ask you some questions about your dietary practice. The information I get from you helps to recommend to the concerned body about the dietary practice of the elderly people. You are selected to participate in this study just randomly. The following is some general information about the study.

Title of the study: Dietary practice and associated factors among elderly people in Woreta town, Northwest Ethiopia, 2022.

The objective of the study: To assess dietary practices and associated factors among elderly people in Woreta town, Northwest Ethiopia, 2022.

The benefit of the study: There is direct benefit for participants. It may also be used by policymakers to evaluate the service and help them indirectly to improve elderly dietary practice.

Risk of the study: This study has no any risk for participants.

Participants' rights: your participation is voluntary, and you are not required to answer any questions you do not wish to answer. This interview will take about 35-45 minutes. If you feel discomfort with the interview, please feel free to withdraw from the interview at any time.

Confidentiality: Your name will not be written in this form and will never be used in connection with any information you tell us. All information given by you will be kept strictly confidential.

Name of the Sponsor: principal investigator

Informed Consent form

I have read this form and I understand all the conditions stated above.

Therefore, I agree to participate.

If the participant agrees to participate, skip to the next page. If not, skip to the next participant by writing short reasons for refusal below.

Principal investigator Name: Adane Ambaye Kassa

Principal investigator Address:

- Mobile number: +251912894213
- E-mail: adaamba12@gmail.com

Supervisor address:

- Mobile number: +251945551700
- E-mail: _____

Thank you very much for your co-operation!

Annex 2

English version quantitative questionnaire

To be filled by data collectors and supervisors

Description	Identification
Region	Amhara regional state
Zone	South Gondar
Woreda	Woreta town administration town
Kebele	
Supervisor name and signature	
Data collector name and signature	
I.D number/House number	_____/_____
Date of the interview	_____/_____/2022

1 Socio-demographic and economic variables

Code	Questions	Response	Skip
101	Sex of the participant	1. Male 2. Female	
102	What is your age in years?	_____	
103	What is your marital status?	1. Married 2. Divorced 3. Widowed	

		4. Others (specify) _____	
104	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify) _____	
105	With whom you are living?	1. With partner 2. With children 3. Alone 4. Others (Specify) _____	
106	What is your educational status?	1. unable read and write 2. read and write 3. primary school (1-8) 4. secondary school (9-12) 5. diploma and above 6. Others (specify) _____	
107	What is your occupational status?	1. Housewife 2. Merchant 3. Daily laborer 4. Farmer 5. Retired 6. Others (specify) _____	
108	What is the head of the household?	1. Father 2. Mother 3. Children 4. Relative 5. Others (Specify) _____	
109	How many persons live in this household?	_____ (in number)	
110	What is your source of household food?	1. From market 2. From agriculture land 3. Others (specify) _____	
111	Do you have pension?	1. Yes 2. No	
112	Do you have access to credit services?	1. Yes 2. No	
113	Do you enrolled to health insurance?	1. Yes 2. No	

2 Psychosocial related factors:

Code	Questions	Response	Skip
201	Do you have a social support?	1. Yes 2. No	

3 Activities of daily living related factors:

Code	Questions	Response	Skip
301	Can you go for a walk outside?	1. Yes 2. No	
302	Can you take a bath alone?	1. Yes 2. No	
303	Do you have the able to carry things?	1. Yes 2. No	
304	Do you have the able to shop?	1. Yes 2. No	
305	Do you have the able to bend to pick up things?	1. Yes 2. No	
306	Do you have the able to stand up alone?	1. Yes 2. No	

4 Health related factors variables

Code	Questions	Response	Skip
401	Do you have history of any chronic diseases?	1 Yes 2 No →	Q403
402	If question 401 yes, which one of the following (multiple answers are possible)?	1. Hypertension: Yes/No 2. Diabetes Mellitus: Yes/No 3. TB: Yes/No 4. HIV/ADIS: Yes/No 5. Others (specify)_____	
403	Did you face any acute illness in the past 2 weeks?	1. Yes 2. No →	Q405
404	If question 503 is yes what was the illness?	1. Diarrhea: Yes/No	

		2. Nausea: Yes/No 3. Vomiting: Yes/No 4. Others (specify)_____	
405	Have you taken drugs for treatment?	1. Yes 2. No	

5 Meal related variables

Code	Questions	Response	Skip
501	What is your usual meal frequency?	_____ times	
502	With whom you are feeding?	1. Always alone 2. Sometimes alone 3. Always with family Members	
503	Time to have meal?	1. Regular (at the time of breakfast, lunch, and dinner) 2. Irregular (any time s/he eat when they get food)	

World food program's standard food consumption score questionnaire (44, 51)

