ARSI UNIVERSITY

COLLEGE OF HEALTH SCIENCES DEPARTMENT OF PUBLIC HEALTH

Factors Associated with Stunting among 6-59 months of Children in Adami Tulu Jido Kombolcha wareda ,East shawa zone, Oromia, Ethiopia, 2025.

By: Kedir Jemal Baneto

Advisors:-

1. MUHAMMEDAWEL KASO (MPH Associate Professor)
2. MESFIN TAFA (Mph, Assistant Professor of Epidemiology)

A Research Proposal Submitted to the Department of Public Health, College of Health Science, and Arsi University in Partial Fulfillment Of the Requirements for the Degree of Master of Public Health.

March , 2025

Asella, Ethiopia

ARSI UNIVERSITY

COLLEGE OF HEALTH SCIENCES DEPARTMENT OF PUBLIC HEALTH

Name of investigator	1. Kedir Jemal Baneto
Name of advisors	1. Muhammedawel Kaso 2. Mesfin Tafa
Title of the research project	Factors Associated with Stunting among 6-59 months of children in Adami Tulu Jido Kombolcha ,East shawa zone, Oromia, Ethiopia, 2025
Duration of the project	March 25 to may25,2025
Study area	Adami Tulu Jido Kombolcha Woreda
Total cost of the project	78232.5
Address of investigator	Phone:0913578446 E-mail:kedirjemal.kj@gmail.com
Address of primary Advisor	Phone: 0911288053 E-mail:muhammedawel@gmail.com
Address of secondary Advisor	Phone:0910867389 E-mail:mesfintafa2011@gmail.com

March, 2025

Asella, Ethiopia

ACKNOWLEDGEMENT

I would like to forward my great appreciation and thanks to my advisors Mr. Muhammedawel Kaso and Mr Mesfin Tafa for special assistance, constructive comments, and guidance for the whole process in developing this research proposal and make my effort came to existence. Next, I would like to extend our special thanks to Arsi University, Department of Public Health Instructor and staff members for sharing me their academic knowledge and experience and also, my deepest thanks go to the Adami Tulu Jido Kombolcha wareda health office administration and experts for their polite and cooperative in provision of full information. Finally, my appreciation goes to all my friends for their advice support through the whole process of this study.

ACRONYMS/ ABRIVAITION

ARI	Acute Respiratory Infection
BMI	Body Mass Index
CSA	Central Statistical Agency
CHD	Community Health Day
EDHS	Ethiopian Demographic and Health Survey
HFA	Height for Age
HEW	Health Extension Worker
HP	Health Post
IRB	Institutional Review Board
MUAC	mid Upper Arm Circumference
MDG	Millennium Development Goal
PHCU	Primary Health Care unit
SAM	Sever Acute Malnutrition
SD	Standard Deviation
WFA	Weight for Age
WFH	Weight for Height
WHO	World Health Organization

TABLE OF CONTENTS

Table of Contents

ACKNOWLEDGEMENT.....I

ACRONYMS/ ABRIVAITION.....II

TABLE OF CONTENTS.....III

LISTS OF TABLES.....V

LISTS OF FIGURES.....VI

SUMMARY.....VII

1.INTRODUCTION.....1

1.1. Background.....1

1.2. Statement of the problem.....2

1.3. Justification of the study.....3

2. LITERATURE REVIEW.....4

2.1 Magnitude of the problem.....4

2.2 Risk factors for the problem.....6

2.2.1. Socio-demographic factors.....6

2.2.3. Maternal Care.....7

2.2.4. Environmental Health Conditions.....8

2.2.6. Health System related factors.....8

2.3 Conceptual frame work.....10

3. OBJECTIVES.....11

3.1. General objective.....11

3.2. Specific objectives.....11

4. METHODS.....12

4.1. Study design and period.....12

4.2. Study area.....12

4.3. Source and Study population.....13

4.3.1. Source population.....13

4.4 Sample size and sampling procedures.....13

4.4.1. Sample size determination.....13

4.4.2. Sampling procedure.....14

4.5. Variables of the study.....16

4.5.1 Dependent variable:.....16

4.5.2 Independent variables.....16

4.6. Operational definitions.....17

4.7. Data collection tools and procedures.....18

4.8. Data quality assurance.....19

4.9. Data processing and analysis.....20

4.10. Ethical considerations.....20

5. WORK PLAN.....22

7. REFERENCES.....25

8. ANNEXES.....28
Annex 1: English version Information Sheet and Consent Form.....28
Annex 2: English version of Questionnaire.....30
Annex 3: Afaan oromoo (local language) version information sheet and co
nsent form.....39
Annex 4: Afaan oromoo (local language) version questionnaire.....41
Declaration of Investigator.....49
Declaration of Advisors.....50
Examiners' Declaration.....51

LISTS OF TABLES

Table 1: Ghant chart indicating schedule of activists on stunting at Adami Tulu Jido Kombolcha wareda from March 27 to April 9, 2025.....22
Table 2: Budget and materials required for stunting thesis at Adami Tulu Jido Kombolcha Worada from March 27 to April 9, 2025.....23

LISTS OF FIGURES

Figure 1 : Conceptual framework developed by investigator after reviewing different literature on stunting at Adami Tulu Jido Kombolcha Woreda, East Shawa, Oromia Region, Ethiopia, 2025.....10

SUMMARY

Background: Stunting is defined as a height for age that is more than two standard deviations below the World Health Organization (WHO) child growth standard median. Globally, around 22.3% children under 5 years of age are stunted. Stunting is one of the major causes of mortality among children under five years old in Ethiopia (Nationally 39%) and Oromia 41% children are stunted. Though the problem of stunting has decreased in the country, it is still continuing as one of the major causes of mortality of children under five.

Objectives: To assess the prevalence of stunting and associated factors among 6-59 months old children in Adami Tulu Jido Kombolcha woreda, South Eastern Ethiopia

Methods: A quantitative community based cross-sectional study will be used among 6-59 months aged children in Adami Tulu Jido Kombolcha Wareda from March 25 to May25,2025 and multi-stage stratified

systematic random sampling technique will be used to identify 807 of the study participants. Data will be collected using face-to-face interview and anthropometric measurements.

Anthropometric measurements and determinant factors will be entered cleaned and edited using EPI INFO7 statistical software and then exported to SPSS version 29.0 for further analysis. Descriptive statistics of the collected data will be done for most variables in the study using statistical measurements. Frequency tables, percentages, means and standard deviation will be used. World Health Organization (WHO) Anthro software will be used to convert nutritional data indices from anthropometric measurement into Z-scores, and bi variable binary and multivariable logistic regression analyses will be conducted to identify factors associated with Stunting status of the children. Confidence interval of 95%, p-value 1.96 and AOR will be used for data analysis. Statistical association will be declared significant if p-value will be less than 0.05.

Work plan and Budget: Will be conducted from March 25 to May25,2025 and total of 78232.5 ET birr will be budgeted for this study.

1. INTRODUCTION

1.1. Background

Stunting is defined as a height for age that is more than two standard deviations below the World Health Organization (WHO) child growth standard median. Globally, around 148.1 million children under 5 years of age are stunted. Stunting is measured by a height-for-age z-score of more than 2 standard deviations below the World Health Organization (WHO) Child Growth Standards median. Stunting has been declining steadily over the last decade, with 22.3% of children under age 5 worldwide affected. From those affected, nearly all children affected (95%) lived in Asia (52% of the global share) and Africa (43% of the global share).The global prevalence of stunting (SDG indicator 2.2.1) almost halved from 40.2% (UI: 39.1–41.3%) in 1990 to 22.3% (UI: 21.8–22.9%) in 2022, and the prevalence of wasting (SDG indicator 2.2.2) declined by 26%, from 9.2% (UI: 8.4–10.0%) to 6.8% (UI: 5.5–8.1%). (1)

In Sub-Saharan Africa, the prevalence of stunting was about 35%; the highest prevalence of stunting was in East Africa, at 37%, followed by Central Africa, at 35%. (2)

Stunting among children is a major public health problem in developing countries, including Ethiopia. In the 2023 Ethiopian UNICEF Annual Report, 39% of children under five were stunted, and 11% of children under five were wasted.(3) In the Oromia region, the prevalence of child stunting indicated 40%. (4)

1.2. Statement of the problem

Although Ethiopia has already achieved remarkable progress in reducing under-five mortality in the last decades, stunting among children is still a common problem in this country. (5)

In Ethiopia, child stunting is one of the most serious public health problems and the highest in the world. 39% of children under five were stunted, and 11% were wasted. (1)

In 2023, the prevalence of under nutrition differs across regions in Ethiopia. Stunting is highest in the Afar (42%), Oromia (41%), Amhara (40%), and SNNP (40%) regions. The prevalence of wasting among children under five years ranges from as low as 4% in Addis Ababa to as high as 26% in the Afar region. The national prevalence of underweight (weight-for-age below -2SD) in children under 5 years is 22%. The national prevalence of overweight (body mass index for age above +1 SD) among children under five years was 6%. The prevalence of overweight was highest in Sidama (14%) and lowest in the Afar region (2%). (6)

According to the study conducted in the West Guji Zone, Oromia Region, located in the southern part of Ethiopia, shows the prevalence of stunting was 31.8% with 95% CI (28.6–35.2) among under-five-year-old children. Out of the study participants, 11.9% were severely stunted and 19.9% were moderately stunted.(7)

Therefore, this study will focus on the prevalence and factors associated with stunting in children 6-59 months ages in the study area. Study doesn't

conducted before in this woreda and I saw many stunted child that in the woreda when I work around .

1.3. Justification of the study

The study will be conducted to investigate the prevalence of stunting and associated factors, and it is very crucial in designing and implementing an intervention that could be tailored to their needs and thereby contributes to the attainment of a reduction in child mortality. By understanding the specific causes and conditions that lead to stunting, health officials and policymakers can develop targeted strategies that address nutritional deficiencies and promote healthy growth in children. Ultimately, this research aims to provide valuable insights that can drive effective programs and improve overall child health outcomes. These programs can incorporate community education, access to nutritious foods, and regular health check-ups, ensuring that families are equipped with the necessary resources and knowledge. In doing so, we can create a sustainable impact that not only reduces stunting but also fosters a healthier future generation.

