**HARAMAYA UNIVERSITY**

DIRECTORATE FOR POSTGRADUATE STUDIES

# PREVALENCE AND ASSOCIATED FACTORS OF STUNTING AMONG CHILDREN AGED 6-59 MONTHS ATTENDING THE PEDIATRIC OUTPATIENT DEPARTMENT AT HARAMAYA GENERAL HOSPITAL IN EAST HARARGHE, ETHIOPIA

MPH THESIS

**BY**

ELIZABETH NIGUSSIE SEIFU (BSC)

COLLEGE: HEALTH AND MEDICAL SCIENCES

SCHOOL: PUBLIC HEALTH

PROGRAM: PUBLIC HEALTH NUTRITION

**ADVISORS**:

MAJOR ADVISOR DR. KEDIR TEJI (PhD, ASSOCIATE PROFESSOR)

CO-ADVISOR DR. IBSA MUSSA (PhD, ASSOCIATE PROFESSOR)

MARCH, 2026

HARAMAYA UNIVERSITY, HARAR, ETHIOPIA

**Haramaya University**

Directorate For Postgraduate Studies

# Prevalence and Associated Factors of Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department at Haramaya General Hospital in East Hararghe, Oromia, Ethiopia

A research thesis to be submitted to the Schools of Public Health, College of Health and Medical Sciences, Haramaya University, for partial fulfillment of the requirements for the degree of master of Public Health Nutrition

**By**

Elizabeth Nigussie Seifu (BSc)

**Advisors**

Major Advisor: Dr. Kedir Teji (PhD, Associate Professor)

Co-Advisor: Dr. Ibsa Mussa (PhD, Associate Professor)

March, 2026

Haramaya University, Ethiopia

## ACKNOWLEDGMENTS

First of all, I would like to praise and glorify the Almighty and Everlasting God, the most merciful, who made everything possible for me. I am very much indebted to my advisors, Dr. Kadir Taji (PhD, Associate Professor) and Dr. Ibsa Mussa (PhD, Associate Professor), for their useful comments, suggestions, and constructive criticisms during problem identification, proposal preparation, and this final report.

My special thanks go to the Haramaya University, the College of Health and Medical Science that gave me the golden opportunity to my MPH study. I would like to thank the School of Public Health, instructors and all staff members for providing me with the necessary support and offering me the MPH courses timely.

I offer my heartfelt thanks to my family and relatives, my daughter Obsi, my son Ensremu Kibebew, Yohannes Asrat, Mahdre Nigussie, Kassa Abera, Getamesay Erko, Prof. Wassu Mohammed and his daughters (Yetarikmahder and Lakomenza Wassu), and all other relatives and friends for their words of encouragement, affection, and prayers, which served as sources of strength, inspiration, and motivation throughout my MPH study.

Finally, I would like to acknowledge all data collectors, supervisors and participants

## TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **ANC** | Antenatal Clinic |
| **AOR** | Adjustable Odd Ratio |
| **CI** | Confidence Interval |
| **COR** | Crude Odd Ratio |
| **EC** | European Commission |
| **FAO** | Food and Agriculture Organization |
| **GAM** | **Global Acute Malnutrition** |
| **HFA** | Height-for-Age |
| **KAP** | Knowledge, Attitude, Practice |
| **LMICs** | Low-and Middle-Income Countries |
| **m.a.s.l.** | meters above sea level |
| **MUAC** | Mid-Upper Arm Circumference |
| **PPS** | Proportional to Population Size |
| **SAM** | Severe Acute Malnutrition |
| **SNNPR** | Southern Nations, Nationalities, and Peoples' Region |
| **UN** | United Nations |
| **UNCF** | United Nations Children's Fund |
| **UNHCR** | United Nations High Commissioner for Refugees |
| **WASH** | WASH: Water, Sanitation, and Hygiene |
| **WBG** | World Bank Group |
| **WFA** | Weight-for-Age |
| **WFH** | Weight-for-Height |
| **WFP** | World Food Program |
| **WHZ** | Weight-for-Height/Length Z-score |
| **WASH** | Water, Sanitation, and Hygiene |

## ABSTRACT

**Background:** Stunting remains a major public health problem in developing countries like Ethiopia. The prevalence of stunting among children under five years at the national level was ranged from 39.9%-57.7%. However, there is still limited evidence in East Hararghe.

**Objective:** This study aimed to determine the prevalence of stunting and identify associated factors among children aged 6-59 months attending the pediatric outpatient department at Haramaya General Hospital (HGH), East Hararghe, from June 15 to August 15, 2025.

**Methods:** An institution-based cross-sectional study was conducted among 375 children aged 6-59 months and their caregivers at Haramaya General Hospital from June 15 to August 15, 2025. The sample size was determined using the proportional to population size method with a 95% confidence level and 0.05 margin of error. Data were collected interviewer-administered questionnaires using a structured questionnaire and age-height measurements. Descriptive statistics were used to summarize variables, while bivariable and multivariable logistic regression identified factors associated with stunting. Variables with $p<0.20$ in bivariable analysis were candidates for multivariable analysis, with statistical significance declared at $p<0.05$ and 95% CI. The multicollinearity and model fitness checked using

**Result:** Out of a total 385 child–caregiver pairs participated in the study, 375 were eligible and consenting participants, yielding a 97.40% response rate. The overall prevalence of stunting was 42.4% (95% CI: 37.3-47.6%). Of this, 38.0% were moderately stunted and 62.0% were severely stunted. Multivariable analysis showed significant associations with child age <21 months (AOR: 5.78; 95% CI: 3.21-11.31), poor caregiver knowledge on dietary intake (AOR: 2.56; 95% CI: 1.21-3.56), negative attitude on dietary intake (AOR: 2.86; 95% CI: 1.21-4.34), poor practice on dietary intake (AOR: 2.11; 95% CI: 1.34-4.56), poor knowledge on WASH (AOR: 2.45; 95% CI: 1.67-6.98), negative attitude on WASH (AOR: 2.13; 95% CI: 1.98-4.11), fewer than four ANC visits (AOR: 10.34; 95% CI: 4.78-52.7), and maternal age >32 years (AOR: 2.45; 95% CI: 1.76-3.45).

**Conclusion:** This study demonstrates that stunting remains a major public health problem among children aged 6-59 months at HGH, with a prevalence of 42.4% exceeding WHO thresholds. A substantial proportion were severely stunted, reflecting chronic undernutrition. Thus, the study advised addressing stunting in this setting requires integrated, transformative approaches that enhance household economic resilience, support maternal caregiving, promote diverse diets.



***Keywords:*** Associated factors, Stunting, children 6-59 months, Pediatric Outpatient, East Hararghe

# 1. INTRODUCTION

## 1.1. Background

Several factors influenced the growth and development of children. Nutrition is an absolute factor needed by the body in the growth and development process(Pinto, 2023) that has immediate and short-term biological effects on mortality, physiological health, and cognitive development of children. Stunting is the best indicator for the failure of inadequate nutrition for long-term and chronic infection of children that result proneness to disease and impaired cognitive development. This in turn has an effect on educational outcomes later in life and less productive contributions to the workforce(Modjadji and Madiba, 2019)

Stunting is one of the public health problems in Ethiopia that 39% of children were stunted, and the prevalence of underweight and wasting in children under 5 years were 22 and 11%, respectively. More than half of the children under five years were affected by any form of malnutrition. The stunted children (43%) were higher in rural areas than urban areas (29%), and the Oromia and Amhara Regional States had the higher share in terms of absolute number of stunted children (UNICEF/WHO/WB, 2023). Four studies result for four districts of East Hararghe showed the prevalence of stunting among children under 5 years old ranged from 33.5 and 62.5%, underweight and wasting were 14.3 to 51.1% and 14% to 23.63%, respectively(Beyene et al., 2019).