S.No.	Food items	Food groups	Frequency
1	Rice, wheat, maize, barley, oats, teff, sorghum, and other cereals (Eg. Enjera, gruel, bread, porridge, pasta, macaroni)	Main staples	
	Potato, sweet potatoes, carrot, beetroot		
2	Lentil, beans, chickpea, Peas, groundnuts, soya beans, guaya	Pulses	
3	Cabbage, pumpkin, onion, tomato, garlic, swiss chard, salad, pepper, endive	Vegetables	
4	Banana, orange, mango, papaya, lemon, avocado, apple, guava, watermelon, pineapple, peach	Fruit	
5	Beef, goat, sheep, poultry, eggs and fish	Meat and fish	
6	Milk, yogurt, cheese and other dairy products	Milk	

7	Sugar and sugar products (sugar cane)	Sugar	
8	Oils, fats and butter	Oil	

6 Wealth index characteristics for semi-urban residents

Code	Questions	Response	Skip
601	Who is the owner of the house?	1. Private 2. Rented from individual 3. kebele 4. Other(specify)_____	
602	How many rooms are available in this house?	_____in number	
603	What is the main material of the dwelling floor in your house?	1. Earth / Soil 2. Dung 3. Cement 4. Ceramics 5. Carpet 6. Others (specify)_____	
604	What is the main material of the roof in your house?	1. Iron corrugated sheet 2. Thatch 3. Others (specify)_____	
605	What is the main material of the exterior wall in your house?	1. Stone with mud 2. Wood with mud 3. Stone with cement 4. Others (specify)_____	
606	What type of fuel dose your households mainly use for cooking?	1. Electricity 2. Charcoal 3. Wood 4. Animal dung 5. Others(specify)_____	
607	Is the cooking usually done in the house, in a separate building, or outdoors?	1. In a separate room used as kitchen 2. Elsewhere in the house 3. In a separate building 4. Outdoors 5. Other (specify)_____	
608	Does any member of the household own any land that can be used for agriculture?	1. Yes 2. No →	Q611
609	Ownership of the farm land	1. Own, in hectares/qedema____ 2. Rent, in hectares/qedema____	
610	Annual total agricultural products (includes all items)	_____kuntal	

611	Does your household have	Yes	No	
	A. Electricity?	1	0	
	B. A Radio?	1	0	
	C. A Television?	1	0	
	D. A Non-mobile telephone?	1	0	
	E. A Refrigerator?	1	0	
	F. Table?	1	0	
	G. Chair?	1	0	
	H. A bed with cotton/ spring mattress	1	0	
612	Does any member of your household own	Yes	No	
	A. A watch?	1	0	
	B. A mobile phone?	1	0	
	C. A bicycle?	1	0	
	D. A Bajaj?	1	0	
	E. Animal drawn cart?	1	0	
	F. Car?	1	0	
613	Does this household own any livestock, herds, other farm animals, or poultry?	1. Yes 2. No →		Q615
614	How many of the following animals does the household have? (if the household does not have the listed animal use 999)			
	A. Cattle, milk cows, bulls?	_____in number		
	B. Horses, Donkeys, or mules?	_____in number		
	C. Goats?	_____in number		
	D. Sheep?	_____in numbe		
	E. Chickens?	_____in number		
	F. Beehives?	_____in number		
615	Does any member of this household have a bank or microfinance saving account?	1. Yes 2. No		

Note: Qedema = a land that is 50 meter by 50 meter area

7 Behavior related variables

ID	Questions	Response	Skip
701	Do you smoke cigarette?	1. Yes 2. No	
702	Do you drink alcohol?	1. Yes 2. No	

703	If question 702 is yes, how many bottles do you drink per week?	1. Yes 2. No	
704	If question 702 is yes, how many times per week?	_____ times	
705	Do you chew khat?	1 Yes 2 No	

8 Household Food Insecurity Access Scale (HFIAS) Measurement Tool

ID	Questions	Response	Skip
801	In the past four weeks, did you worry that your household would not have enough food?	0 = No → 1 = Yes	Q802
801 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	
802	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No → 1=Yes	Q803
802 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	
803	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	0 = No → 1 = Yes	Q804
803 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	
804	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	0 = No → 1 = Yes	Q805

804 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	
805	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	0 = No → 1 = Yes	Q806
805 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	
806	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	0 = No → 1 = Yes	Q807
806 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	
807	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	0 = No → 1 = Yes	Q808
807 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	
808	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	0 = No → 1 = Yes	Q809
808 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	

809	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	0 = No 1 = Yes	
809 a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks 3 = Often (more than ten times in the past four weeks)	

የ ጥናቱ ተሳታፊዎች መረጃ

እንደምን አደሩ? /እንደምን ዋሉ? ስሜ---------- ይባላል፡፡ እኔ መረጃ ሰብሳቢ ነኝ፡፡ እዚህ ያለሁት ዋናውን የ ጥናት ባለቤት ወክዬ ነው። ከዚህ ቀጥዬ ስለአመጋግብ ልምድዎ እጠይቀዎታለሁ፡፡ ከእርስዎ የሚ ኘው መረጃ ስለአረጋዊያን ሰዎች የ አመጋግብ ልምድ ለሚሞላከታቸው ሰዎች ምክረ ሐሳብ ለማቅረብ ይጠቅማል፡፡