Hence, the rationale for conducting this study is to dig out the associated factors with stunting and to document the extent of the problem. Reducing stunting is recognized as an important component of the health of the child, and the second global nutrition target for 2025 calls for a 40% reduction of stunting among 6-59 months in children. (8)

The study findings will help the policymakers and the health planners to design strategies to solve health problems that are related to stunting among under-five groups of children and also serve as baseline data for further studies in similar areas. Since the study will attempt to reveal the major factors for childhood stunting, it will help to guide the end-user

governmental and non-governmental organizations to develop nutrition programs and set appropriate plans to tackle the existing health and nutrition problems.

2. LITERATURE REVIEW

2.1 Magnitude of the problem

The prevalence of stunting in children aged 6–59 months in Babakan Madang is 40.5% (9). The pooled prevalence of stunting in Sub-Saharan Africa was about 35 %. Of the sub-regions, the highest prevalence of stunting was in East Africa 37 % followed by Central Africa 35%.(10)

According to a cross sectional study conducted in Kosti Locality, White Nile State, Sudan prevalence of stunting was 51.4%,(11).

According to a community based cross-sectional survey conducted West Gojam zone revealed that 49.2 % children were found to be under-weight 43.2 % of the children under age five were suffering from chronic malnutrition and 14.8 % acutely malnourished. (12). The cross sectional survey Conducted in Angolela tera district, northeast Ethiopia revealed that the level of stunting was 39.4% (13). The cross sectional survey Conducted rural communities of Tigray region also revealed that, the levels of stunting was 47%. (14)

EDHS 2019 shows that 37% of children under age 5 are stunted, and 12% are severely stunted. Seven percent are wasted and 1% severely wasted. Twentyone percent of children are underweight, with 6% severely

underweight. Only 2% of children are overweight. The proportion of children who are stunted is highest in Tigray (48%), Afar (42%), and Amhara (42%), whereas the proportion of wasting is highest in Somali (21%), Afar (14%), and Gambela (13%).(6)

According to a Cross sectional study conducted in Dubti district in Afar region, the Prevalence of stunting was 39.5%. Prevalence of severe stunting was 9.9%. (12)

According to a community-based cross sectional study was conducted in the Arba Minch Health and Demographic Surveillance Site, Southern Ethiopia ,the prevalence of stunting among was 47.9%(15). A Cross sectional study conducted in wonago district in Gedeo zone, the Prevalence of stunting was 37.7%. (16). A Cross sectional study conducted in Wogera woreda, North Gonder Zone, Amhara region, Ethiopia, The prevalence of was 46.9%.(17)

According to a Cross sectional study conducted in South Ari district, the prevalence of stunting was 59.97%. (18). According to research conducted in West Guji district Oromia region indicated that, 31.8 % stunted. Prevalence of severe stunting was 19.9 % .(19)

According to a cross-sectional quantitative survey conducted in kersa oromia, Ethiopia revealed that the prevalence of stunting was 53.9%. The prevalence of severe stunting was 36.9%, and the prevalence of moderate stunting was 16.5%. Boys were more likely to be stunted 56.5%, than girls 51%. Severe stunting was also more prevalent among boys than girls. In contrast, moderate stunting was more common among girls than boys (18.2% vs. 14.1%, respectively).(20). According to a community based cross sectional study conducted in zuway dugda ,Arsi z zone, Ethiopia. The prevalence of stunting in this study area was 46.2% (21). According to a community based cross sectional study conducted in Robe woreda ,Arsi

Zone ,Ethiopia, revealed that The prevalence of stunting in the study area was 39.4 %(5)

2.2 Risk factors for the problem

2.2.1. Socio-demographic factors

The causes of chronic malnutrition are numerous and multifaceted. These causes are intertwined with each other and are hierarchically related. The most immediate determinants are poor diet and disease which are themselves caused by a set of underlying factors; household food security, maternal/ child caring practices and access to health services and healthy environment. These underlying factors themselves are influenced by the basic socio-economic and political conditions.(22)

According to the Study conducted in Indonesia shows rural children are less likely to be severely, mildly and moderately stunted as compared to urban children. 32% of rural children are stunted against 27% of urban (9).

According to 2019 EDHS) the prevalence of stunting among children whose mothers have no education is 42%, as compared with 22% among children whose mothers have more than a secondary education. Children in rural areas are more likely than those in urban areas to be stunted (40% versus 26%), underweight (23% versus 15%), and wasted (8% versus 5%). (6)

According to the study conducted in Robe, Arsi Zone, Ethiopia shows, out of 915 under-five children, 901 participated with a response rate of 98.5 %. More than five-sixth (84.4 %) of respondents were from rural whereas the majority, 802(89 %) of them were married. More than two-fifths (47.5 %) of study participants didn't attend formal education and 732 (81.2 %) of the respondents were housewives followed by farmers, 63(7 %). The majority of the caregivers 455 (50.5 %) were Muslim religious followers followed by Orthodox (42.70 %). (5)

2.2.2. Behavioral factors

The study conducted in afar shows 56.3% of the children were males and 20.0% of them were aged 6–11 months with a median (IQR) age of 31 (IQR = 19) months. More than one-third of children were second by birth order and 99.1% of the children were singletons. More than half (52.5%) of the

children were born at home, 79.2% of mothers started breastfeeding with colostrum within one hour immediately after birth and the majority (80.5%) of the children were breastfed exclusively for at least six months. (12)

The study conducted in wonago shows Out of 412 children under five years of age from biologic mothers who were assessed for feeding status, 316 (76.7%) had feed colostrum. Out of 346 children under five years of age assessed for breastfeeding duration (≥24 months children), 177 (51.2%) fed on breast milk for less than two years and 169 (48.8%) fed for greater than or equal to two years. Concerning initiation of supplementary food, 217 (35.3%) of children under five years of age got supplementary feeding at six months, while 127 (20.7%) of them began before six months, and 69 (11.2%) of them began later than six months of life. Access to diversified diet and food security status of beyond half of the households in this study area were found to be good 342 (55.6%) and secured 370 (60.2%) respectively.(16)

2.2.3. Maternal Care

The study conducted in Ziway Dugda Woreda shows, the majority of the age of mothers at first pregnancy and when the youngest children born were present in the age range of 20 - 24 and 25 - 29 years, respectively. The mean age of them was 21.4 ± 3.8 and 27.8 ± 4.9 years, respectively. More than half of the study participant's mothers, 444 (66.5%) started FANC visits at 16 - 28 weeks of gestational age. The mean GA of mothers of study subjects started FANC visit at 16 ± 4.1 weeks. However, only 211 (31.3%) of the mothers had four and more FANC visits as recommendations of WHO. More than one-third of mothers, 324 (42.4%), had a pre pregnancy weight of 55 - 64 kg during the last pregnancy and followed by a mother who weighed 40 - 54 kg that accounts for 262 (34.3 kg) (21)

2.2.4. Environmental Health Conditions

According to the study conducted in robe shows, of 901 study participants, 597(66.3 %) had latrines and 158(26.5 %) of them had improved latrines. A majority, 285(31.6 %) of the households were using the public tab followed by river (228, 25.3 %) as a source of drinking water. Nearly three-fifths, 545(60.5 %) of the households treat their drinking water before usage.(5)

According to the study conducted in southern Ari district shows nearly half (340) of the households had an unimproved water source, and most of the households, 496 (69.2%), did not treat drinking water to make it safer. A latrine was available in a majority of the households, 657 (91.6%), and 363 (55.3%), used ventilated improved pit latrines (VIP). The majority of the respondents wash their hands after using the toilet (90.8%), before preparing food (79.6%), and before serving food (69.3%) .(18)

2.2.5. History of illnesses

According to a community based cross sectional study conducted in in Arba Minch Health and Demographic Surveillance Site (HDSS), Southern Ethiopia shows, Ninety-four (14.4%) children had illness two weeks preceding this survey.) the most common reported illness was respiratory tract infection (41.5%), followed by skin rash (27.7%) and diarrhea (26.6%). Among the total mothers participated in the study, nearly 89% had ANC visit, and more than half (56.7%) delivered their index child at home.(15)

2.2.6. Health System related factors

Through political will, leadership, and prioritization of nutrition, this study of stunting decline in Ethiopia shows a multifactorial story of change. Nutrition-specific and -sensitive approaches focused on the agricultural

sector to increase household food security and decrease poverty, the health sector to increase service utilization and health care access, and multi sectorial efforts to improve access to sanitation and reduction in open defecation.(23)

In general, the problem of Stunting is worldwide and the magnitude still persists despite change in economic growth and improvement of health infrastructure. Sub-Saharan African countries' including Ethiopia is the most vulnerable region for this problem. According to studies conducted in different countries, the causes of Stunting are numerous and most of them related to socio demographic characteristics, child characteristics, behavioral factors ,health system related factors and environmental condition.