Children during their years of growth are more vulnerable to macro- and micronutrient deficiencies (Clark et al., 2020).The nutrition-specific factors include food insecurity or inadequate food intake, poor caregiving and parenting, improper food practices and infectious comorbidities as well as inadequate economic resources at the individual, household and community levels. Limited or poor access to education, healthcare services, infrastructure and poor hygienic environment are other nutritional sensitive factors that adversely affect the nutritional status of children under the age of 5-years (Clark et al., 2020).

The determinants of malnutrition in children under the age of 5 years include age, teenage pregnancy, lower maternal education, low birth weight, lack of breastfeeding and personal food preference. Gender, geographical area, family income, household size, food security and

healthcare access are also important factors that had a significant association with child malnutrition (Modjadji and Madiba, 2019). Therefore, information on the complex factors associated to malnutrition and stunting is vital to the interventions and management this health problem(Saputra et al., 2025).

Stunting results from chronic or recurrent undernutrition is often linked to low socioeconomic circumstances, poor maternal health and nutrition, frequent ill health, and/or poor child feeding and care in the early years of life (WHO, 2020). The studies conducted in East Hararghe revealed varying prevalence of stunting among children aged 6–59 months as high as 62.5% in Fedis district (Beyene et al., 2019) and as low as 33.5% in Meta district (Tesfaye and Egata, 2022), and the prevalence of stunting in the range between 17.1 and 45.8 % was reported in Haramaya district (Yisak et al., 2015).Many factors associated to stunting are also indicated. This showed the importance of generating sufficient evidence on the prevalence of stunting and associated factors among 6–59 months old children in each community.

## 1.2. Statement of the Problem

Globally, stunting affected 149 million under-five children and more than half of all stunted children lived in Asia and African countries(UNICEF, 2019). Undernutrition is one of the major health issues of children under the age of five and results in devastating health and economic costs that last for a lifetime (Kalu and Etim, 2018). One of the most important causes of child morbidity and mortality in developing nations is malnutrition. Sub-Saharan Africa leads by high child morbidity and death rates associated stunting due to malnutrition (Oliveira et al., 2015).

The United nation' sustainable development goals (SDGs) have marked stunting along with other nutrition indicators as the main focus areas to eradicate global malnutrition(UNICEF/WHO/WB, 2023). Stunting is regarded by the Ethiopian government as a major public health issue and an obstacle to its economic goals. The health sector transformation plan, part of GTP II, aimed at reducing mortality rates of 30 per 1,000 live births below five years in Ethiopia, reducing stunting to 26% in less than 5 years (Asefa et al., 2024).

Many risk factors associated to stunting are reported such as age, gender, birth weight, breastfeeding, teenage pregnancy, lower maternal education (Kalu and Etim, 2018b). Feeding practices, maternal and child health conditions were also reported as common socioeconomic risk factors for under-nutrition (Redi et al., 2017). Personal and environmental hygiene, household's income, occupation, education, family size etc. (Hong et al., 2006), disturbed family structure and ignorance of health and wellness of children were reported as factors associated to under-nutrition

In Ethiopia, the proportion of stunted children and prevalence of wasting children under five years are higher in rural areas compared to urban areas(UNICEF, 2019). Thus, the knowledge on prevalence and associated factors to stunting in specific area(s) is the first step to tackle this health problem, because stunting is influenced by place of residence, household infrastructure, income and ethnicity (Tette et al., 2015), availability of health and wellness services, and shared community and cultural beliefs etc.(Abdella and Cheneke, 2023). The studies conducted in East Hararghe revealed varying prevalence of stunting among children aged 6–59 months as high as 62.5% in Fedis district (Beyene et al., 2019) and as low as 33.5% in Meta district(Tesfaye and Egata, 2022) and the prevalence of stunting in the range between 17.1 and 45.8 % was reported in Haramaya district(Yisak et al., 2015).

Moreover, stunting due to malnutrition in young children is not only related to unavailability of food, but can also be associated with inadequate knowledge about how to feed the child, what is the right complementary food to give when the baby is ready to start eating, and what are the appropriate feeding practices. To get that information on feeding young children, family beliefs and community practices play an important role(WHO, 2020). Efforts to increase maternal stunting-related knowledge may be an effective approach for addressing and preventing stunting. Examples of knowledge could include being more aware of healthy feeding practices (Wamani et al., 2005) knowledge of nutrient diversity among various available food options, being able to correctly identify stunting and nutritional status more broadly (Soliman et al., 2024) and childcare practices (Singh, 2020).

However, the generated information is not sufficient to understand the level of the problem in East Haraghe community through the hospitals. Also, there is not specific from attending pediatrics outpatient of 6-59 months aged children at Haramaya General hospital. Generally, there was methodological gaps to conduct stunting and its complicated outcomes among children under five using institutional methods. Also, there was information and knowledge gaps to explain and disseminate the existing understanding of stunting and associated factors. Still empirical/theoretical gaps to report stunting and risk factors for policy makers furthermore, there was practical-knowledge conflict gaps because what is known about level of stunting & what is actually reported are contradicted in districts contradicted.

Therefore, the current study provides an insight information on prevalence and associated factors of stunting among children aged 6-59 months attending the pediatric outpatient department at Haramaya general hospital in East Hararghe, Oromia, Ethiopia.

### 1.3. Significance of the Study

A study on stunting among children aged 6-59 months in East Hararghe, Ethiopia, is significant for identifying high-risk predictors such as poor maternal education, inadequate diet, and low-land/rural residency to guide targeted interventions. The identification of factors associated with stunting among 6-59 months aged children will have significant contribution to the knowledge of health care workers by providing facts of underlying causes and helps them to play vital role in the management of stunting related health problems of children. These practices of all the actors thereby will benefit children and their parents since they are the primary focus groups of the community for remedy measures to be taken in the study area. It also serves as base line information for researchers to the conduct further research on stunting and associated factors among 6-59 months aged children.

The study provides also critical, localized data to combat high prevalence rates, inform policy, and reduce long-term morbidity and mortality. Also, not only limited dietary utilization, it also promotes maternal, infant, a young child nutrition, advocate prevention of stunting, wasting and micronutrient deficiencies, and enhance dietary diversity, and healthy feeding practices. The study encourages the global SDGs such as no poverty, zero hunger, food security and improve nutrition, good health and well-being that ensure health lives for all at all ages. The study provides insight information of nutrition and public health to address under nutrition especially among vulnerable groups like children, pregnant women, and lactating women.

Moreover, the study helps pinpoint specific factors in East Hararghe, such as maternal education, women's empowerment, and health service utilization (e.g., fourth antenatal visit), which are strongly associated with child stunting. It highlights that stunting is often higher among households in the Productive Safety Net Program, emphasizing the need for targeted nutritional, rather than just food-security, interventions. Findings provide actionable evidence for health planners to develop context-specific strategies, such as promoting appropriate complementary feeding and improving hygiene practices. It identifies specific dietary issues, such as inadequate knowledge, attitude and practice mothers/caregivers about dietary diversity, which are major contributors to stunting. Generally, this research is crucial for addressing the high prevalence of stunting in rural areas, which is often higher than in urban areas, thereby supporting targeted, evidence-based health strategies in East Hararghe, Ethiopia

### 1.4. Objectives of the Study

## 1.4.1. General Objectives

- This study aims to assess the prevalence of stunting and identify factors associated with stunting among 6-59 months aged children attending the pediatric outpatient department at Haramaya General Hospital June 15, 2025 to August 15, 2025.

## 1.4.2 Specific Objectives

- To determine the prevalence of stunting among 6-59 months aged children attending pediatrics outpatient department of Haramaya general hospital
- To identify factors associated with stunting among 6-59 months aged children attending pediatrics outpatient department of Haramaya general hospital.