የ ጥናቱ ርዕስ፡ - የ አረጋውያን የ አመጋገብ ልምምድ እና ተያያዥ ምክንያቶች፣ ወረታ ከተማ፣ ሰሜን ምዕራብ ኢትዮጵያ፣ 2014 ዓ.ም

የ ጥናቱ ዓላማ፡ - የ አረጋውያን የ አመጋገብ ልምምድ እና ተያያዥ ምክንያቶች ለማጥናት፣ ወረታ ከተማ፣ ሰሜን ምዕራብ ኢትዮጵያ፣ 2014 ዓ.ም

የ ጥናቱ ጥቅም፡ - ለተሳታፊዎች ቀጥተኛ እና ቀጥተኛ ያልሆ ጥቅሞች አሉት፡፡ እንዲሁም ለፖሊሲ አወጪዎች አገልግሎቱን ለመ ምገ ም እና የ አረጋውያን የ አመጋገብ ልምዶችን ለማሻሻል ይጠቅማል፡፡

የ ጥናቱ ሪስክ፡ - ይህ ጥናት ለተሳታፊዎች ምንምዓይነት አደጋ የ ለወም፡፡

የ ጥናቱ ተሳታፊዎች መብት፡ - ተሳትፎዎ በፈቃደኝነት ላይ የ ተመሰረተ ነው፡፡ መመለስ የ ሚይፈልጉትን ማንኛውንም ጥያቄዎች መመለስ አይጠበቅብዎትም። ወይይታችን ከ35-45 ደቂቃዎች ሊወስድ ይችላል፡፡

ሚስጥራዊነት፡ - ስምዎ በዚህ ቅጽ ላይ አይጻፍም፡ ስምዎ ከማ ግሩን ማንኛውም መረጃ ጋር በተያያዘ ፈጽሞ ጥቅምላይ አይወልም። ሁሉምበእርስዎ የ ተሰጡመረጃዎች በጥብቅ ሚስጥር ይያዛሉ።

የ ጥናቱ ስፖንሰር፡ - ዋናውአጥኚ

በሚጃ የተደገፈ የስምምነት ቅጽ፡ - ይህንን ቅጽ በማንበብ (በሚነበብ) ከላይ የተጠቀሱትን ሁኔታዎች በሚሉ ተረድቻለሁ። ስለሆነ ምለማጠይቁ ማስማማቴን እገልፃለሁ፡ ፡

የአሚርኛ ማጠይቆች

ግለጫ	መሳያ
ክልል	አማራ ብሄራዊ ክልላዊ መንግስት
ዞን	ደቡብ ጎንደር አስተዳድር
ወረዳ	ወረታ ከተማአስተዳደር
ቀበሌ	
የሱፐርቫይዘር ስምና ፊርማ	ጋሻውከበደ
የሚጃ ሰብሳቢውስምና ፊርማ	
የተሳታፊ መሳያ ኮድ	
ቀን	_____/09/2014 ዓ.ም

1) ማህበራዊ ፣ ስነ - ህዝባዊ እና ኢኮኖሚዊ ላይ የሚተኩሩ ጥያቄዎች

ኮድ	ጥያቄዎች	የመልስ አማራጮች	ወደ ——— ተሻገር
101	የተሳታፊ ፆታ	1. ወንድ 2. ሴት	
102	እድሜዎት በአመት ስንት ነው?	_____	
103	የትዳር ሁኔታዎ ምንድን ነው?	1. ያገባ/ች 2. የፈታ/ች 3. የሞተች/ባት 4. ሌላ ይገለፅ ———	
104	ሐይማኖትዎ ምንድን ነው?	1. ኦርቶዶክስ 2. መካሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ ይገለፅ ———	
105	ከማን ጋር ነውየሚኖሩት?	1. ከትዳር አጋርዎ ጋር 2. ከልጆችዎ ጋር 3. ብቻዎትን 4. ሌላ ይገለፅ ———————	

106	የትምህርት ደረጃዎ ምንድን ነው?	1. መፃፍ ማንበብ የሚችል/የ ማትችል 2. መፃፍ ማንበብ የ ሚቻል/የ ምትችል 3. 1ኛ ደረጃ/1-8 ክፍል/ 4. 2ኛ ደረጃ/9- 12 / 5. ዲፕሎማና ከዚያ በላይ 6. ሌላ ይገለፅ ————————	
107	የስራ ሁኔታዎ ምንድን ነው?	1. ነጋዴ 2. የመንግስት ሰራተኛ 3. የቀን ሰራተኛ 4. የቤት እማቴት 5. ገበሬ 6. ሌላ ይገለፅ ————————-	
108	የቤትዎ ሚሪ ማን ነው?	1. አባት 2. እናት 3. ልጅ 4. ዘመድ 5. ሌላ ይገለፀ _____	
109	የቤተሰብ አባላት ብዛት ስንት ነው?	_____ (በቁጥር)	
110	የምግብ እህል የምታገኙት ከየት ነው?	1. ከገበያ 2. ከእርሻ ሚሬት 3. ሌላ ይገለፅ ————————	
111	የጤና ክፍያ አለዎት?	1.አዎ 2. የለም	
112	የብድር አገልግሎት ማግኘት ይችላሉ?	1. አዎ 2. የለም	
113	የጠፍ መድህን አባል ነዎት?	1. አዎ 2. የለም	