2.3 Conceptual frame work

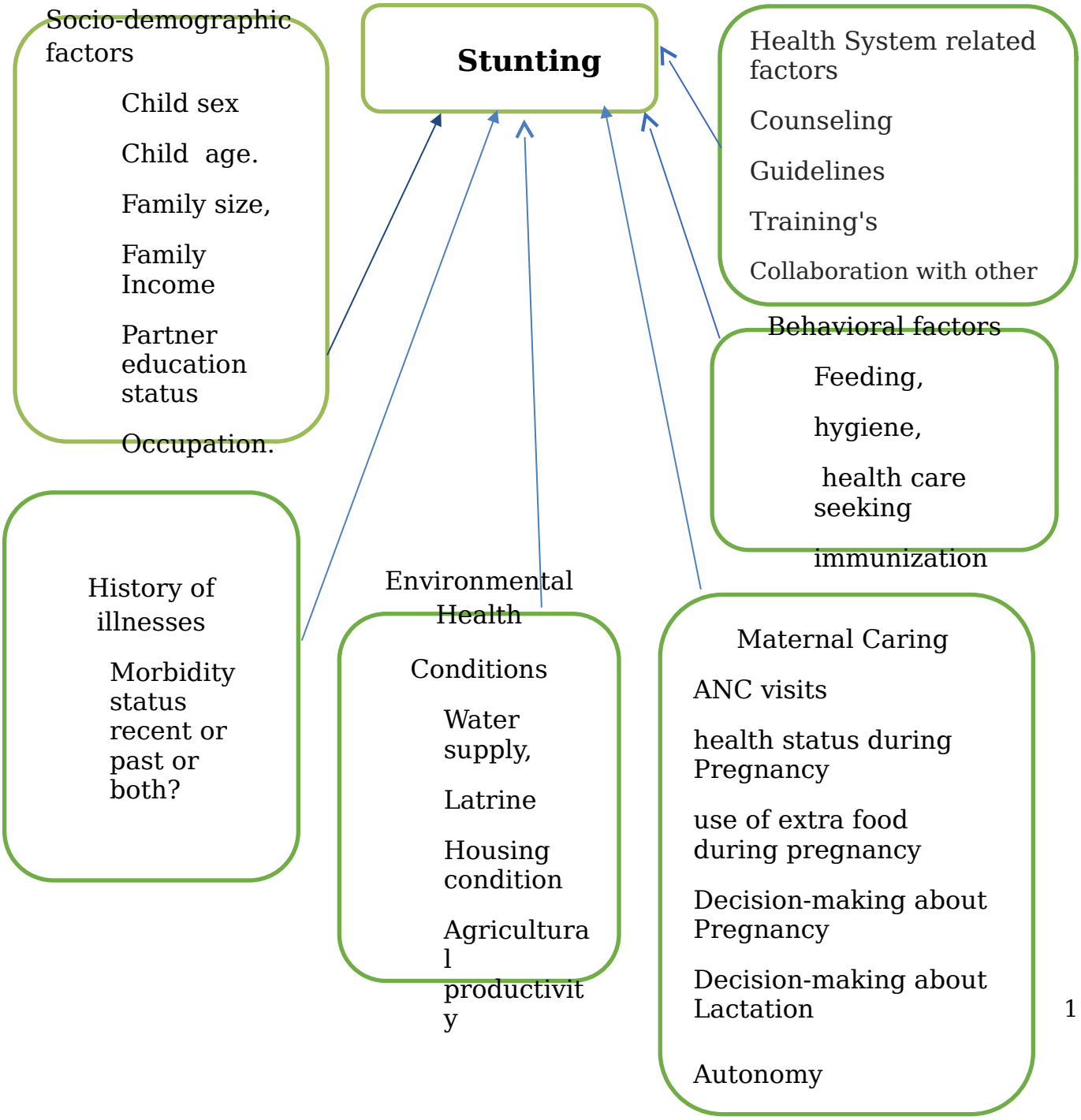


Figure 1 : Conceptual framework developed by investigator after reviewing different literature on stunting at Adami Tulu Jido

3.1. General objective

To assess Prevalence of stunting and associated factors among 6-59 months aged children at Adami Tulu Jido Kombolcha Woreda, East shawa, Oromia Region, Ethiopia, 2025

3.2. Specific objectives

To determine the prevalence of stunting among 6-59 months children aged at Adami Tulu Jido Kombolcha Woreda.

To describe the types of malnutrition among 6-59 months children aged at Adami Tulu Jido Kombolcha Woreda.

To identify factors associated stunting among 6-59 months children aged at Adami Tulu Jido Kombolcha Woreda.

4. METHODS

4.1. Study design and period

Community based cross-sectional study will be conducted among 6-59 months children in Adami Tulu Jido Kombolcha woreda East shawa zone, Oromia region, Ethiopia from March 25 to May25,2025.

4.2. Study area

The study area is Adami Tulu Jido Kombolcha Woreda, which is found in the East shawa zone and located 165 km from Addis Ababa and 110 km from Adama, the capital city of the East shawa Zone. According to the 2024 woreda health office (WoHO) population profile, the woreda has a total population of 170754, households 35574, and 28059 were 6-59 months children. The woreda has 3 administrative towns with 34 rural kebeles and has 6 Primary Health Care Units (PHUC) with 31 health posts (H/P). The area has a lowland climate with short rain occurring between March and April and long rain between July and September. People in the area predominantly grow cash crops such as cereal grains (wheat, barley, maize, sorghum, and teff) and vegetables (such as carrots, cabbages, onions, and tomatoes), and legumes (such as beans) are commonly grown in the woreda with some additional livestock (Adami Tulu Jido Kombolcha Woreda Health Office, 2024).

4.3. Source and Study population

4.3.1. Source population

All children 6-59 months of age (paired with their mothers or caregivers) in the Adami Tulu Jido Kombolcha woreda.

4.3.2. Study population

Children of 6-59 months (paired with their mothers or caregivers) who live in the woreda in selected kebeles during the study period.

Inclusion criteria: - All children 6-59 months old who will be live in the selected households.

Exclusion:- child with illness.

4.4 Sample size and sampling procedures

4.4.1. Sample size determination

The sample size is determined using a single population proportion formula by using the prevalence of stunting in Robe Woreda, Arsi zone, and Oromia region, which is 39.4%. (5), 95% confidence interval (CI), marginal of error 5%, and 10% non-response rate will be added to the total sample size computed.

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

Where: n = Sample size

$Z\alpha^2$ = Critical value =1.96

P = Expected proportion of population=39.4%

d = Precision (marginal error) =0.05

$$n = \frac{(1.96)^2\ 0.394(1- 0.394)}{(0.05)^2} = 367$$

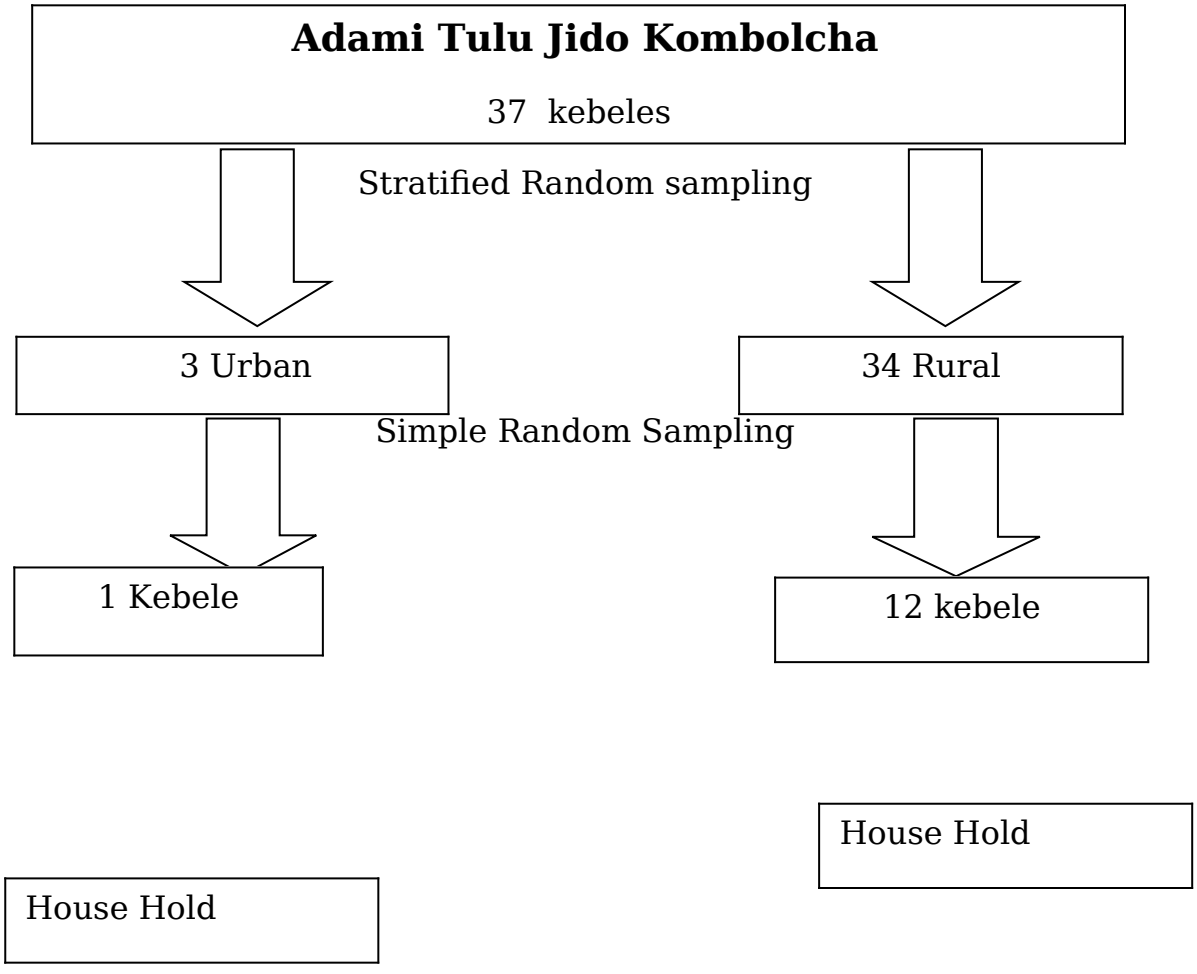
n= 367

The calculated sample is 367 by design effect of 2; it will be 734, and by adding a 10% non-response rate, the sample size is 807.

4.4.2. Sampling procedure

The study will use multi-stage sampling to include participants. Thirty seven kebeles throughout the woreda will be divided into urban and rural kebeles at the initial sampling stage. A basic random sample method will be used to choose eleven kebeles (twelve from rural and one from urban areas) for the second stage. Through systematic random sampling from the health post family folder of the chosen kebeles, 7975 households with at least one child aged 6 to 59 months with their caregivers/mothers would be identified in the third stage with the assistance of health extension workers.
The calculated sample (807) will be proportionally allocated to the selected kebeles based on the total number of households with children aged 6-59 months in each kebele.

When more than one child is present in a selected household, a lottery method will be used to select one child. If the select household participant is not at home on the day data is being collected, a revisit will be tried at least two times; if they are still unavailable after the second attempt, I will move on to the next interval.



807 sampile size

4.5. Variables of the study

4.5.1 Dependent variable:

Stunting

4.5.2 Independent variables

In this study factors will be assessed as independent variables;

Socio- demographic variables: Head of Households, marital status, ethnicity, religion, family size, income, education, occupation, ownership of livestock and farm land.

Child characteristics: Age, Sex, birth order, place of delivery, gestational age, types of birth, breastfeeding practice.