# 2. LITERATURE REVIEW

## 2.1. Magnitude of stunting among Children

Nutritional status is the result of complex interactions between food consumption and the overall status of health and health care practices (FDRE, 2016). Child stunting, or low height-for-age, is an indicator of chronic malnutrition that is still highly prevalent in many regions around the world (FDRE, 2016). The consequences of stunting include poor health and school performance, impaired physical and mental development, and perpetuation of the cycle of poverty, as it may result in deficits in productivity in adulthood (Bantamen et al., 2014). Stunting (deficit in height for age of at least -2 Z score) affects close to 195 million children under five years of age in the developing world (WHO, 2020). Thus, stunting continues to be a significant public health and development concern not only in the developing country but also in the world. It is a serious problem because it is causing the deaths of 3.5 million children under 5 years old per- year(Feleke et al., 2023).

Despite dramatic improvements in survival, nutrition, and education over recent decades, today's children face an uncertain future. Climate change, ecological degradation, migrating populations, conflict, pervasive inequalities, and predatory commercial practices threaten the health and future of children in every country (Clark et al., 2020).However, the stunting and wasting of children under age five is more severe in Asian and African countries. For instances, in 2022, 52 and 43% of stunted children under age five live in Asia and Africa, respectively. Among children with severe wasting, more than three quarters of all children with severe wasting live in Asia and 22% live in Africa (UNICEF, 2019).

### 2.1.1 Stunting of Children in Ethiopia

Stunting of children <5 years old is associated with increased morbidity and mortality; and later adolescence neurocognitive function, productivity; and poor long-term health outcomes. The United Nations Sustainable Development Goals have identified stunting as a key development indicator used to measure progress towards its goal to end hunger (Govender et al., 2021, UNICEF/WHO/WB, 2023).The World Health Assembly in 2012 set the reduction of stunting by 40% as one of six global nutrition targets to be achieved by 2025 (Wirth et al., 2016).The number of countries with very high stunting prevalence has declined by 40% (from 46 to 28 countries) since 2012 to 2022; however, the progress to reduce stunting has not been equal across regions,

sub-regions and countries. In case of Ethiopia, stunting of children under 5 years reduced from 42.1% in 2012 to 34.4% in 2022(UNICEF/WHO/WB, 2023). This was very high as the thresholds established through the WHO-UNICEF technical advisory group on nutrition monitoring (TEAM) and released in 2018 (Wirth et al., 2016). The wasting of children under 5 years old reduced from 20.19 to 6.8% and overweight children increased from 2.5 to 2.7% from 2012 to 2022, and the thresholds for wasting of children and overweight children were Medium and low, respectively (UNICEF/WHO/WB, 2023).

Key findings of preliminary report of the national food and nutrition strategy baseline survey indicated stunting remains a major public health problem in Ethiopia (Tafesse et al., 2021). The current study shows that 39% (37-42: %) of children less than five years of age are stunted (height-for-age below -2SD). The national prevalence of wasting (weight- for-height below -2 SD) was 11% (9- 11%) whereas the national prevalence of underweight (weight-for age below -2SD) and overweight (body mass index-for-age above +1SD) were 22 and 6%. among children under 5 years, respectively. The prevalence of child malnutrition has differences between urban and rural areas and between regional states(Toma et al., 2023).

The overall, 19% of women of reproductive age were underweight (BMI< 18.5 kg/$m^2$) and about 22% of rural women were underweight as compared to urban women (15%). Overall, 61% of children aged 0–6 months were exclusively breastfed and there were slight differences in exclusive breastfeeding rates in the urban (59%) and rural settings (62%) whereas exclusive breastfeeding was highest in the Amhara region (73%), followed by the Southern Nations, Nationalities, and Peoples' Region (70%), and the least was observed in the Somali region (36%). Overall, 47% of children aged 6-23 months had severe food poverty (consumed less than 2 food groups a day). The highest proportion of children aged 6-23 months with severe food poverty was observed in Somali (75%), SNNPR (53%), and Gambella (50%) (UNICEF/WHO/WB, 2023).

### 2.1.2. Stunting of Children Aged 6-59 Months in East Hararghe

The poor nutritional status of children and women is a serious problem in Ethiopia; thus, malnutrition is a public health problem in the country. Like most other parts of Ethiopia, malnutrition is one of the public health in East Hararghe. The Zone is one of the drought and conflict prone areas of Ethiopia where malnutrition prevalence has been high for a long period(Tesfaye and Egata, 2022).Researchers have been tried to evaluate the malnutrition situation

and identify the underlying causes of malnutrition in different districts of East Hararghe(Zewdie et al., 2022)studied malnutrition status and key determinants of child malnutrition in Kombolcha district.

The authors reported that 45.8%, 28.9% and 11.2% of sample children are stunted, underweight and wasted, respectively. They also identified the child's age, gender, immunization status and the mother's use of antenatal care, farm size, household size, water source, latrine use and incidence of morbidity were strongly associated with child nutritional status. High prevalence of malnutrition was reported in Fedis and Kersa districts that were 12.0, 1.3 and 0.2 % with point prevalence of global acute malnutrition (GAM), SAM and children having nutritional bi-lateral pitting edema, respectively(Tesfaye and Egata, 2022).

A cross-sectional study was conducted among 1523 school children in eight public elementary schools in Eastern Hararghe administrative zone revealed the prevalence of stunting was 17.1%, thinness 17.9%, and of overnutrition 5.6%, of which overweight and obesity accounted for 4.4% and 1.2%, respectively (Mitiku et al., 2019). The study result showed that prevalence of stunting was 47.7 and 33.5%, among children from households enrolled in PSNP and non-PSNP ones, respectively. Lack of maternal education, women's empowerment, fourth antenatal care visit, practicing hand washing, living in mid-land and low-land agro-ecological zones, childhood illness, non-exclusive breastfeeding, inadequate minimum dietary diversity, child's sex and age were identified as independent predictors of stunting (Tesfaye and Egata, 2022).The survey study was conducted in Haramaya district to assess the prevalence of under nutrition and factors affecting nutritional status among children aged 6-59 months. The study results showed that the prevalence of stunting, wasting and underweight were 36.07, 14.43 and 23.63%, respectively (Redi et al., 2017). Many factors that contributed to undernutrition we reported in Ethiopia including East Hararghe zone. It was found that undernutrition is associated with the child's age and sex, family income, family size, intestinal parasitic and other infections, latrine availability, educational status of the head of the household, and consumption of food from animal sources (Harika et al., 2017)

### 2.2. Associated Factors of Stunting

#### 2.2.1. Socio-demographic

These factors encompass a wide range of elements, including income, education, occupation, and social class. Understanding the impact of these socioeconomic factors on society is crucial in

comprehending the dynamics that shape our world (Clark et al., 2020). Low-and middle-income countries (LMICs) continue to experience undernutrition co-occurring with overnutrition, called the double burden of malnutrition (Chopra, 2003). Malnutrition remains notable among children from low socio-economic backgrounds, living in the rural setting, and attending public (i.e., government) schools(Modjadji and Madiba, 2019).

Several studies have shown marked inequities between the poorest and the richest population groups with significantly higher prevalence of stunting and thinness among the rural and the urban poor, the least educated, the residents of low-income neighborhoods and those having crowded houses (Bimpong et al., 2020).The socioeconomic determinants contributed significantly to the child's production of health. Male children appear to be associated with normal nourishment more so than female children(Detroja et al., 2025). Also, household income per capita exhibits contrasting effects on nutritional status of children, as does the proportion of household members other than the mother employed. Household endowments also generally affect child nutrition positively: children from households with access to a sanitary toilet facility and a source of safe drinking water have greater probability of adequate nourishment(da Silva et al., 2018).