2) ስለተንከባካቢዎች የሚጠብ ጥያቄ

201	የሚዳዎት ሰውአለዎት?	1. አዎ 2. የለም	

3) ከቀን ተቀን ተግባራት ጋር የተያያዙ ጥያቄዎች:-

301	የእግር ጉዞ ሜድረግ ይችላሉ?	1 አዎ 2 የለም	
302	ራስዎን ችለውገላዎትን መታጠበ ይችላሉ?	1. አዎ 2. የለም	
303	ቁሳቁሶችን መቸከም ይችላሉ?	1. አዎ 2. የለም	
304	መገበያየት ይችላሉ?	1. አዎ 2. የለም	
305	ቁሳቁሶችን ጎበስ ብለውማነሳት ይችላሉ?	1. አዎ 2. የለም	
306	ራስዎትን ችለውከመቀመጫዎ መነሳት ይችላሉ?	1. አዎ 2. የለም	

4) **የጠፍን ሁኔታ የተመለከቱ ጥያቄዎች**

401	ከዚህ በፊት ስር የሰደደ(የቆየ) በሽታ እንዳለብዎ ተነግሮዎት ያውቃል?	1. አዎ 2. የለም ——→	ጥ403
402	ጥያቄ ቁጥር 401 አዎ ከሆነ፣ ያመመዎ የትኛውበሽታነው?	1. ደምግፊት፡- አዎ/የለም 2. ስኳር ፡- አዎ/የለም 3. ቲቢ፡- አዎ/የለም 4. ኤች. አይ.ቪ፡- አዎ/የለም 5. ሌላ (ይገለፅ)————	
403	ባለፉት ሁለት ሳምንት ወስጥ ታመውያውቃሉ?	1. አዎ 2. የለም ——→	ጥ405
404	ጥያቄ ቁጥር 403 አዎ ከሆነ፣ ያመመዎ የትኛውበሽታነው?	1. ተቅማጥ፡- አዎ/የለም 2. ማቅለሽለሽ ፡- አዎ/የለም 3. ትውኪያ ፡- አዎ/የለም	

		4. ሌላ (ይገለፅ)_____	
405	ለህክምና መድሃኒት እየወሰዱ ነው?	1. አዎ 2. የለም	

5) የአመጋገብ ልማድ ጥያቄዎች

501	በአብዛኛው በቀን ስንት ጊዜ የመመገብ ልምድ አለዎት?	_____ ጊዜ	
502	ሜዳደዎን ከማን ጋር ነው የሚመገቡት ?	1. ሁልጊዜ ብቻዎትን 2. አንዳንድጊዜ ብቻዎትን 3. ሁልጊዜ ከቤተሰብ ጋር	
503	የሜዳድ አመጋገብ ጊዜዎ ምን ይመስላል?	1. ሰዓቱን ጠበቆ ቁርስ፣ ምሳ እና እራት 2. በተገኘውጊዜ ከመመገቢያ ሰዓት ወጭ	

ሳምታዊ የአመጋገብ ሁኔታ ጥያቄ

አሁን የምጠይቀዉ ጥያቄ እርስዎ ባለፉት ሰባት ቀናት ማታ እና ቀን የተመገቡት የምግብ አይነት ለምን ያክል ቀን እንደተመገቡ የሚጠይቅ ነዉ፡፡

ተ.ቁ	ጥያቄዎች	የ ምግብ ምድብ	ለምን ያክል ቀን ተመገቡ
1	ባለፉት 7 ቀናት ወስጥ ከጠፍ፣ ከስንዴ፣ ከገብስ፣ ከአጃ፣ ከበቆሎ፣ ከዳጉሳ፣ ከሩዝ ወዘተ የተዘጋጁ እንጀራ፣ ዳቦ፣ ገንፎ፣ አጥሚት፣ ፓስታ፣ ማካሮኒ፣ ቅንጬ በሶ፣ ቂጣ፣ ጨጨብሳ ወዘተ ተመገበዋል? እንዲሁምድንች፣ ስኳር ድንች፣ ካሮት፣ ቀይስር ተመገበዋል?	እህል፣ ስራቸውና ግንዳቸው የሚሉ	
2	ባለፉት 7 ቀናት ወስጥ ከአተር፣ ከምስር፣ ከባቄላና፣ ከለውዝ፣ ከሽምብራ፣ ከጓያ የተዘጋጁ ምግቦችን ተመገበዋል?	ጥራጥሬ	
3	ባለፉት 7 ቀናት ወስጥ ማንኛውም አይነት የሚበሉ ቅጠላቅጠሎች ለምሳሌ፡ - ቆስጣ፣ ሰላጣ፣ ዱባ፣ ነጭሽንኩርት፣ ቀይ ሽንኩርት፣ የሐበሻ ጎመን ፣ ቃሪያ፣ ጥቅል ጎመን ተመገበዋል?	አትክልት	
4	ባለፉት 7 ቀናት ወስጥ ብርቱካን፣ መዝ፣ ሎሚ፣ ማንጎ፣ ፓፓያ፣ አቮካዶ፣ ዘይቶና፣ ሐባብ፣ አፕል፣ አናናስ፣ ኮክ ተመገበዋል?	ፍራፍሬ	
5	ባለፉት 7 ቀናት ወስጥ ስጋ (የበግ፣ የበሬ፣ የፍየል፣ የላም ወይም	ስጋና አሳ	