Behavioral factors: Feeding, hygiene, health care seeking and immunization

Maternal Caring: age, number of children ever born, ANC visits, extra food during pregnancy/lactation, health status during pregnancy, use of extra food during pregnancy or lactation.

History of illnesses: Morbidity status (fever, measles, diarrhea and ARI) recent or past or both.

Health System related factors: Counseling, Guidelines, Training s, Collaboration with other.

Environmental Health condition: Water supply, sanitation and housing condition.

4.6. Operational definitions

Complementary food: - Foods which are required by the child, after six months of age, in addition to sustained breastfeeding.

Recurrent Episodes of Diarrhea:- child who had two or more an episode of diarrhea Begins with a 24-hour period with three or more loose or watery stools and an episode of diarrhea is considered to have ended after 48 hours without three or more loose or watery stools within a 24-hour period This was determined as perceived by mother.(22)

Malnourished: A child will be labeled as malnourished if any of the nutritional assessment indices weight for height, weight for age, or height for age is below -2SD(cut-off point). (22)

Stunting: A child was defined as stunted if the height for age index was found to be below -2 SD of the median of the standard curve. Severe stunting was diagnosed if it was below -3 SD. (22)

Wasting: Nutritional deficient state of recent onset related to sudden food deprivation or mal-absorption utilization of nutrients which results weight loss, weight-for-height below-2SD from the NCHS/WHO median value and MUAC <12.5cm. Severe wastage will be diagnosed if it will be below -3 SD or MUAC <11.5 cm.(22)

Underweight: Refers to a deficit and is defined as underweight below the -2 SD from the NCHS/WHO reference of the median of the standard curve. A severely underweight was diagnosed if it was below-3 SD.(22)

Anthropometry: Measurement of the variation of physical dimensions and the gross composition of the human body at different age levels and degrees of nutrition by weight-for-age, height-for-age and weight-for-height.(22)

4.7. Data collection tools and procedures

Data will be collected using structured and pre-tested questionnaires. The questioner will be prepared in English and translated to the local language (Afan Oromo) and back to English to maintain the consistency of the data by reviewing literature in order to address the objectives of the study on one kebele of Oitu PHCU, which is not included in the study. Data collection will be conducted by data collectors. Seven data collectors from health workers and one supervisor will be participated in the data collection process. Training for data collectors and supervisors will be given for one day by the investigator. The questionnaires will be pre-tested to identify potential problems with the questionnaires, unanticipated interactions, and cultural objectives of any of the questions in 5% of respondents having similar

characteristics to the study subjects nearby. Based on the pre-test results, the questionnaires will be additionally adjusted contextually and terminologically and administered on the whole sample of children6-59 months of age from March 27, 2025, to April 9, 2025.

Anthropometric Data

Data will be collected using the procedure designed by the WHO for anthropometric measurements. Before measuring anthropometric data for children, their age will be determined first to ensure the eligibility criteria. Then after their age is determined the anthropometric data will be collected through measurement of length/height and weight of all children.

Age

To estimate the child's age, first data collectors will be obtained from the mother interview and ensured by using a birth certificate or vaccination cards, and we used a "local-events "calendar.

Weight

Weight will be measured with minimum clothing and no shoes using a hanging scale and electronic beam balance in kilogram for those 6–24 months and 24–59 months respectively, to the nearest of 0.1 kg.

Height/Length Measurement

Measurement of length will be done in a lying position with a wooden board for children of age 6–24 months, and measurement of height for children above two years stature will be measured in a standing position in centimeters to the nearest of 1 cm. WHO Anthro version 3.2.2 software will be used to convert the anthropometric measures—weight, height/length, and age values—into Z-scores of the indices: height-for-age (HAZ), weight-

for-height (WHZ), and weight-for-age (WAZ), taking sex into consideration using WHO 2006 standards.

A low height-for-age, below -2 SD of the reference population, indicates stunting, while below -3 SD indicates severe stunting. A low weight-for-height, below -2 SD of the reference population, indicates wasting, while below -3 SD indicates severe wasting. A child with a weight-for-age z-score below -2 SD of the reference population is underweight, while a child below or at -3 SD is severely underweight.

Mid Upper Arm Circumference (MUAC)

Mid Upper Arm Circumference (MUAC) will be measured using non-stretchable tape on the left mid upper arm to the nearest 1 mm. MUAC below 12.5 cm indicates acute under nutrition. Edema will be assessed by applying medium thumb pressure on the upper side of both feet for three seconds. It will be diagnosed if a bilateral depression (pitting) remains after the pressure is released. Counter-checking of the daily filled questionnaire on regular supervision will be made by the supervisor, and if something is wrong, a correction will be taken again.

4.8. Data quality assurance

The questionnaire will be initially prepared in English after reviewing literature by investigators and translated into Afan Oromo and back to English by language experts to keep the consistency of the questions. Training of data collectors and supervisors and pre-testing questionnaires on 5% of the sample will be made to ensure the quality of data. The principal investigator and supervisor will make spot-checking and reviewing the completed questionnaires on a daily basis to ensure completeness and consistency of the information collected. Double data entry will be done in

EPI INFO 7 statistical software and then exported to SPSS version 29.0 for further analysis.

4.9. Data processing and analysis

Data will be entered, cleaned, and edited using EPI INFO 7 statistical software and then exported to SPSS version 29.0 for further analysis. Descriptive statistics of the collected data will be done for most variables in the study using statistical measurements. Frequency tables, percentages, means, and standard deviation will be used.

Then binary logistic regression analysis will be done for the outcome variables. The independent variables with p-value less than 0.2 during binary logistic regression analysis will be selected as candidate for multiple logistic regression analysis. Multiple logistic regressions will be fitted by using backward elimination technique to identify determinants of stunting and finally the association between dependent and independent variables will be assessed using AOR and 95% Confidence Interval (CI).Statistical association will be declared significant if p-value will be less than 0.05. Finally, the results of the study will be presented in tables, figures and text.

4.10. Ethical considerations

The study will be carried out after getting permission from the Institution Review Board (IRB) of Arsi University, and the solicitation to participate letter will be submitted to the Administration of Adami Tulu Jido Kombolcha Health Office from the department of public health. Then an informed consent will be obtained from each respondent. Those who will refuse to participate in the study will not be forced. Each respondent will be informed about the objective of the study. Participants with diarrhea, respiratory tract

infections, and under nutrition will be referred to health institutions and organizations working on nutrition.

4.11. Dissemination of results

The final report will be presented to the Department of MPH, Arsi University, and a copy will be given to the Adami Tulu Jido Kombolcha Health Office, the East Shawa Zonal Health Department, and other stakeholders. An attempt will be made to publish this research in reputable journals, and the findings will be presented at scientific conferences.

5. WORK PLAN

s.no	Activity	Months											Responsi
							Jun.						
1	Preparation of research proposal												Kedir Jemal
2	First submission of research proposal												
3	Final submission of research proposal												
4	Re-submission of final proposal												
5	Securing Ethical clearance												
6	Purchasing supplies												
7	Questionnaire pre testing												
8	Duplication of questionnaires												
9	Data collection												
10	Data entry and analysis												

11	First draft thesis preparation and submission												
12	Second draft preparation and submission												
13	Final thesis presentation												

Table 1: Ghant chart indicating schedule of activists on stunting at Adami Tulu Jido Kombolcha wareda from March 27 to April 9, 2025

6. BUDGET BREAKDOWN

Table 2: Budget and materials required for stunting thesis at Adami Tulu Jido Kombolcha Worada from March 27 to April 9, 2025

S. N	Item	Unit	Quantity	Unit price	Total price	Remark
1	Duplication	Piece	4000	800	20000	
2	Note book	No	15	80	900	
3	Lexis pen	No	50	30	1500	
4	Pencil	No	20	10	200	
5	Sharpener/Eraser	No	10	25	250	
6	Marker	Pac	3	250	750	
7	Biding	No	15	130	1650	
8	Flip chart	No	1	300	300	
9	Scientific calculator	No	2	550	1100	
	Sub total				**26650**	

No-	Personal	Unit cost	Number of staff	Per dime	Total working days	Total cost	Remark

1	Supervisor	No	1	466	15	6990	
2	Data collector	No	7	219	15	22995	
3	Data enter Clark	No	1	334.33	10	5015	
Sub Total						**35000**	

No-	Training	Unit	Quantity	Unit price per item	Total price per day*total days of training	Remark
1	Hall rant	No	1	1000	1000*2=2000	
2	Kukus	No	10	100	100*2=2000	
3	Tea /coffee	No	10	100	100*2=200	
	Sub Total				**6000**	
	Transport					

	Means of transport	Cost of transportation per person	total day	Total person use transport	**Total cost/unit price*person *day*frequency of transport/**	
	Cart	30	15	4	**30*15*4*2=3600**	
	Car	50	15	2	**30*15*4*2=1800**	
	Bajaj	50	15	2	**30*15*4*2=1800**	
	Sub total				**7200**	
	Total				**74850**	
	5 % Contingency				3382.5	
	Ground Total				**78232.5**	

7. REFERENCES

1. JME. Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates: Key Findings of the 2023 Edition. UNICEF, World Heal Organ World Bank Gr. 2023;24(2):32.

2. Adane B, Id T, Gezie LD, Alamneh TS. Pooled prevalence of stunting and associated factors among children aged 6 – 59 months in Sub-Saharan Africa countries : A Bayesian multilevel approach. PLoS One [Internet]. 2022;(1):1–19. Available from: http://dx.doi.org/10.1371/journal.pone.0275889

3. UNICEF UNCF. survey report 2023. Surv Rep. 2023;(national food and nutrition strategy baselinesurvey):1–30.

4. UNICEF ethiopia. Annual Report UNICEF ETHIOPIA. 2023.

5. Asefa A, Girma D, Weya A, Ferede A, Agero G, Kisi T. International Journal of Africa Nursing Sciences Prevalence of stunting and associated factors among under-five children in Robe Woreda , Arsi zone , Ethiopia. 2024;21(March).