An understanding of the processes through which chronic malnutrition comes to afflict a household or community can reveal a good deal about the process leading to endemic poverty. Such analyses may also yield useful guides for policy which may help policy-makers to rationalize priorities among different components of anti-poverty programs(Asgedom et al., 2024).In many developing countries, particularly in Africa, tradition has laid the responsibility of child care on women, which begins at conception and continues until infancy, teenage, and adulthood (Frison et al., 2016a). Maternal employment causes children's nutrition outcomes to be better or worse (Amare Zelellw and Gebreigziabher, 2014).It has potential implications virtually for all aspects of children's growth and development, and nutrition outcomes are no exception. The quality of children's diets and their subsequent physical health may depend significantly on whether and how much their mothers work outside the home for additional income they bring into the household may help to ensure a stable supply of good quality food (da Silva et al., 2018).

### 2.2.2. Environmental Related Factors

Stunting is a manifestation of malnutrition and is a significant health problem. Stunting, a form of malnutrition characterized by impaired linear growth in the first two years of life, affects one

quarter of children globally. While nutritional status remains the key cause of stunting, there is evidence that environmental factors such water supply and sanitation are associated with stunting (Vilcins et al., 2018). Interactions between environment and nutrition present an interesting dynamic, where an inter-play between environmental factors and nutritional may lead to changes in health status which is associated with stunting (Govender et al., 2021).

Some studies defined by the hygiene of the domestic environment and measured by combining environmental variables (water source, sanitation, and hygiene) into a single index (Lin et al., 2013). The other study used a survey to rate environments as satisfactory or poor based on the responses on over-crowding and safe drinking water as well as sanitary waste disposal and found that poor environmental conditions were associated with stunting (Bantamen et al., 2014).Further, it is anticipated that climate change will cause significantly more stunting through a reduction of food security(Phalkey et al., 2015) and made extensive review and made final analysis by including 71 reports to understand the environmental factors associated to stunting and malnutrition (Vilcins et al., 2018).

### 2.2.3. Inadequate Dietary Intake and Nutrition Related Factors

The requirements for micronutrients and macronutrients are highly needed during infancy and early childhood than at any other stage of development. Institute of Medicine (2005) has reported that these requirements are triggered by rapid cell division that occurs during growth which requires nutrients, proteins and energy in DNA synthesis and metabolism of calories, protein and fat. Breast milk has been considered to be a significant energy source as it has been shown to reduce the risk of chronic disease conditions such as diabetes, hypertension, allergies and obesity (Kalu and Etim, 2018b).

Breastfeed also has been proved to improve cognitive development and decrease the severity of infections (Leung et al., 2005). Water requirement for infants and children is usually higher than that of adults due to the children have a reduced capacity to sweat and have a larger body surface area per unit body weight when compared with adults (Kalu and Etim, 2018b).Better nutrition is related to improved infant, child, and maternal health, stronger immune systems, safer pregnancy and childbirth, a lower risk of non-communicable diseases, and longevity (WHO, 2020). Malnutrition is caused by deficiency, excess, or imbalance in the intake of energy and/or nutrients. It includes three broad conditions such as undernutrition, micronutrient-related malnutrition

(UNICEF, 2019). The primary causes of stunting are breast feeding, duration of breast feeding, colostrum feeding, pre-lacteal feeding, complementary food, and method of feeding(WHO, 2020).

### 2.2.4. Health Care Related Factors

Stunting refers to the condition when a child has impaired growth and development for his or her age as a result of malnutrition. Factors contributing to stunting may be found during pregnancy or the early stages of childhood growth (Wirth et al., 2017). When compared to normal children, children with stunting have both short- and long-term consequences, including irreparable brain damage, stunted growth, adult vulnerability to chronic diseases, reduced educational performance, and a tendency to earn lower wages (Detroja et al., 2025).Maternal infections during pregnancy and delivery, vaccination for preventable diseases as well as stress on growth promotion and monitoring activities have also significant contribution to malnutrition in the community (Mohamed et al., 2004).

It is usually the groups with lower socioeconomic status that most frequently live in such polluted environments (Mara et al., 2010). Among factors that impede child growth, diarrhea is particularly important, owing to malabsorption of nutrients and lack of appetite (Clark et al., 2020).The WHO framework of childhood stunting by context, causes, and consequences illustrates access to health care, qualified healthcare providers, availability of supplies and infrastructure, health care system and policies as a community and societal (contextual) factors that lead to stunted growth and development (WHO, 2020).

It was reported that the accessibility of health care facilities influences the risk of stunting. More than an hour travelling distance to a health clinic was found significantly associated with stunting (Uwineza et al., 2024). Additionally, the place of birth delivery relates to the probability of stunting. Home delivered children were 1.16 times more likely to be stunted compared to children delivered at a health facility in El Salvador and giving birth at home indicate access to health services, which is associated with stunting and poverty (Toma et al., 2023).The maternal care services, the quality of antenatal care (ANC) mothers received during pregnancy was found associated with stunting in El Salvador and concluded as inadequate ANC increased the risk of stunting 1.27 times (Frison et al., 2016).

### 2.2.5. Knowledge, Attitude and Practice Related Factors

Mothers with poor knowledge, attitude and practice may also lead to stunting. It shows that stunting in children of the first two years of life is impacted by the mother's lack of maternal knowledge; negative attitude and practice in the feeding process (Toma et al., 2023). Knowledge is the understanding of any given topic and in this case, it refers to an individual's understanding of nutrition, including the intellectual ability to understand and to have information on food and nutrition-related issues, specific pieces of information and facts. Attitudes are emotional, motivational, perceptive and cognitive beliefs that positively or negatively influence the behavior or practice of an individual (Bimpong et al., 2020)

An individual's feeding or eating behavior is influenced by his/her emotions, motivations, perceptions and thoughts (Frison et al., 2020)Attitudes influence future behavior no matter the individual's knowledge and help explain why an individual adopts one practice and no other alternatives (du Monde, 2023). The terms attitude, beliefs and perceptions are interchangeable. Whereas practices are the observable actions of an individual that could affect his/her or others' nutrition, such as eating, feeding, washing hands, cooking and selecting foods. Practice and behavior are interchangeable terms, although practice has a connotation of long-standing or commonly practiced behavior (Bimpong et al., 2020). This study also found that 48% of the mothers believe that stunting results from a macronutrient deficit and 62% and often associated with infections. Also, 57% of his respondents said that loss of appetite, alteration of the intestinal mucosa and increased nutritional needs resulting from infections and diarrhea promote the onset of stunting. The attitude of children's mothers is different to the choice of diet. A person's culture can have a positive or negative impact on how they manage their child's diet. Knowledge, beliefs and practices regarding health and disease are influenced by culture (Aguayo et al., 2016).

The findings confirmed that 67.3% had positive attitude towards nutrition of their children(Amoadu et al., 2024). This study also found that found that 75% of the mothers had the perception of insufficient milk as a reason of not practicing exclusive breastfeeding; 71% said that nipple pain was the reason of not practicing exclusive breastfeeding and 68% thought that the impression that the baby is hungry pushed them to include other food on the child's diet. In sum, different studies concerning the attitudes of the mothers on the nutritional aspects of their children focuses on the food restrictions, foods prohibited for children, necessity of hygiene and opinion of mothers on the balanced meal.

Stunting in young children is not only related to unavailability of food, but can also be associated with inadequate knowledge about how to feed the child, what is the right complementary food to give when the baby is ready to start eating, and what are the appropriate feeding practices (WHO, 2020). Efforts to increase maternal stunting-related knowledge may be an effective approach for addressing and preventing stunting. Examples of knowledge could include being more aware of healthy feeding practices (Wamani et al., 2005) knowledge of nutrient diversity among various available food options, being able to correctly identify stunting and nutritional status more broadly. This study found that about 48% of the mothers believe that malnutrition results from a macronutrient deficit and 62% said that malnutrition is very often associated with infections. The attitude of children's mothers is different to the choice of diet. A person's culture can have a positive or negative impact on how they manage their child's diet. Knowledge, beliefs and practices regarding health and disease are influenced by culture(Amoadu et al., 2024).