	የዶሮ)፣ አሳ ፣ እንቁላል ተመገበዋል?		
6	ባለፉት 7 ቀናት ወስጥ ወተት (ወተት፣ አይብ፣ እርጎ፣ አጓት) ተመገበዋል?	ወተት	
7	ባለፉት 7 ቀናት ወስጥ በዘይት፣ በስብ፣ በቅቤ የተዘጋጁ ምግቦችን ተመገበዋል?	ዘይት	
8	ባለፉት 7 ቀናት ወስጥ ስኳር፣ ሜር፣ ሽንኮራ አገዳ ያለበት ምግብ ተመገበዋል?	ስኳር	

6) የቤተሰብ የሃብት ምጫ ሁኔታ እና ተያያዥጥያቄዎች

601	መኖሪያ ቤትዎ የማን ነው?	1. የእርስዎ(የግለዎ) 2. ከግለሰብ ኪራይ 3. ሌላ ይገለፅ ————————	
602	መኖሪያ ቤትዎ ስንት ክፍሎች አሉት?	_____ (በቁጥር)	
603	የመኖሪያ ቤቱዎ ወለል ከምን የተሰራ ነው?	1. አፈር/አሸዋ 2. በእበት የተለቀለቀ 3. በስሚንቶ 4. ሽንበቆ 5. ስጋጃ/ምንጣፍ 6. ሌላ ይገለፅ ————————	
604	የቤቱዎ ጣራ የተሰራውከምንድን ነው?	1. ድንጋይ በጭቃ 2. እንጨት በጭቃ 3. ድንጋይ በስሚንቶ 4. ሌላ ይገለፅ ————————	
605	የቤቱዎ ግድግዳ የተሰራው ከምንድን ነው?	1. ድንጋይ በጭቃ 2. እንጨት በጭቃ 3. ድንጋይ በስሚንቶ 4. ሌላ ይገለፅ ————————	
606	ምግብ ለማበሰል የምትጠቀመት ምንድን ነው?	1.ኤሌክትሪክ 2. ከሰል 3. እንጨት 4. ኩበት 5. ሌላ ይገለፅ ————————	
607	ምግብ የሚበሰለውበተለምዶ ቤት ወስጥ ነው፣ በጢስ ቤት ነውወይስ ከቤት ወጭ?	1. ቤት ወስጥ ራሱን በቻለ ክፍል 2. ቤት ወስጥ በማናቸውምቦታ 3. ከቤቱ ወጭበሆነ ጭስ ቤት 4. ወጭላይ 5. ሌላ ይገለፅ ————————	