6. Ethiopian Public Health Institute (EPHI), ICF. Ethiopia Mini

Demographic and Health Survey 2019: Final Report [Internet]. 2021. 1–207 p. Available from: https://dhsprogram.com/pubs/pdf/FR363/FR363.pdf

7. Afework E, Mengesha S, Wachamo D. Stunting and Associated Factors among Under-Five-Age Children in West Guji Zone, Oromia, Ethiopia. J Nutr Metab. 2021;2021.

8. Nutritional C. Ethiopia-Call To Action-June 2023 Current Nutritional and Humanitarian Context. 2025;(June 2023):1–11.

9. Yuliastini S, Sudiarti T, Sartika RAD. Factors related to stunting among children age 6-59 months in babakan madang sub-district, West Java, Indonesia. Curr Res Nutr Food Sci. 2020 Aug 1;8(2):454–61.

10. Beyene Teferi M. Prevalence of Stunting and Associated Factors among Children Aged 06-59 Months In Southwest Ethiopia: A Cross-Sectional Study. J Nutr Heal Food Sci. 2016 Dec 15;4(6):1–6.

11. Abdelrahman E, Ahmed M, Idriss SE, ... Factors affecting prevalence of stunting and associated factor among children aged 6-59 months, in Kosti Locality, White Nile State, Sudan. … J Appl … [Internet]. 2021;10(2277):1–18. Available from: https://www.thinkindiaquarterly.org/index.php/tjas/article/view/20267%0Ahttps://www.thinkindiaquarterly.org/index.php/tjas/article/download/20267/15051

12. Gebreayohanes M, Dessie A. Prevalence of stunting and its associated factors among children 6-59 months of age in pastoralist community, Northeast Ethiopia: A community-based cross-sectional study. PLoS One. 2022 Feb 1;17(2 February).

13. Mengiste LA, Worku Y, Aynalem YA, Shiferaw WS. Prevalence of Stunting and Its Associated Factors Among Children Aged 6–59 Months in Angolela Tera District, Northeast Ethiopia. Nutr Diet Suppl. 2020 Dec;Volume 12:311–9.

14. Fseha Teklehaimanot B, Gebremariam Welearegawi G. Prevalence of

Stunting and Associated Factors in Children of 6-59 Months' Old in Ethiopia. Vol. 9, International Journal of Child Health and Nutrition. 2020.

15. Bogale B, Gutema BT, Chisha Y. Prevalence of Stunting and Its Associated Factors among Children of 6-59 Months in Arba Minch Health and Demographic Surveillance Site (HDSS), Southern Ethiopia: A Community-Based Cross-Sectional Study. J Environ Public Health. 2020;2020.

16. Mengesha A, Hailu S, Birhane M, Belay MM. The Prevalence of Stunting and Associated Factors among Children Under Five years of age in Southern Ethiopia : Community Based Cross-Sectional Study. 2021;87(1):1–14.

17. Abie A. AA. Prevalence Of Stunting And Associated Factors Among Children Of 6-59 Month In Wogera Woreda, North Gonder Zone Amhara, Ethiopia: Bahir Dar University; 2020Abie A., Prevalence Of Stunting And Associated Factors Among Children Of 6-59 Month In Wogera Woreda. Ethiop Bahir Dar Univ. 2020;

18. Toma TM, Andargie KT, Alula RA, Kebede BM, Gujo MM. Factors associated with wasting and stunting among children aged 06–59 months in South Ari District, Southern Ethiopia: a community-based cross-sectional study. BMC Nutr. 2023 Dec 1;9(1).

19. Ahmed M, Zepre K, Lentero K, Gebremariam T, Jemal Z, Wondimu A, et al. The relationship between maternal employment and stunting among 6–59 months old children in Gurage Zone Southern Nation Nationality People's region, Ethiopia: A comparative cross-sectional study. Front Nutr. 2022 Oct 6;9.

20. Roba AA, Assefa N, Dessie Y, Tolera A, Teji K, Elena H, et al. Prevalence and determinants of concurrent wasting and stunting and other indicators of malnutrition among children 6–59 months old in Kersa, Ethiopia. Matern Child Nutr. 2021 Jul 1;17(3).

21. Gebrie M, Benti A. International Journal of Nutrition and Metabolism Stunting, feeding practice and its associated factors among children

age from 6-59 months in Ziway Dugda Woreda, Arsi Zone, Oromia Region, Ethiopia. Int J Child Heal Nutr [Internet]. 2021;13(1):1–15. Available from: http://www.academicjournals.org/IJNAM

22. Ministry of Health National Guideline for the Management of Acute Malnutrition in Ethiopia. ministy Heal. 2019;(May).

23. Tasic H, Akseer N, Gebreyesus SH, Ataullahjan A, Brar S, Confreda E. Drivers of stunting reduction in Ethiopia : a country case study. Am J Clin Nutr [Internet]. 2020;112(9):875S-893S. Available from: https://doi.org/10.1093/ajcn/nqaa163

8. ANNEXES

Annex 1: English version Information Sheet and Consent Form

This consent information is for mothers or caregivers who are included in the interview.

Title: Stunting and associated factors among 6-59-month-old children in Adami Tulu Jido Kombolcha Woreda, ArsEast shawa, Oromia Region, Ethiopia, 2025.

Name of investigator: Kedir Jemal Baneto

Institution order to collect data: Arsi University

Sponsors: Self

Hello, my name is _____. I am a student in the Arsi University Institute of Health Faculty in the masters of public health program. My study focuses on assessing the prevalence of stunting and associated factors among 6-59-month-old children in Adami Tulu Jido Kombolcha Woreda, East shawa, Oromia Region, Ethiopia, 2025. In this study, there are two advisors from Arsi University that help you to answer unclear things. Before the study or in the study, you can ask questions any time.

Objective: This questionnaire will be prepared to conduct a study on the prevalence of stunting and associated factors among the 6-59 month population to complete the questionnaire designed by the researcher because you fulfill the requirement for sampling. The finding of this study will help provide timely and proper nutritional and health care services to you and other children. Thus, this interview is prepared for this purpose to get appropriate data on the study we are conducting.

Confidentiality: The data that I will obtain using this interview will be used only for research purposes, and your response will be kept confidential. For this purpose, our names will not be written here, and there will be no way of linking our individual responses to the result of the study findings.

Potential risks and benefits: The study has no risk to you and your child except for sparing a maximum of 30 minutes of your time, and if you face any problem in relation to the research, you can contact the responsible person based on the address below.

Rights: You have the right not to respond at all or to withdraw in the meantime, but your participation is highly valuable for the success of our research objectives. Therefore, I politely request our cooperation to participate in this interview.

Do you agree to participate in this study? Yes, _____ continue. No, thank you.

Arsi University Public Health Bureau

Phone:_____

E.mail: _____

Address of Investigator :**Kedir Jemal Baneto**

Phone: 0913578446

E.mail: kedirjemal.kj@gmail.com

Address of first advisor: Muhammedawel Kaso

Phone: 0911288053

E.mail: muhammedawel@gmail.com

Address of second Advisor :Masfin Tafa

Phone: 0910867389

E.mail: mesfintafa2011@gmail.com

Annex 2: English version of Questionnaire

001. list of questionnaire number /_____/_____/

002. Name of data collector _____

003. Date of interview _____

004. Adderes: 1. urban 2. rular

005. Result: 1. all filled 2. partial filled 96. other (specify)

Name of supervisor _____ signature_____

I. Questioner

PART ONE:SOCIO-DEMOGRAPHIC VARIABLES			
No	Question	Response	Skip/ Remark
101	Head of the HH	1.Male 2.Female	
102	Marital status	1. Married 2. Divorced 3. Widowed 4. Separate 5.Single	
103	Total family size(How many person live in the HH)	In Number_____	
104	How many children <5 year live in the HH	In Number_____	
105	Maternal education Have you ever attended basic education	1.Yes 2.No	If no, Skip to 107
106	What is the highest grade you completed?	Grade____1.Technical/Vocational 2.Diploma 3. Degree 96.Other(specify)	Skip to 109
107	Do you able to read and write?	1.Yes 2.No	
108	Paternal education Have your husband ever attended basic education	1. Yes 2. No	If no, Skip to 113
109	What is the highest grade he completed	Grade_____ 1.Technical/ Vocational certificate 2.College/ University Diploma 3.	

		College/University Degree	
110	Has he ever attended Informal education?	96. other (specify	
111	Does he able to read and write?	1yes 2.No	
112	Occupation of mother (More than one answer is possible)	1.House wife only 2.Farmer 3.Merchant/Trade 4.Private Organization employee 5.Govemment employee 6. Daily laborer 7.Other (specify)	
113	Occupation of husband (More than one answer is possible)	1.House wife only 2.Farmer 3.Merchant/Trade 4.Private Organization employee 5. Government employee 6. Daily laborer 96. Other (specify)	
114	Monthly income of the HH	----------Birr	
115	Who decides how the money you earn will be used?	1.Mainly spouse 2.Mainly husband 3.Only husband 4.Both jointly	
116	Do you have some control and power (autonomy) in decision making	1.Yes 2.No	If no ,skip to 120
117	Do you have livestock, herd or farm animal?	1.Yes 2.No	

118	If yes, how many? Milk cow, oxen and bulls? Goat? Sheep? Chicken? Horse, donkey mule? In total	---------- number ---------- ---------- ---------- ---------- ----------	
119	How many agricultural lands do you have?	1.Do not have 2.------Local unit) kart or Hector 99.Do not know /not sure	
120	Ethnicity	1.Oromo2.Amara 3.Tigre 4. Gurage 5. Zeyi 96. Other (specify)	
121	What is your religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 96. Other (specify)	
PART TWO:CHILD CHARACTIRSTICS (RANDOMLY SELECT)			
201	Child's sex	1.male 2.Female	
202	Child's age	------months	
203	Birth order	---------- the	
204	Place of delivery	1.Home 2.Health institution 96.Other (specify	
205	Gestational age at birth	1.Less than 9 months 2.At 9 months 3.Greater than 9 months 99. Do not know /Not sure/	
206	Was your child weighed at birth	1.Yers 2.No	If no ,skip to 208
20	How much was the weight?	---Grams	