**2. 2.6 Stunting Associated Nutrition Assessment**

Nutritional status of children is an indicator of nutritional profile of the entire community. Adequate nutrition during infancy and early childhood is fundamental or a critical window to the development of each child's full human potential and for the promotion of optimal growth, health and behavioral development (Akhade, 2017). Nutrition monitoring is essential to assess nutritional status of the community, in terms of their nature, magnitude and distribution among the population groups as well as geographical areas (Bantamen et al., 2014).The surveillance of anthropometric indicators can also provide information on trends, allowing for comparisons over time and against baseline results, and it permits geographical and contextual comparisons, which can inform the prioritization of actions and the allocation of resources (Frison et al., 2016).

The method that is most widely used to assess nutritional status in an individual or population in emergencies is anthropometry. Biochemical assessment method involves assessing specific components of blood and urine samples of an individual in order to measure specific aspects of an individual's metabolism, for example serum retinol levels to assess vitamin A status. Clinical assessment method is assessing the physical presentation of signs and symptoms of acute malnutrition, such as visible wasting and bilateral oedema (fluid retention on both sides of the body). This method is critical complementary information to anthropometric information because it affects the weight measures (Gitau et al., 2013)

The WHZ (weight-for-height/length Z-score) absolute value of mid-upper arm circumference (MUAC) and MUAC-for-age Z-score (MUACZ), which are converted to acute malnutrition indicators using validated cut-off points are used as malnutrition indicators (WHO, 2020).The WHZ is obtained by comparing the weight of the child to be assessed with the weight of a child with the same sex and height in the reference population. This is recommended by the World Health Organization to the child growth standards reference population (WHO, 2020).The use of three indicators was demonstrated as providing a comprehensive analysis that includes both an assessment of individual acute malnutrition diagnosis and acute malnutrition population estimates.

The selection of indicators to be used in a nutrition assessment (surveillance system) depends mainly on the objectives of the system and the feasibility of collecting, analyzing and interpreting the nutrition indicators. The activities are broadly classified into two main categories. These are assessment to identify individuals with acute malnutrition (or acute malnutrition case detection) for program/clinical referral and the other is to assess the severity of the nutrition situation in the population and to estimate the number of children in need of treatment, in order to target populations for humanitarian action and to implement development programs (UNICEF/WHO/WB, 2023). The common acute malnutrition anthropometric measurements and indicators for children under five years of age are presented in Table 1 and prevalence cut-off values and classification of malnutrition indicators are presented in Table 2.

Table 1: Common acute malnutrition anthropometric measurements and indicators for children under five years of age.

| Index/measurement | Nutritional condition | Indicator | Abbreviation |
|---|---|---|---|
| Weight-for-height/length Z-score (WHZ) | GAM | WHZ < – 2 | WHZ2 |
| | SAM | WHZ < – 3 | WHZ3 |
| Mid-upper arm circumference (MUAC) | GAM | MUAC <– 125 mm | MUAC125 |
| | SAM | MUAC < –115 mm | MUAC115 |
| MUAC-for-age Z-score (MUACZ) | GAM | MUACZ < – 2 | MUACZ2 |
| | SAM | MUACZ < – 3 | MUACZ3 |

**GAM =** Global acute malnutrition and SAM = Severe acute malnutrition (UNICEF/WHO/WB, 2023)

Table 2: Prevalence cut-off values and classification of malnutrition indicators

| Indicator | Prevalence cut-off values | Category |
|---|---|---|
| Stunting | <2.5%: | Very low |
| | 2.5 to <10% | Low |
| | 10 to <20% | Medium |
| | 20 to <30% | High |
| | ≥30% | Very high |
| Wasting | <2.5% | Very low |
| | 2.5 to <5% | Low |
| | 5 to <10% | Medium |
| | 10 to <15% | High |
| | ≥15% | Very high |
| Overweight | <2.5% | Very low |
| | 2.5 to <5% | Low |
| | 5 to <10% | Medium |
| | 10 to <15% | High |
| | ≥15% | Very high |

Source: (WHO, 2020).

### 2.3 Conceptual Framework of Prevalence and Associated Factors of Stunting

The following figure summarizes the possible prevalence of stunting and identifies factors associated with stunting among 6-59 months aged children attending the pediatric outpatient department at Haramaya General Hospital of East Hararghe, Oromia, Ethiopia **(Figure 1)**.

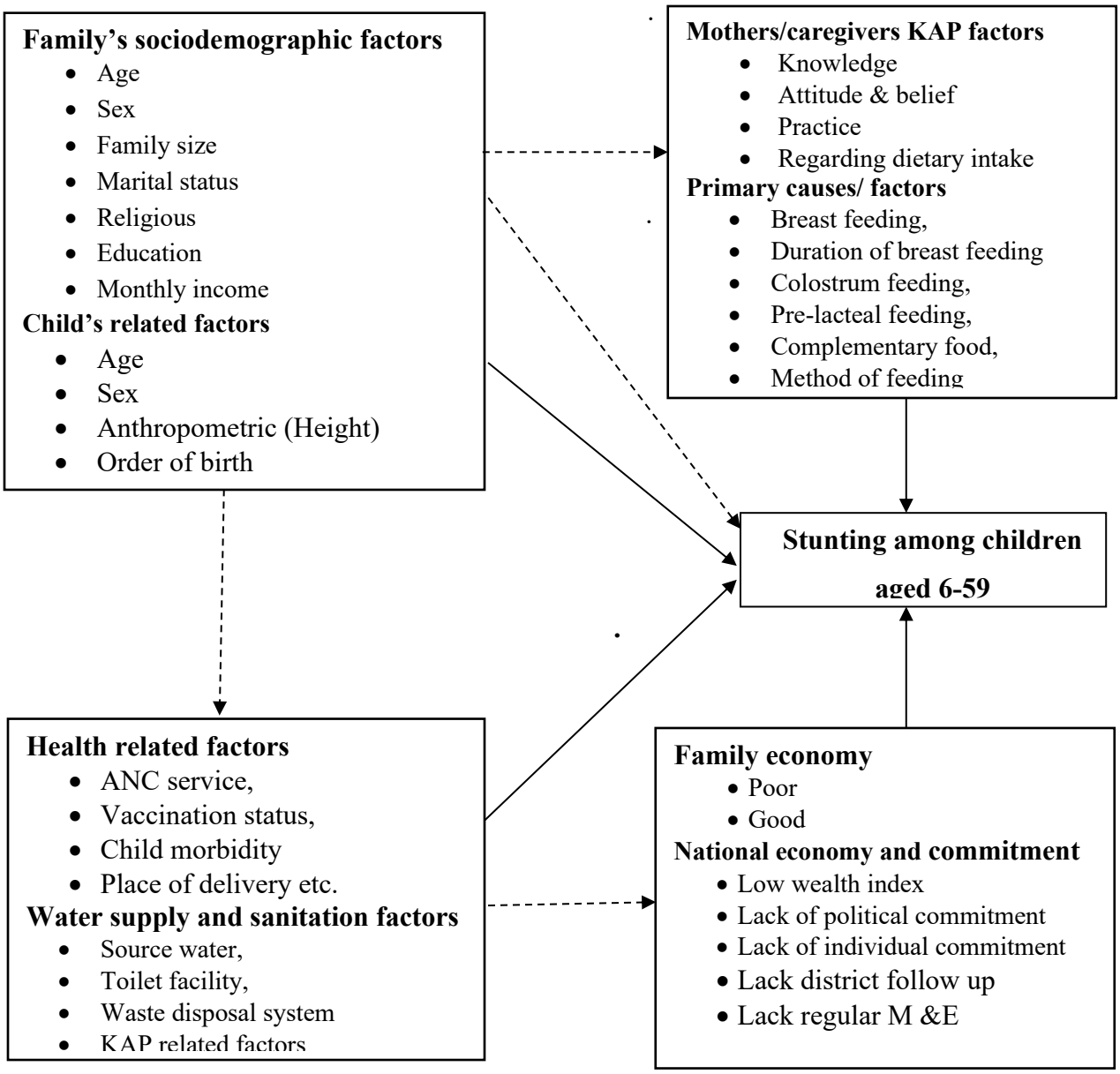


Figure 1: Conceptual framework of stunting and its associated factors among 6-59 months aged children attending the pediatric outpatient department at Haramaya general hospital, East Hararghe, Oromia, Ethiopia, 2025.