<table>
<tr><td>608</td><td>ከቤተሰብዎ አባል ወስጥ የእርሻ መሬት/ቦታ ያለውአለ?</td><td>1. አዎ
2. የለም ⟶</td><td>ጥ611</td></tr>
<tr><td>609</td><td>የእርሻ መሬቱ ባለቤት ማን ነው?</td><td>1. የእርስዎ ከሆነ በሄክታር/ቀደማ———
2. የኪራይ ከሆነ በሄክታር/በቀደማ———</td><td></td></tr>
<tr><td>610</td><td>በአማት ከሁሉም የእህል አይነት በኩንታል ስንት ያገኛሉ?</td><td>_____ በኩንታል</td><td></td></tr>
<tr><td>611</td><td>በቤትዎ ወስጥ ያሉ ቁሶች
<table>
<tr><td>ሀ. ኤሌክትሪክ?</td></tr>
<tr><td>ለ. ራድዮ?</td></tr>
<tr><td>ሐ. ቴሌቭዥን?</td></tr>
<tr><td>መ የቤት ስልክ?</td></tr>
<tr><td>ሠ. ፍሪጅ?</td></tr>
<tr><td>ረ. ሶፋ/ወንበር?</td></tr>
<tr><td>ሰ. ጠረጴዛ?</td></tr>
<tr><td>ሸ. አልጋ እና ከጥጥ /እስፓንጅ/ እስፕርንግ የተሰራ ፍራሽ?</td></tr>
</table></td><td>
<table>
<tr><td>አዎ</td><td>የለም</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table></td><td></td></tr>
<tr><td>612</td><td>ከቤተሰብዎ አባል ወስጥ የሚከተሉትን ቁሶች ያለውአለ?
<table>
<tr><td>ሀ. የእጅ ሰዓት?</td></tr>
<tr><td>ለ. ሞባይል?</td></tr>
<tr><td>ሐ. ሳይከል?</td></tr>
<tr><td>መ. ባጃጅ?</td></tr>
<tr><td>ረ. ጋሪ?</td></tr>
<tr><td>ሰ. መኪና?</td></tr>
</table></td><td>
<table>
<tr><td>አዎ</td><td>የለም</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table></td><td></td></tr>
<tr><td>613</td><td>ላም፣ በሬ ፣ ፍየል፣ ዶሮ አላችሁ?</td><td>1 አዎ
2 የለም ⟶</td><td>ጥ615</td></tr>
<tr><td>614</td><td>ስንት የቁምና የጋማከብቶች አላችሁ?</td><td></td><td></td></tr>
<tr><td></td><td>ሀ. ከብቶች, የወተት ላም, ኮርማ?</td><td>_____በቁጥር</td><td></td></tr>
<tr><td></td><td>ለ. ፈረስ, አህያ, ወይምበቅሎ?</td><td>_____በቁጥር</td><td></td></tr>
<tr><td></td><td>ሐ. ፍየል?</td><td>_____በቁጥር</td><td></td></tr>
<tr><td></td><td>መ. በግ?</td><td>_____በቁጥር</td><td></td></tr>
<tr><td></td><td>ሠ. ዶሮ?</td><td>_____በቁጥር</td><td></td></tr>
<tr><td></td><td>ረ. የንብ ቀፎ?</td><td>_____በቁጥር</td><td></td></tr>
<tr><td>615</td><td>የባንክ ደብተር አላችሁ?</td><td>1 አዎ</td><td></td></tr>
</table>

		2 የለም	

ማስታወሻ፡ - ቀደማ = 50ሜትር በ50ሜትር የሆነ ሜሬት ነው

7) ከባህሪ ጋር የተያያዙ ጥያቄዎች

701	ሲጋራ ያጨሳሉ?	1 አዎ 2 የለም	
702	አልኮል ይጠጣሉ?	1 አዎ 2 የለም	
703	ጥያቄ ቁጥር 702 አዎ ከሆነ፣ በሳምንት ስንት ጠርሙስ?	———————— ጠርሙስ	
704	ጥያቄ ቁጥር 702 አዎ ከሆነ፣ በሳምንት ስንት ጊዜ?	_____ጊዜ	
705	ጫት ይቅማሉ?	1 አዎ 2 የለም	

8) የቤተሰብ የምግብ ዋስትናን የሚመለሱ ጥያቄዎች

801	ባለፉት አራት ሳምንታት ወስጥ ቤተሰብዎ በቂ ምግብ አላገኘም ብለው አስበው (ተጨቅቀው) ነበር?	0 = አዎ 1 = የለም ⟶	ጥ802
801 ሀ	መልስዎ አዎ ከሆነ፣ ምን ያህል ጊዜ ተከስቶ ያውቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አንዳንድ ጊዜ (ከ 3-10 ጊዜ) 3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
802	ባለፉት አራት ሳምንታት ወስጥ እርስዎ ወይም ከቤተሰብ አባልዎ መካከል በገንዘብ እጥረት ምክንያት የሚጣፍሁትን ምግብ ሳትመገቡ የቀራችሁበት ጊዜ ነበር	0 = አዎ 1 = የለም ⟶	ጥ803
802 ሀ	መልስዎ አዎ ከሆነ፣ ምን ያህል ጊዜ ተከስቶ ያውቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አንዳንድ ጊዜ (ከ 3-10 ጊዜ) 3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
803	ባለፉት አራት ሳምንታት ወስጥ እርስዎ ወይም ከቤተሰብ አባልዎ መካከል በገንዘብ እጥረት ምክንያት ወስን የምግብ አይነ ትተመገበዋል?	0 = አዎ 1 = የለም ⟶	ጥ804
803 ሀ	መልስዎ አዎ ከሆነ፣ ምን ያህል ጊዜ ተከስቶ ያውቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አንዳንድ ጊዜ (ከ 3-10 ጊዜ)	