7		(card/recall)?	
111	Has he ever attended	96other (specify	I
208	When child was born, How big was he/she?	1.Very large 2.Larger than average 3.Average 4.Smaller than average 5.Very small 99 Don't know	
209	Types of birth	1.Single 2.Multiple/Twin/	
210	Did you have plan (Want) to give birth of the child?	1.Yes 2.No	
111	Does the child every immunized?	1.Yes 2.No	
212	Vaccines received (see card, if no card available ask them to recall) More than one answer is possible)	.1BCG only (see scar 2.DPT (No of dose----) 3.measles 4.No card found	
213	Vit.A supplementation in the past six month?	1. Yes 2. No 99.Don't know/not sure	
214	What do you think is the frequent heath problem to the child	_____ Disease/s	
215	Has the child had diarrhea in the last two weeks	1. Yes 2. No 99. Do not know/not sure	
216	How frequent in a year	1. Once 2. Twice 3. 3-4times 4.>5 times	
217	Has the child been ill with fever at any time in the last two weeks?	1 .yes 2. No 99. Don't' know/not sure	
218	Presence of respiratory disease in the last two weeks	1. Yes 2. No 3.Do not know /not sure	
219	Has the child get sick with measles in the last year	1. Yes 2. No 3.Do not know/not Sure	
22	Presence of edema on the child	1. Yes 2. No	

0	(Observe)		
PART THREE : BEHAVOIRAL FACTORS			
301	Did you every breast fed the child ?	1.Yes 2.No	If yes, skip to 303
302	If no, reason for not breastfeeding?	Reason----------	
303	How long after birth did you first out the child to breast feed?	1.Immediately 2.--------Hours (if less than 24hours record hour) 3.----------days 99. Don't know/not sure	
304	Did you give the child per-lactation food/fluid?	1.Yes 2.No	
305	If yes, what did you gave him (her)?	1. Water 2. Butter 3.Milk 96 .other (specify)	
306	Did you squeeze out and throw the first milk?	1. Yes 2. No	
307	Are you still breastfeed?	1.Yes 2.No	
308	How many times in the last 24 hours you breastfed?	----------times	
309	Do you breast feed in the night?	1.Yes 2.No	
310	Did you give the child additional food or fluid other than breast milk in the past 48	1.Yes 2.No	
311	If yes, what ingredients you gave? More than one answer is possible)	1. Cow's milk 2. Butter 2. Sugar Solution. 4. Formula milk 5. Atmiet /Bula 96. other (specify)	
312	How many times in24 hours?	_____time	
313	At what age did you start feeding other additional food?	Month ----------	
31	what do you used to feed the	1. Bottle 2. Cup	

4	child	3. Spoon 96. Other /Specify /	
315	How many months did you breast - feed the child?	_____ Month 99. Don't know /Not Sure/	
316	For how may months did you exclusively breast - fed the child?	_____ Month 99. Don't know /Not Sure/	
317	Who is usually taking care of the baby feeding?	1. Mather 2. Sister 3. Grand Mother 4. House Maid 96. Other /Specify /	
318	During the illness, has the child feeding practice changed?	1. Yes 2. No	If no , skip to 320
319	How could the practice have changed?	1. Preventing from breast 2. Preventing from Giving food 3. Providing Additional food 96. Other /specify /	
320	If yes how frequent you wash it?	1. Twice daily 2. Once Daily 3. Every Other day. 4. Immediately after use 96. Other /Specify /	
321	bath taking of the child	1. Daily 2. Weekly 96. Other /specify/	
322	How did you usually treat your child when get sick	1. Usually home treatment 2. Taking to traditional healers 3. Taking to Health Institution 96. Other /specify /	
323	have you ever take your child to health institution for sickness	1. Yes 2. NO	If no ., go to part 4
324	How many times have you ever taken the child to health institution getting sick?	_____ Times 99. Don't know /Not sure	
PART FOUR : MATERNAL CONDITIONS			

401	mother/s age in years	Year completed _____	
402	age at first birth	____ Years	
403	age when the youngest child was born	_____ Years	
404	Total number of children ever born?	In Number_____	
405	Per-pregnancy weight /of the last pregnancy /	In kilogram _____ 99. Don't know /Not Sure /	
406	During pregnancy of lactation , did you consume	1. Yes 2. NO	
407	Health status during the pregnancy	1. Good 2. Not Good /sick	
408	Did you visited health facility for ANC	1. Yes 2. NO	If no .Skip to 411
409	At what months of the pregnancy you started ANC	At _____ Months 99. Don't Know /NO Sure /	
410	How many times you Visited health facility for ANC during the pregnancy	_____ times	
411	Do you know about family Planning?	1. Yes 2. No	If no , skip to 415
412	Have you ever used family planning methods	1. Yes 2. NO	If no , skip to 415
413	Which method have you ever used? (More than one answer is possible)	1. Pills 2. Depo – Provera 3. Norplant 4. Condom 96. Other /Specify/	
414	Do you use it know?	1.Yes 2.No	
415	When do you usually wash your hands? (More than one answer is possible)	1. After latrine use 2. Before preparing food 3. Before serving food 4. After cleaning child faces 96. Other (specify)	

416	How do you wash your hand?	1. Using water only 2. Using soap some times 3. Using soap always 4. Using ash some times	
417	What do you think your child physically looks	1. Thin 3. Tall 2. Heavy 4. Normal 3. Small	
418	For how long do you think should a child Exclusively be breast-fed?	in month_____	
PART FIVE: ENVIRONMENTAL CONDITIONS			
501	What is your main source of drinking water?	1. River 2. Pond 2. Un protected spring. 3. Protected spring. 4. Private well 5. Public tap 96. Other (specify)	
502	Amount of water used in the household daily?	In liters_____	
503	How long does it take you to go and come back? To fetch water?	In minutes_____	
504	Do you treat water in any way to make it safer?	1. Yes 2. No	
505	Do you have latrine?	1. Yes 2. No	
506	Type of latrine you use? (Observation)	1.Private pit / wooden slab 2. Private slab / cement slab 3. Shared latrine/wooden slab 3. Shared VIP latrine 96. Other (Specify	
507	How do you dispose garbage?	1. Open field disposal. 2. In a pit 3. Common pit 4. Composting	

		5. Burning 96. Other (specify)	
508	Type of House (Observation)	1.Tukul/thached 2. Corrugated Iron Sheet 96. Other(Specify)	
509	How many rooms for use by the member of your household? (Excluding kitchen and store)	_____in number	
510	Type of house floor (Observation)	1.Tukul/thached 2. Corrugated Iron Sheet 96. Other(Specify)	
511	Floor area of the house per person	_____ m^2	
512	Presence of windows (Observation)	1. Yes 2. No	
513	Do you have separate room which is used as Kitchen?	1. Yes 2. No	
514	If you have livestock, do you have separate rooms for them?	1. Yes 2. No	
515	What type of fuel do you mainly use for cooking?	1. Wood 2. Kerosine 3. Electricity 4. Others	
PART SIX :- HEALTH SYSTEM FACTORS			
601	Have you gain counseling on malnutrition?	1. Yes 2.No	
602	Have you ever participate community based training on nutrition?	1.yes 2.No	
603	Is there collaboration work with defendant sectors for prevention of malnutrition?	1.yes 2.No	
604	If yes For Q703 with which sectors?	1. Health sectors 2. Education sectors 3.Agriculture sectors 4.Security sectors 5.Social affairs sectors 96. others	

605	Is there guideline?	1.yes 2.No	
606	If Yes from whom you haired information?	1. HEW 2. Radio/Television 3.pairs 4.community leaders 96.others	
PART SEVEN :- ANTHROPOMETRIC MEASUREMENT			
701	Height/Length	_____Cm	
702	Wieght	_____Kg	
703	MUAC	_____**Cm**	
704	Odaema	1.yes 2.No	
705	If yes Q 704, grade of odaema	1. + 2.+ + 3.+++	

Annex 3: Afaan oromoo (local language) version information she et and consent form

Anneksii: Odeeffannoo fi waliigaltee Afaan oromiffaan

Odeeffannoo fi waliigalteen Kun Kan qophaa’e haadhoolii yookiin kunuunsitoota qorannoo kanaa keessatti hirmaataaniif.

Mata-duree qoranichaa: Baldhinaa qucaaru da’immaan baatii 6-59 fi sababoota kanaaf gumaachaan.

Maqaa Nama qorannoo gaggeessuu: Kadiir Jamaal Baanatoo

Maqaa dhabbata qorannoo gaggeesiisisuu: Yuunivarisiiti Arsii

Qaamaa spoonsara ta’e: dhuunfaan

Seensaa: Waraaqan waliigaltee Kun Kan qophaa’e waa’ee qorannoo keessaatti akka hirmaattan gaafatamtaniif ibsaa kennuuf. Waliigaltee uumuun duraas ta’e booda, waa’ee qorrannicha ilaalchisee waan ifaa hin taanee gaafachuu Ni dandeessuu. Qorrannichi qorata tokkoo, odeeffannoo sassabdoota torbaa, to’ata tokko, gorsiitoota Yuunivarsiiti Arsii lama qaba.

Kaayyoo Qoraannichaa: Baldhinaa qucaaru da’immaan baatii 6-59 si fi sababoota kanaaf gumaachaan Anaa Adamii Tulluu Jidoo kombolchaa, Goodinaa shawaa bahaa, addaan baasu.

Adeemsaa: Odeeffannoon yookiin ragaan qorannoo kanaaf barbaachisaan Kan sassabamaa afii gaaffiidhaan.

Miidhaa yookiin quqaamaa: Qorannoo kana keessatti hirmaachuu keessaanniin yeroo muraasaa isin jalaa qisaaseessuun alaatti, miidhaan inni qabu hin jiru.

Bu’aaleewwaan qoraannichaa: Qoraannoo kanaa keessatti hirmaachuu keessanin kallattin isin fayyadu dhisuu malaa, garuu murtee keennitoota fi ogeesoota fayyaatif barnoota waliigalaa sirnaa nyaata daa’immaan irratti haadhooleef, guddiftoota fi hawaasa waliigalaatiif akka qophaa’u Ni gargaara.

Haala kafaaltii: Qorannoo kana keessaatti hirmaachuu keessaniif kafaltiin isinif kafalaamuu homaatuu hin jiru.