# 3. MATERIALS AND METHODS

## 3.1. Study Area

The study was conducted in Haramaya General Hospital of Haramaya district, East Hararghe Zone in Oromia Regional state from June 15, 2025 to August 15, 2025. Haramaya district is located 041°59’58’’N latitude and 09°24’10’ E ’longitudes. The district is bordered on the south by Kurfa Chele district, on the west by Kersa, on the north by Dire Dawa, on the east by Kombolcha, and on the southeast by the Harari Region. Haramaya district has 34 rural kebeles. The urban kebeles of Haramaya and Awdi towns recently decided to be a part of Maya city and is located at 42º3’ E longitudes, 9º26’ N latitude, at an altitude of elevation of 2047 M.A.S.L. The newly established city is at about 500 km from Addis Ababa and 18 km west of Harar (Gudata *et al*., 2022).

According to the 2019 data from the Haramaya district, about 16.43% (50, 985) of the population were children aged under 5 years. Haramaya district has one hospital (Haramaya General Hospital), eight health centers and 38 health posts. There are also 12 private higher clinics, one village pharmacy and five traditional medical practitioners. All the health centers are accessible by road. The average distance of all health centers from the central Haramaya town (currently Maya city) is 13 km. The study was conducted in Haramaya district at Haramaya General Hospital.

## 3.2. Study Design

An institution-based cross-sectional study was conducted among 375 children aged 6-59 months and their caregivers at Haramaya general hospital, East Hararghe from June 15 to August 15, 2025.

## 3.3. Population

### 3.3.1. Source of population

The study’s source population were all the children in the age range of 6 to 59 months and their mothers/caregivers attending pediatrics outpatient department at Haramaya General Hospital through the year

### 3.3.2. Study population

The study’s population were all the children in the age range of 6 to 59 months and their mothers/caregivers attending pediatrics outpatient department at Haramaya General Hospital from June 15, 2025 to August 15, 2025

### 3.4. Inclusion and Exclusion Criteria

#### 3.4.1. Inclusion criteria

All children in the age range of 6 to 59 months and their mothers/caregivers attending pediatrics outpatient department at Haramaya General Hospital and who have been living in Maya city and surrounding rural areas in Haramaya district for at least six months. It included the children's mothers or caretakers that follow-up their health care (at least one adult aged 18 years for each child) that provides consent for interview. For those have two or more children aged 6-59 months, the youngest children were selected.

#### 3.4.2. Exclusion criteria

The children who are very sick requiring emergency treatment and that have other health problems (e.g., lumbar scoliosis) were excluded from the study not to falsify anthropometric measurements. Children and their mothers/caregivers whose information was incomplete and the data taken by mistake more than once in the study period were excluded.

### 3.5. Sample Size Determination

**Objective 1: Sample size for prevalence of stunting.** For the descriptive statistics, a single population proportion formula was used for prevalence of stunting among children 6-59 months The study conducted in Ethiopia found that the prevalence of stunting among children 6-59 months 39.5% (Gebreayohanes, 2022). Therefore, the required calculate sample size (n) was

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

Where: d= margin of error which is 5% (0.05)**;** **z=** confidence level 95% (z=1.96)**;** and **p=** proportion 39.50% and non-response rate of the participants was 5% (i.e. 10% is not expect because institution-based assessment) = $\frac{(1.96)^2 * 0.395\ (1-0.395)}{(0.05)^2}$= 367.

By adding 5%, the final required sample size was 385.

**Objective 2: Sample size for associated factors**: For inferential statistics, double proportional formula was used to calculate the sample size using "Epi7th" considering Power: 80%, the confidence interval (CI): 95%; AOR and percent of unexposed to outcome and 5% non-response

rate. Accordingly, the AOR of caregiver those not exclusively breastfeeding for at least 6 months was 2.57 (AOR = 2.57; 95% CI: 1.49, 4.42). Hence, the final sample size was 298+5%= 303.

**Final decision:** Finally, Sample size for prevalence of stunting (objective 1) was higher than Sample size for associated factors (Objective 2). Therefore, the final sample size was 385.

### 3.6. Sampling Techniques

Based on pre-tested information conducted in Jogula general hospital, five (5) mothers/caregivers were planned per a day considering sample size calculated. Therefore, three months of data collection along the mothers gave birth at Haramaya general hospital as well as those from the children's card of birth.

### 3.7. Data Collection Methods

#### 3.7.1. Data collection instruments

The primary data was collected by administered interview using a structured questionnaire. The data collection includes socio-demographic and socioeconomic data (marital status, age, sex, education, occupation, and economic status of the families, residence, ethnicity, religion, number of under-five children, birth order, number of children in the family etc.) and four factors associated with stunting and malnutrition. These include knowledge, attitude and practice of families, health care related, dietary intake related factors including breast feeding and environmental related factors. For practice of dietary, respondent woman identified correctly prepared about child feeding/dietary intake/environmental determinants. Then, if the calculated mean of questions (both dietary and environmental determinants) equals and above mean scores (>50%), it was considered as good practice, otherwise it was declared as poor practice if the score <50%. (Jaqtap et al., 2017).

**Anthropometric parameters:** The body length/height and weigh the child was measured. Measured using calibrated scales and stadiometers; Z-scores via WHO Anthro software. Data was collected related to child characteristics (age, sex, birth order, birth interval, place of delivery, types of birth, and morbidly status), child caring practices (feeding and immunization), maternal characteristics related to child characteristics (age, mothers' age during first child, number of children ever have born, ANC visits, use of extra food during pregnancy or lactation and family planning). If available the child data at birth was also obtained with the children's card of birth

and all the available information was recorded. The daily data collection by data collectors and anthropometric measurements and data from children by the health workers. The supervisor was supervised by the data collection at least two times in the study period. Anthropometric data (height and age) collected from the children's card of birth if available the child data at birth at Haramaya general hospital.

### 3.7.2. Data collection and supervisors

The data collection from respondents (mothers and caretakers) were used the structured questionnaire (Annex 1).

### 3.7.3. Procedure of data collection

The study population consisted of all children aged 6-59 months paired with their mothers/caregivers visiting the pediatric outpatient department. Data were collected via face-to-face interviews. Prior to the data collection, a questionnaire was pretested among 25 children from those 6-59 months aged children attending pediatrics outpatient department at Haramaya general hospital within one week period. The required information was taken from the parents or primary caretaker via face-to-face interviews. Age and height of the children were taken. The necessary changes on data collection were made depending on the pretest results. The data collectors and the health staff of outpatient department were also trained about the aim of the research.

The principal investigator and the health staff of outpatient department assessed and identified the eligibility of children who attended in the department. The principal investigator and the health staff of outpatient department discuss with respondents systematically identified as per 3.4 (Inclusion and Exclusion Criteria) and 3.6 (Sampling Procedure/Techniques) about the objective of the study and requested their consent for their willing to participate in the study. The everyday data was collected from the children and their parents or primary caretaker those are willing to participate in the study and signed the consent. Then after the data collectors registered in the data sheet (notebook) with the supervision of principal investigator as well as by the health staff of outpatient department at Haramaya General Hospital.

Anthropometric measurements of 6-59 months aged children were taken by the health staff of outpatient department at Haramaya General Hospital. The body length of children measured without shoes and the length was read to the nearest 0.1 cm. The mothers/caretakers helped to measure the length of their children. The measurement was done by using Height Board. The

measurement was done as height scale standard tape (UNHCR 2018). The children's card at birth was collected by the principal investigator up on the consent **of** mothers/caretakers of children.