		3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
804	ባለፉት አራት ሳምንታት ወስጥ እርስዎ ወይም ከቤተሰብ አባልዎ መካከል በገንዘብ እጥረት ምክንያት ሌሎች የ ምግብ አይነ ቶችን ባለማግኘትዎ መመ ብ የ ሚይፈልጉትን የ ምግብ አይነ ት ተመግበዋል?	0 = አዎ 1 = የ ለ ም →	ጥ805
804 ሀ	መልስዎ አዎ ከሆነ ፣ ምን ያህል ጊዜ ተከስቶ ያዉቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አ ን ዳ ን ድ ጊዜ (ከ 3-10 ጊዜ) 3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
805	ባለፉት አራት ሳምንታት ወስጥ እርስዎ ወይም ከቤተሰብ አባልዎ መካከል በገንዘብ እጥረት ምክንያት በቂ ምግብ ባለመኖሩ ከሚያስፈልግዎ (ከበቂ) በታች የ ሆነ ምግብ ተመግበውያወቃሉ?	0 = አዎ 1 = የ ለ ም →	ጥ806
805 ሀ	መልስዎ አዎ ከሆነ ፣ ምን ያህል ጊዜ ተከስቶ ያዉቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አ ን ዳ ን ድ ጊዜ (ከ 3-10 ጊዜ) 3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
806	ባለፉት አራት ሳምንታት ወስጥ እርስዎ ወይም ከቤተሰብ አባልዎ መካከል በገንዘብ እጥረት ምክንያት በቂ ምግብ ባለመኖሩ በቀን ወስጥ ከሚያስፈልገ ዎ ጊዜ በታች ተመገበውያወቃሉ?	0 = አዎ 1 = የ ለ ም →	ጥ807
806 ሀ	መልስዎ አዎ ከሆነ ፣ ምን ያህል ጊዜ ተከስቶ ያዉቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አ ን ዳ ን ድ ጊዜ (ከ 3-10 ጊዜ) 3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
807	ባለፉት አራት ሳምንታት በቤተሰብዎ ወስጥ በገንዘብ እጥረት ምክንያት ምግብ ባለማግኘትዎ በቤትዎ ወስጥ ምንም አይነ ት የ ሚበላ ምግብ አጥተውነ በር?	0 = አዎ 1 = የ ለ ም →	ጥ808
807 ሀ	መልስዎ አዎ ከሆነ ፣ ምን ያህል ጊዜ ተከስቶ ያዉቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አ ን ዳ ን ድ ጊዜ (ከ 3-10 ጊዜ) 3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
808	ባለፉት አራት ሳምንታት ወስጥ እርስዎ ወይም ከቤተሰብ አባልዎ መካከል በገንዘብ እጥረት ምክንያት ምግብ ሳትመገ ቡአድራችሁ ታውቃላችሁ?	0 = አዎ 1 = የ ለ ም →	ጥ809
808 ሀ	መልስዎ አዎ ከሆነ ፣ ምን ያህል ጊዜ ተከስቶ ያዉቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አ ን ዳ ን ድ ጊዜ (ከ 3-10 ጊዜ)	

		3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	
809	ባለፉት አራት ሳምንታት ወስጥ እርስዎ ወይም ከቤተሰብ አባልዎ መካከል በገንዘብ እጥረት ምክንያት ሚሉ ቀንና ሚታ ያለምንም ምግብ መመገብ ያሳለፋችሁት ጊዜ ነበር?	0 = አዎ 1 = የለም	
809 ሀ	ሚልስዎ አዎ ከሆነ ፣ ምን ያህል ጊዜ ተከስቶ ያውቃል?	1 = አልፎ አልፎ (1 ወይም 2 ጊዜ) 2 = አንዳንድ ጊዜ (ከ 3-10 ጊዜ) 3 = ብዙ ጊዜ (ከ 10 ጊዜ በላይ)	

English version interview guide

For male and female participant:

1. How do you describe your experiences with regard to your dietary practice?
2. What are the taboos regarding dietary practices that are associated with old age?
3. What are cultural beliefs regarding dietary practices that are associated with old age?
4. What are the factors that influence your experience in dietary practice?
5. What are the barriers regarding dietary practices that are associated with old age?
6. How do your dietary practices different from other age groups?
7. Why are your dietary practices different from other age groups?