Iccitti eeguu: Ragaan qoraannichaa fi hirmaattoota irraa sassabamuu qoratich malee, Nama birootif Kan hin saaxilaamnee fi maqaa Kan hin qabnee ta’e, lakkofsi adda ittin bahu kennameef kuusaa faayila raga keessa iccitin kaawaama.

Mirgaa hirmaachuu diduu yookiin addaan kuutuu:

Qorannichaa keessatti hirmaachuu diduus ta’e, addan kutuu mirgaa guutuu qabduu.Gaaffiilee qoraannicha muraasa yookiin hunduumaf deebii kennu dhiisuu Ni dandeessuu**.**

Madda odeeffanno dabalata irraa argatan:

Qorannichi Kun biiroo qorannoo fi taajaajilaa hawaasummma Yuunivarsiiti Arsii koree namuusaa fi qulqullessituun ilaalamee mirkaana’a.Gaaffii qabdaan kamiiyyuu filannoowwan armaan gadii fayyadamuun argachuu Ni dandeessuu.

Qorannoo kana kessaati hirmaachuuf eyyaammamoodha? 1. eyyee _____ittiifufii 2. lakkii_____ galatooma

Biiroo qorannoo fi taajaajilaa hawaasummma Yuunivarsiiti Arsii

Lakk.bilbilaa_____

E.mail_____

Qorataa: Kadiir Jamaal Baanatoo

Lakk.bilbilaa: **0913578446**

E.mail: kedirjemal.kj@gmail.com

Gorsaa duraa: - Muhaammaadawaal Qasoo

Lakk. Bilbilaa 0911288053

E.mail: muhammedawel@gmail.com

Gargaara gorsaa: Masfiin Xaafaa

Lakk.bilbila**:** 0910867389

E.mail: mesfintafa2011@gmail.com

Hirmaannaa keessaaniif galaatooma

Annex 4: Afaan oromoo (local language) version questionna ire

Gaaffi Afaan Oromiffa

001. Lakkoofsa waraqaa gafii /_____/_____/

002. Maqaa Nama gaafatuu _____

003. Guyyaa gafii fi deebbi _____

004. Teesso: 1. Magaala 2. Badiyaa

005. Firii: 1. Hundi guutame 2. Walakaa guutame 96.kan biraa (Ibsi)

To’ata hordofe: Maqaa _____ Mallattoo _____

KUTAA TOKOFAA: GAFILEE HAWASSUMMAA FI DINAGDEE			
Lakk	**Gafii**	**Debii**	**Dar/Ibsa**
101	Abban mana?	1. Dhira 2. Dubartii	
102	Haala gaa’ila	1. Walin jiru 2. Wal-hikan 3. Irra dudhe 4. Addan bahan 5. Qophaa	
103	Bayina matii mana keessa jiratuu?	_____ lakkofsan	
104	Bayini ijoole wagga<5 mana kessa jirani	_____ lakkofsan	
10	barumsa hadha mana	1. Eye	

5	Barumsa idlee baratanii beektu?	2. HIn-baraee	
106	Sadarkaanb barumsa idlee xumurtani meeqa?	1. Kutaa _____ 2. Barumsa oogummaa sartifikeeti 3. Diplomaa 4. Digrii 96. kan biraa (Ibsi)	
107	Dubisuu if barreessu dandeessu?	1. Eye 2. Lakkii	
108	Barumsa abba mana Abban mana keessan barumsa idlee barataniiru?	1. Eye 2. HIn-baraee	
109	Sadarkaan barumsa idlee xum, urani meeqa?	1. Kutaa _____ 2. Barumsa oogummaa sartifikeeti 3. Diploma 4. Digrii 96. kan biraa (Ibsi)	
110	Barumsa idlee aala barataniiru?	1. Eye 2. Lakkii	
111	Dubisuu fi bareessu ni-danda'u?	1. Eye 2. Lakkii	
112	Jiruun hadha mana (Deebiin took ol ni-danda'ama)	1.Hadha mana qofa 2. Qotee bulaa 3. Daldalaa 4.Hojjataa jarmiyaa dhunfaa 5. Hojjataa mootummaa. 6. Hojjataa guyyaa 96. kan biraa (Ibsi)	
113	Jiruun abba mana (Deebiin took ol ni-danda'ama)	1. Qotee bulaa 2. Hojjata mootummaa 3. Daldalaa 4. Hojjataa jarmiyaa dhunfaa 5. Hojjataa guyyaa 96. kan biraa (Ibsi)	
114	Ji'aati galiin mana meeqa ta'aa?	Qarshii _____	

115	Itti fayyadama maalaqa argatni irratti eenyu murtessa?	1. Caalaman hadha mana 2. Caalaman abba mana 3. Abba mana qofa 4.Lamanu malin ta'uun	
116	Dhimma jiruu mana adda adda irratti murteefudhachuuf mirga yookin itti-gaafatamumaa qabdu?	1. Eye 2. Lakk 99. Hin-beeku	
117	Horii qabdu?	1. Qabu 2. Hin-qabnu	Yoo hindqabne, 120 tti darbi
118	Meeqa ta'u? - Loon - Re'een - Hooloni - Indaqoon - Fardaa fi hareen Waligalatii	-Lakkofsan _____ - Lakkofsan _____ - Lakkofsan _____ - Lakkofsan _____ - Lakkofsan _____ - Lakkofsan _____	
119	Lafa (Qona/looni) hangam ta'u qabdu"	1. Hin-qabnu 2. Qarxii (Heektaraa) _____ 99. Hin-beeku	
120	Qoomon keessan mali?	1. Oromoo 2. Amara 3. Tigree 4. Guragee 4. Zayi 96. Kan biraa (Ibsi)	
Kutaa lammaffaa:-Haala Mucaa (carraan fili)			
122	Hamantii keessan mali?	1. Ortodoksi 2. Muzilmaa 3. Kirstaana /Penee/ 4. Katolikii 96. Kan biraa (Ibsi)	
201	Saali mucaa (Maqaa) maali?	1. Dhiira 2. Durba	
202	Umuriin isaa/ishee meeqa?	Ji'aa _____	

203	Mucaa (Maqaa) meeqafaattii deessan	_____ ffa	
204	Bakki itti deessan eessa?	1. Mana jireenya 2. Mana yaala 96. Kan biraa (Ibsi)	
205	Ji'a meeqeaffatti dhatadle/tte	1. Ji'aa sagalii gaddi 2. Ji'aa salgaffatti 3. Ji'aa sagalii ol 99. Kan –beeku	
206	Yammu dhalatu ulfinii issa/ishe madaalameera?	1. Eye 2. Lakki	Yoo lakki ta'e, 208 tti darbii
207	Yoo madaalame/te, meewa ture/te?	Gramii _____ (kardii/yaadan?)	
208	Yammu dhalatu/ttu, hangam ga'aa/si?	1. Heddu gudda ture/te 2. Giddugalessa ol 3. Giddugaless 4. Giddugalessa gaddi 5. Xiqaa ture/te 99. Hin-beeku	
209	Gosni dhaloota	1. Baqee 2. Lakku	
210	Mucaa (maqaa) dauuf karoora (Qophii) qabdu turee)?	1. Eye 2. Lakki	
211	Talaali fudhate/tte beeka/beektii?	1. Eye 2. Lakki	Yoo hin-fudhane 213 darbii
212	Talaali kam fudhate? (Kardii ilaali, yoo hin-jirane akka yaadatan gaafadhu) (Deebiin took ol ni-danda'ama)	1. BCG qofa 2. DPT (lakk.Dozi ___) 3. Gifira 4. Kardiin hin- jiru	
213	Rakkon faya mucaa yeroo heddu mal isintti fakkata?	1. Dhukkuba/toota _____ 99. Hin-beeku	
214	Vit. A ji'aa ji'aa darbe keessatti fudhate/tte	1. Eye 2. Lakki 99. Hin-beeku	
215	Torban lamaan darbe keessa mucaan dhukkuba gara kaassa qaba/qabdi?	1. Qaba 2. Hin-qabu 99. Hin-beekamu	Yoo hin-qabne 217 tti darbi
216	Waggatti yeroo meeqa qaba?	1. Toko 2. Lama 3. Yeroo 3-4 4. >5 ol	
21	Torban lamaan darbe keessa	1. Qaba 2. Hin-	

7	mucaan dhukkuba gubaa qaba/qabdi?	qabu 99. Hin-beekamu	
218	Torban keessa dhukkuba afuur ykn somba qaba/qabdi?	1. Qaba 2. Hin-qabu 99. Hin-beekamu	
219	Wagga darbe keessa dhukkuba gifiraatiin qabamee beeka/beektii?	1. Qaba 2. Hin-qabu 99. Hin-beekamu	
220	Dhitoo mila gaddi irra qaba? (ilaali)	1. Qaba 2. Hin-qabu	
			Kutaa sadaffaa:- Halaa Qabiinsa Mucaa
301	Mucaa keessan harma hoosistu?	1. Eye 2. Lakki	Yoo hin-hosisne 303 tti darbi
302	Yoo hin-hoosisne, sababni issa maali?	Sababa _____	
303	Mucaan (Maqaa) dhalatee/tte hamam turtani harma hosisuu eegaltan?	1. Akkuma dhalateen 2. Sa'a _____ booda Guyyaa _____ booda	
304	Akkuma deesanin nyaani/dhagala'aan/ mucaa (Maqaa) keenitan jira?	1. Eye 2. Lakki	Yoo hinjire-306 tti darbi
305	Maali keenitaniif ture?	1. Bishaan 2. Dhadha 3. Aanaan 96. Kan biraa (Ibsi)	
306	Hanan harma kan calqabaa eelmitanii ni-gatu?	1. Eye 2. Lakki	
307	Hanga hammati hosisaa jirtu?	1. Eye 2. Lakki	Yoo lakki, 315 tti
308	Sa'aa 24 darbeetti yeroo meeqa hosistan?	Yeroo _____	
309	Halkan ni-hosiistu?	1. Eye 2. Lakki	
310	Mucaan (Maqaa) nyaata bira/dhangala'aa sa'aa 24 darbee keessatti fudhateera/tt?	1. Eye 2. Lakki	Yoo hinfudhane, 322 tti darbi
311	Yoo fudhate, nyaata akkami? (Deebiin took ol ni-danda'ama)	1. Hanan looni 2. Dhadha 3. Sah'ii 4. Hanan bita (formulaa) 5. Haimitii (Bulaa) 96. Kan biraa (Ibsi)	