### 3.8. Variables

#### 3.8.1. Dependent variable

The prevalence of stunting among children aged 6–59 months.

#### 3.8.2. Independent variables

The independent variables include: socio-demographic and socio-economic (age, sex, educational status, occupation, religion, income, family size and family support to mothers of children). Also, it included Health care related factors (ANC service, vaccination status, child morbidity, place of delivery). Knowledge, attitude and practice (KAP) about dietary intake and nutrition related factors (such as ever breast feeding, time for initiation of breast feeding, colostrum feeding, pre-lacteal feeding, duration of breastfeeding, complementary food, method of feeding). The practices of child feeding (Providing pre-lactation food/liquid, breastfeeding, types and preparation of food, feeding frequency and related practices). Environmental related factors (such as KAP environmental factors including sanitation and hygiene. source water, toilet facility, waste disposal system knowledge, practice and attitude related factors).

### 3.9. Operational Definitions

**Stunting:** It could be classified for the outcomes either three or two based on interested of researchers. Accordingly, if height for age (HFA) is below −2 SD of the reference population while below −3 SD indicates severe stunting, it considered as child has chronic malnutrition. While, if height-for-age *Z* score of ≥−2SD of the WHO Growth Standard chart, it considered as child is **not stunted** (UNHCR 2018; WHO, 2023).

**Duration of breastfeeding:** The WHO and other health organizations recommend exclusive breastfeeding for the first six months, followed by continued breastfeeding alongside appropriate solid foods for up to two years or longer. Early initiation within one hour of birth is also recommended (UNHCR 2018; WHO, 2023).

**Complementary foods:** Complementary food refers to nutrient-rich solid or semi-solid foods introduced alongside breast milk or formula, typically starting around 6 months (but not before 4 months) to meet growing infant needs. These foods, such as iron-fortified cereals, pureed fruits,

vegetables, and proteins, bridge the nutritional gap until 24 months, gradually replacing milk as the primary energy source (UNHCR 2018; WHO, 2023).

**Family size:** refers to the total number of people living in a house during the study period. Small, nuclear families (fewer than 3) are common in Europe and North America, while larger, often multi-generational, households (5+ members) are more common in Africa and Asia (UNHCR 2018; WHO, 2023).

**Good and poor knowledge:** The knowledge of family was measured by the total number of correct answers to 10 items on knowledge questions (both dietary and environmental determinants). It rated as Yes/No. Then, if the calculated mean of questions (both dietary and environmental determinants) equals and above mean scores, it was considered as good knowledge, otherwise it was declared as poor knowledge

**Positive and negative Attitude**: The attitude and belief of family was measured by the total number of correct answers to 10 items on knowledge questions (both dietary intake and environmental determinants). If the calculated mean of questions (both dietary and environmental determinants) equals and above mean scores (>50%), it was considered as positive, otherwise it was declared as negative attitude if it < 50%.

**Good and poor practice:** When the respondent woman identified correctly prepared about child feeding/dietary intake/environmental determinants. Then, if the calculated mean of questions (both dietary and environmental determinants) equals and above mean scores (>50%), it was considered as good practice, otherwise it was declared as poor practice if the score <50%. (Jaqtap *et al*., 2017).

**NB:** The questions for the assessment of nutrition-related Knowledge, Attitudes and Practices are prepared as per the FAO guidelines (Fautsch Macías and Glasauer, 2014).

### 3.10. Data Quality Control

Prior to the data collection, a questionnaire was pretested conducted on 5% (25 individuals) of children from those 6-59 months aged children attending pediatrics outpatient department at Jogula general hospital within one week period. Per a day 5 individual were completed. The required information was taken from the parents or primary caretaker via face-to-face interviews. Anthropometric measurements were taken. The necessary changes on data collection were made

depending on the pretest results. The nursing (data collectors) of outpatient department at Haramaya general hospital gave a practical training on data collection using structured questionnaire and anthropometric measurements. The calibration of the equipment tested at the beginning of the survey and regularly during the survey to ensure the measurements taken are as to the standard quality and also to replace faulty or broken items during the survey. The data collectors and health staff of outpatient department was supervised everyday by the principal investigator and trained based on good and wrong practices observed in the data collection. This continuously supervision and monitoring were done throughout the study period to ensure the quality data collection.

The questionnaire was translated to Afan Oromo and Amharic and retranslated back to English for consistency by language experts. The data was registered by the data collected, investigator and health staff in data register book was registered in Microsoft Excel spreadsheet prepared for data collection and checking at the same day. The missing data was checked and measures was taken for the children that missed data for variables. The children who missed only supplementary data such as child data at birth and data that could be complement by other data was retained while children who missed basic independent variables were deleted from the Microsoft Excel spreadsheet and data collection for the same number of children as substitute was planned and data was collected. This ensures the retained observations are as the planned sample size. The principal investigator was visited the data collection and check the quality of the collected data at least at the first week and middle period of the data collection period. Whenever necessary the supervisors were given a practical training to data collectors, principal investigator and health staff of Haramaya General Hospital those involved in the study.

### 3.11. Method of Data Analysis

Data was encoded and entered by Epi-data 3.1. Stata version 17 software was used to analysis. Descriptive statistics was computed and the result was reported using tables, frequencies, and percentages. Binary logistic regression was used to select candidate variables for multivariable logistic regression. The bi-variable logistic regression analysis started with unadjusted analysis in which each potential predictor was assessed separately for its association with stunting. Variables with p-values was equals or less than 0.20 on the unadjusted analysis was entered into a multivariable logistic regression model to find out independent risk factors of stunting adjusting for other factors in the model. The data analysis was computed using SPSS statistical software

version 23 and other appropriate statistical software's. The multicollinearity will be checked accordingly using the Variance Inflation Factor (VIF) for all independent variables. The model fitness will be tested by Hosmer and Lemeshow goodness of fit tests.

### 3.12. Ethical Consideration

Ethical clearance was obtained from the Institutional Health Research and Ethics Review Committee (IHRERC) of Haramaya University, College of Health, and Medical Science. Letter of cooperation and support from the university together with the ethical approval letter was presented to the Oromia Regional Health bureau, Haramaya district health office and Haramaya General Hospital. All study participants were informed about the purpose of the study and the benefit and risk of the study. Participant's right to self-determination and autonomy was respected. An informed, voluntary, written, and signed consent was obtained from each department head and participant, while those who were not willing to engage in the study at any time was allowed to do so. To protect the confidentiality of the information, names and household numbers of lactating mothers did not be recorded on the questionnaire.

### 3.13. Information Dissemination

The findings of this study will be disseminated in the form of presentation and defense as master's thesis. Additionally, it will be published in a peer-reviewed journal. Furthermore, it will be entertained in local scientific meetings involving the academic community at HU and stakeholders from Oromia regional health bureau and district bureaus

# 4. RESULTS

## 4.1. Socio-demographic Characteristics of the respondents

From the total of 385, a total of 375 child–caregiver pairs participated in the study, yielding a 97.40% response rate among eligible and consenting participants. The majority of respondents were female caregivers (97.3%), with most mothers aged between 30 and 39 years. Most participants were living with their husbands (97.1%), Oromo ethnicity (86.90%), higher than 32 years old (53.70%), lived with husbands (91.7%) and identified as Muslim (80.0%) and can read and write (56.3%) A large proportion of mothers were housewives (80.0%).

Regarding household characteristics, 66.93% the caregivers had more than four family members. Regarding children characteristic, among the participating children, majority (53.33%) were less than 21 months. Of these, 153 (40.8%) were infants aged 1–11 months and 225 (60.0%) were male. The majority of participants (32.8%) were fourth or later in birth order, followed by first-born children (26.7%). Second- and third-born children represented 21.9% and 18.7% of the sample, respectively (**Table 3**).