የአሚርኛ ማጠይቆች

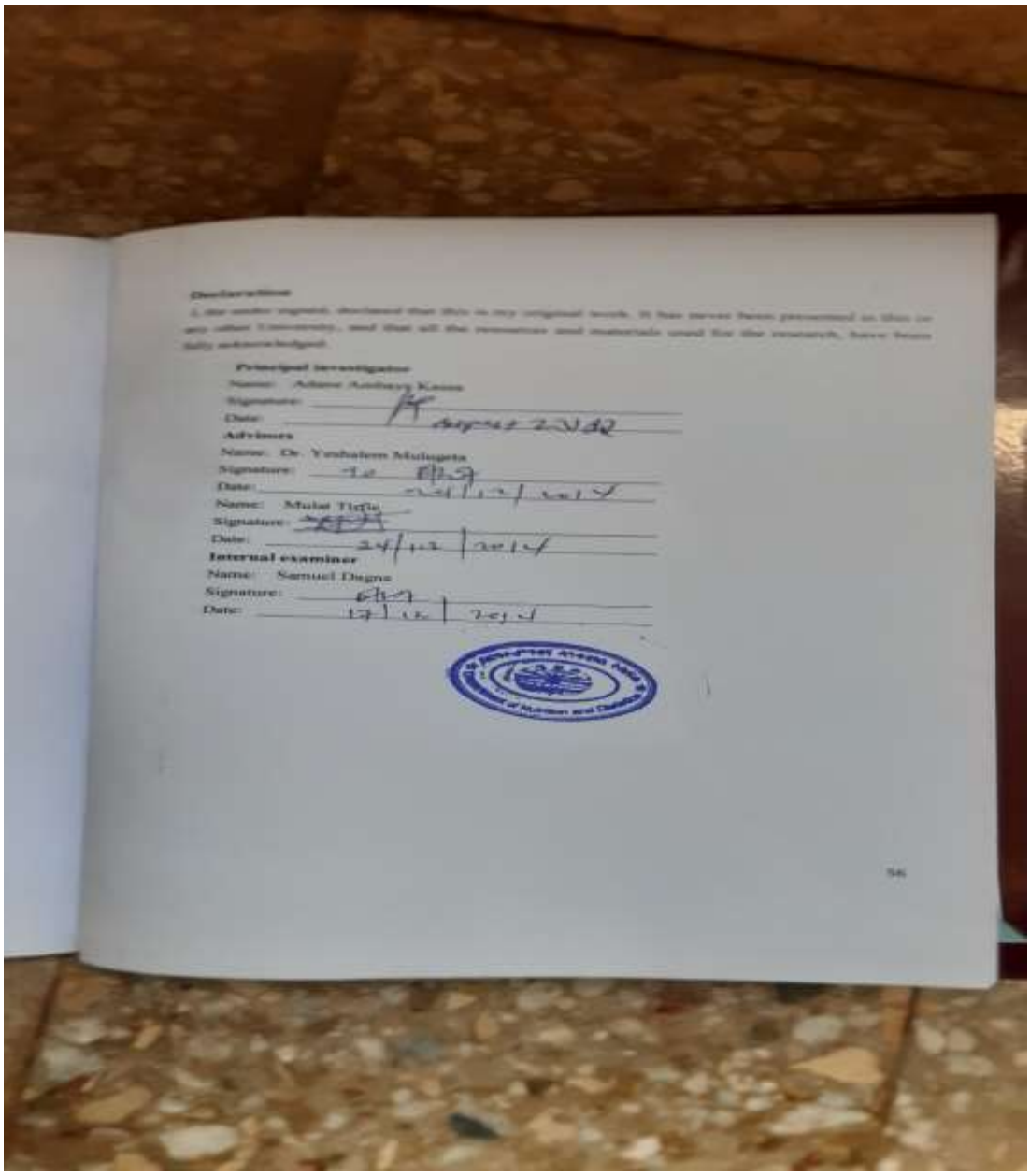
ለወንድእና ለሴት ተሳታፊዎች የሚቀርቡ ጥያቄዎች፡ -

- የአመጋገብ ልምድዎትን እንዴት ይገልጹታል?
- ከእርጅናዎ ጋር የተያያዙ ጥሩ ያልሆኑ የአመጋግብ ልሚዶች ምንምን ናቸው?
- ከእርጅናዎ ጋር የተያያዙ ጥሩ ያልሆኑ ባህላዊ የአመጋግብ ልሚዶች ምንምን ናቸው?
- ከእርጅና ጋር የተያያዙ የአመጋገብ ልምዶችን በተመለከተ እንቅፋቶች ምንድን ናቸው?
- የአመጋገብ ልምዶችዎ ከሌሎች የዕድሜቡድኖች እንዴት ይለያሉ?
- ለምንድነ ውየአመጋገብ ልምዶችዎ ከሌሎች የዕድሜቡድኖች የሚለየ ው?

Annex 3

Table 6 A cross tabulation of with whom he/she is feeding and Living with whom study participants in Woreta town, Northwest Ethiopia, 2022

Variable		Living with whom			
		With partner	With children	Alone	Others
With whom he/she is feeding	Always alone	20(16.8%)	62(52.1%)	25(21.0%	12(10.1%)
	Sometimes alone	114(67.5%)	52(30.8%)	0(0.0%)	3(1.8)
	Always with family Members	105(78.4%)	27(20.1%)	0(0.0%)	2(1.5%)



Declaration

I, the under signed, declared that this is my original work. It has never been presented in this or any other University, and that all the resources and materials used for the research, have been fully acknowledged.

Principal investigator

Name: Adane Anthony Kassa

Signature: [signature]

Date: August 2014

Advisors

Name: Dr. Yeshalem Mulugeta

Signature: [signature]

Date: 24/12/2014

Name: Mulat Tirfie

Signature: [signature]

Date: 24/12/2014

Internal examiner

Name: Samuel Dagne

Signature: [signature]

Date: 17/12/2014

56