312	Sa’aa 24 tti yeroo meeqa fudhate/tte?	Yeroo _____	
313	Uumurii meeqatti nyaata bira (dabalataa) laachuuf eegaltan?	ji’aa _____	
314	Mucaa (Maqaa) nyaachisuuf meesha akkamtti gargaaramtu?	1. Sinii 2. Butulee 3. Mankaa 96. hin-yaadadhu	
315	Hanga umurii meeqatti harma hoosistan?	1. Ji’aa ____ 99. Hin-yaadadhu	
316	Harma qofa hanga umui meeqatti hoosistan?	1. Ji’aa _____ 99. Hin-yaadadhu	
317	Mucaa (Maqaa) nyaachisuu yeroo heddu eenyuttu hordofa	1. Hadha 2. Hoboleeti 3. Hakawoo 4. Hojjatuu manaa 96. Kan biraa (Ibsi)	
318	Yeroo dhukkuba haali mucaa (Maqaa) itti nyaachiftan ni-jijiramaa?	1. Eye 2. Lakki	Yoo Lakk, 320 tti darbi
319	Haali nyaachisu akkamitti jijirama?	1. Harma hoosisu dhabbun 2. Nyaata kennuf dhabbun 3. Nyaata dabaltaa kennun 96. Kan bira (Ibsi)	
320	Yeroo meeqati meeshaa nyaata kan mucaa (Maqaa) dhiqtu?	1. Guyyatti yeroo lama 2. Guyyaa guyyaatti 3. Guyyaa lamafatti 4. Haguma nyaachiseen 96. Kan biraa (Ibsi)	
321	Yeroo meeqati mucaa dhiqtu?	1. Guyya guyyatti 2. Torbanitti 96. Kan biraa (Ibsi)	
322	Yeroo mucaan dhukkubsatu/ttu hakamitti yaalchiftu?	1.Yeroo heddu manumatti 2. Yaaltoota aadaa biratti 3. Dhabba fayyaa geessun 96. Kan biraa (Ibsi)	

323	Kanan durra yaalidhaaf dhabba fayyaa geesitanii beektuu?	1. Eye 2. Lakki	Yoo lakki, kuta arfafaa tti darbi
324	Yeroo meeqa mucaan dhukkubsatee/tte dhabba fayya geesitani beektu?	1. Yeroo _____ 99. Hin yaadadhu	
			KUTA ARFAFFAA: HAALA HADHA
401	Umurin hadha meeqa?	Wagga _____ umure	
402	Umurin mucaa issa jalqabaa itti deessanni	Wagga _____ tti	
403	Umurin mucaa issa dhumaa itt deesan?	Wagga _____ tti	
404	Ijoolee meeqa kaan durra deesan?	Ijoolee _____	
405	Ulfni garatti bachuu keessani durra qabdan meeqa ture? (mucaa issa qoratamu)	Kilogramaa _____	
406	Yeroo garatti batan/hosistan (mucaa issa qoratamu) nyaata dabalata (adda) nyaatu?	1. Eye 2. Lakki	
407	Haali fayyaa keessani yeroo garati batan akkam ture?		
408	Dhabbata fayyaa qoraana dahumsa duraa (QDD) tiif ni-deemtu ture?	1. Eye 2. Lakki	Yoo Lakk, 411 tti darbi
409	Garatti batanii ji'a meeqaffatti QDD tiif dhabba fayyaa deemu eegaltan?	Ji'aa _____ tti	
410	Yeroo meeqa QDD tiif dhabba fayyaa deemtanittu?	1. Yeroo _____ 99. Hin-beeku	
411	Wa'ee karoora matii beektu?	1. Eye 2. Lakki	Yoo hin-beekne, 415 tti darbi
412	Toftalee karoora matiitti fayyadamtan beektu?	1. Eye 2. Lakki	Yoo hin-lakki 415tti
413	Toftaa kamitti fayyadamaa jirtu	1. Kininii/pills 2. Dipo 3. 'Norplant' 4. Kondomii 96. Kan biraa (Ibsi)	
414	Yeroo hamma itti fayyadamaa jirtu?	1. Eye 2. Lakki	

415	Harka keessan yeroo kami dhiqatu? (Yeroo heddu) Deebiin took ol ni-danda'ama)	1. Mana fincaani booda 2. Nyaata otoo hin-qopheesine 3. Nyaata otoo hin-dhiyeesine 4. Bobaa ijoole eerga qulqulessine booda 96. Kan biraa (Ibsi)	
416	Akkamin (maalin) dhiqatu?	1.Bishaan qofaan yeroo heddu 2. Samuuna wajjin darbee 3. Yeroo hunda samuunan 4. Daraa walin yeroo toko	
417	Mucaan keesan qaaman (guddin) issa maali isintti fakkata?	1. Qalaa 2. Furdaa 2. Xiqaa 4. Eeraa	
418	Hanga Umrii meeqaatti mucaan harma qofa argachuu qaba jetanii yaaddu?	1. ji'a_____ti 2.Hin beeku	

KUTAA SHANAFAA: HAALA NAANNOO			
501	Maddi bishaan dhugatti keessan?	1. Laga 2. Haroo 2.Burqaa hin-ijaaramane 3. Burqaa ijaarame 4. Birii dhunfaa 5. Boono 96. Kan biraa (Ibsi)	
502	Guyyatti bayina bishaan itti gargaaramani meeqa?	Litira _____	
503	Yammu bishaan warabdan deemani deebi'uuf yeroo hamami isinitti fudhata?	Daqitaa _____ ni-fudhata	

504	Bishaan itti fayyadamtan qulqulessuuf yaaliin gootan ni-jira?	1. Eye (Ibsi) 2. Lakki	
505	Mana fincaani ni-qabdu	1. Eye 2. Lakki	Yoo lakkii, 507 tti darbi
506	Gosni mana fincaani itti gargaramtani? (Ilaali)	1.Boola dhunfa kan qadado muka 2. Boola dhunfa kan simintoo 3.Boola walini kan qadado muka 4. Boola walini kan simintoo 5. “VIP” kan dhunfa 96. Kan biraa (Ibsi)	
507	Haali kosii gogogaa itt gatan akkam?	1. Bakkeetti 2.Boola dhunfaatti 3. Boola walintti 4.Compost” gochuu 5.Gabuu 96.Kan biraa(Ibsi)	
508	Gosni mana jireenya?(Ilaali)	1.Tukkuli/citaa 2.Qorqoroo 96.Kan biraa(Ibsi)	
509	Kutaan mana meeqa? (Kushina fi mana kuusa meesha tiin alatti)	Kuta	
510	Lafti mana jireenya maal irra hojjatame?	1.Biyoo 2.Simintoo(Brick) 3.Muka(Bambuu) 4.Seramikii 96.Kan biraa(ibsi)	

511	Balini mana nama tokkof hamm ta’a?	_____M^2	
512	Manni jireenya fodaa qaba?	1.Eye 2.Lakki	
513	Kushinaa qobaatti qabu	1.Eye 2.Lakki	
514	Horii yoo qabatan mana isaani qobatti qabdu?	1.Eye 2.Lakki	
515	Nyaata bicheesuuf qoraan malittii gargaaramu?	1.Muka 2.Kerosinii 3.Elektrikaa 4.Kiboota 96.Kan biraa(Ibsi)	
KUTAA JAHAA FFAA :- SIRAA WAJIIN KAN WAL QABQTUU			
601	Hubanoon/gorsii wa’ee cucarumaa isiinif kenamee jira?	1.Eye 2.Lakki	
602	Leenjii hawaasaf wa’ee sirnaa nyaata irraati hirmatee bekta?	1.Eye 2.Lakki	
603	Sekteralee biroo wajjiin wa’ee sirnaa nyaata irraati hojjaatama jira?	1.Eye 2.Lakki	
604	Yoo G 703 eyyeen ta’ee sekteraa kam fa’a?	1.sekteera fayyaa 2. sekteraa barnoota 3.sekteraa qonnaa 4.Sekteraa nagenyaa 5.Sekteraa hawasumaa 96. kan biroo	
605	Qajeelfamoota sirnaa nyaata ni jira ?	1.Eye 2.Lakki	
606	Yoo eyyeen ta’ee wa’ee qajelfaama kanaa essaa dhagessee?	2. HEf 2. Radiyoo/Televishiin 3.hiriyaa 4.hoggaansaa gandaa 96.kan biroo	

KUTAA TORBAFAA :- MADAALII ANTIROPHOOMEETIRII			
701	Dheeriina daa.imaa	_____Cm	
702	Ulfaatinaa daa'imaa	_____Kg	
703	Madaalii Gidugaalesaa ciqilee daa'imaa	**_____Cm**	
704	Dhitoo milaa	1.Eye 2.Lakki	
705	Yoo dhitoon jiraate sadaraa meqaa?	1.+ 2. ++ 3.+ ++	

Declaration of Investigator

I, the undersigned student of General Master of Public Health, declare that this proposal is my original work in partial fulfillment of the requirement for the degree of General Master of public health to my best knowledge.

Name of investigator: Kedir Jemal Baneto

Signature: _____ Date_____

Declaration of Advisors

We, the undersigned Advisors, declare that this proposal is our original work in partial fulfillment of the requirement for the degree of General Master of public health for the stated student above to our best knowledge. We confirmed that this proposal is ready for defense with our approval as the university advisor(s).

Date of Submission: _____

Name of primary Advisors:	Signatures	Date
1. Mr. Mohammedawal Kaso	_____	_____
Name of secondary Advisors:	Signatures	Date
3. Mr. Mesfin Tafa	_____	_____

Examiners' Declaration

We, the undersigned examiners, hereby declare that we have thoroughly exa mined the proposal presented for the degree of Master of Public Health in G eneral Public Health. After careful review and defense of the proposal, we c onfirm that it meets the academic standards and requirements of the univer sity. We hereby approve the proposal and consent to the student proceeding with the next steps toward completing the full thesis, which is required for t he award of the degree.

Name of Examiner 1: Mr.Abduraman Kalu

Signature: _____

Date: _____

Name of Examiner 2: Dr. Gizachew Abdeta

Signature: _____

Date: _____