**Table 3:** Socio-Demographic Characteristics of Mothers/Caregivers (n=375) at Haramaya general hospital, East Hararghe, Ethiopia, 2025.

| Variable | Category | Frequency (n) | Percent (%) |
|---|---|---|---|
| Respondent's Sex | Male | 10 | 2.7 |
| | Female | 365 | 97.3 |
| Ethnicity | Oromo | 325 | 86.90 |
| | Amhara | 34 | 9.09 |
| | Gurage | 15 | 4.01 |
| Mother's Age (Mean based) | ≤ 31 years* | 169 | 46.30 |
| | > 32 years | 196 | 53.70 |
| Marital status | Live with husband | 344 | 91.7 |
| | Live without husband** | 31 | 8.3 |
| Religion | Muslim | 300 | 80.0 |
| | Christians | 75 | 20 |
| Educational level | Informal education | 164 | 43.7 |
| | Literate | 211 | 56.3 |
| Occupation | Housewife | 300 | 80.0 |
| | Daily labor | 57 | 15.2 |
| | Employed | 18 | 4.8 |
| No of Family Members | Equals/less than 4* | 251 | 66.93 |

| | | | |
|---|---|---|---|
| | Greater than 4 | 124 | 33.07 |
| Child's Sex | Male | 225 | 60.0 |
| | Female | 150 | 40.0 |
| Child's Age (months)* | 1-11 (Infant) months | 153 | 40.8 |
| (**Mean=21 months**) | 12-23 (Toddler) | 65 | 17.3 |
| | 24-35 months | 108 | 28.8 |
| | 36+ months | 49 | 13.1 |
| Birth Order | First born | 100 | 26.7 |
| | Second born | 82 | 21.9 |
| | Third born | 70 | 18.7 |
| | Fourth and above | 123 | 32.8 |
| Using mean child's age (months) | Equals/Less than 21 | 200 | 53.33 |
| | Greater than 22 | 175 | 46.67 |

*Classified based on mean; **Sum of Single, divorced, widowed and separated (they are mall in number)

### 4.2. Care related characteristics of the children

The distribution of birth order among the 375 children included in the study is presented in Table 2. Of the 375 children assessed, 138 were stunted, resulting in an overall stunting prevalence of 42.40% (95%CI: 37.34—47.58%). Among these, 61 children (38.0%) were moderately stunted (HAZ < −2 SD), while 91 children (62.0%) were severely stunted (HAZ < −3 SD). The remaining 216 children (57.6%) had normal height-for-age indices. According to this study, more than half percent (57.07%) of the mothers/caregivers didn't visit antenatal care (ANC) at health care setting. Furthermore, approximately three fourth (73.33%) of the children aged 6-59 months didn't get vaccination. More than half percent (53.60%) of them were delivered at hospital settings by assistant of Nurses (51.47%) (**Table 4**).

**Table 4**: Prevalence of stunting and health care related characteristics among caregivers along distribution of children at Haramaya general hospital, East Hararghe, Ethiopia, 2025.

| Variables | Categories | Frequency (n) | Percent (%) |
|---|---|---|---|
| Child's malnutrition | Not stunted | 216 | 57.6 |
| level (Binary Outcome) | Stunted | 159 | 42.4 |
| Based on WHO stunting | Not stunted | 216 | 57.6 |
| (Ordinal outcome) | Moderate stunting | 61 | 38.0 |
| | Severe stunting | 91 | 62.0 |
| Place of giving \| | Homes | 133 | 35.47 |
| birth | Hospital | 201 | 53.60 |
| | Health center | 41 | 10.93 |

| | | | |
|---|---|---|---|
| Delivery Assistant | Doctors | 53 | 14.13 |
| | Nurses | 193 | 51.47 |
| | Traditional birth attendants | 129 | 34.40 |
| How many times had you been attending ANC during pregnancy | One times | 80 | 21 |
| | Two or three times | 47 | 12.53 |
| | Greater or equal to four | 31 | 8.27 |
| | Do not have ANC visit | 214 | 57.07 |
| | Don't know | 3 | 0.80 |
| Did your child fully immunized? | Yes | 100 | 26.67 |
| | No | 275 | 73.33 |
| Does he/she have a Vaccination card | Yes | 300 | 81.74 |
| | No | 67 | 18.26 |

### 4.3. Knowledge, attitude and practice about dietary intake

The level of knowledge of mothers/caregivers was 43.87% and 56.13%% for good and poor knowledge about attribution of dietary intake to stunting among the children aged 6-59, respectively. This study also found that the belief and perception of mothers/caregivers was accounted positive (50.40%) and negative (49.60%) about attribution to stunting among the children aged 6-59. Further, it found that the level of practice among mothers/caregivers was accounted 54.67% for good and 45.33% for poor practice of dietary **(Figure 3**).

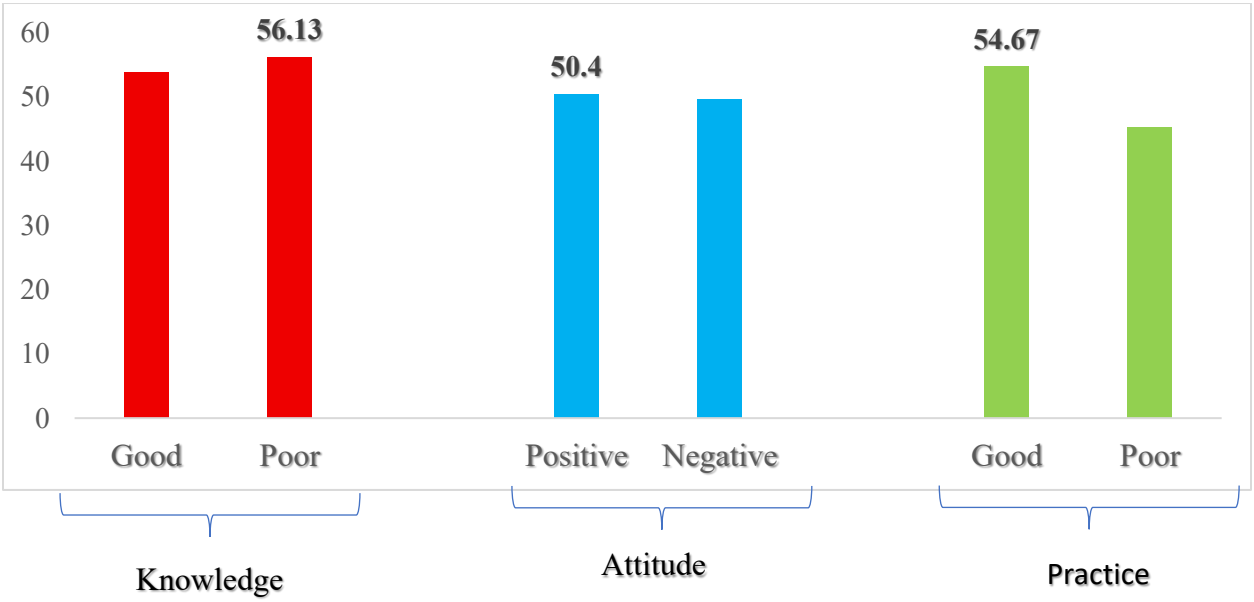


**Figure 2 :** Knowledge, attitude and practice of mothers/caregivers about dietary intake among children aged 6-59 at Haramaya general hospital, East hararghe, Ethiopia, 2025.

### 4.4. Knowledge, attitude and practice about water and sanitation

The level of knowledge of mothers/caregivers was 56.54% and 43.46% for good and poor knowledge about attribution of water, supply and hygiene (WASH) to stunting among the children aged 6-59 months, respectively. In same analysis, the belief and perception of mothers/caregivers was accounted positive (50.40%) and negative (49.60%) about WASH attribution of stunting. Similarly, the level of practice among mothers/caregivers was accounted 45.33% for good practice and 54.67% for poor practice of WASH by mothers/caregivers **(Figure 3**)

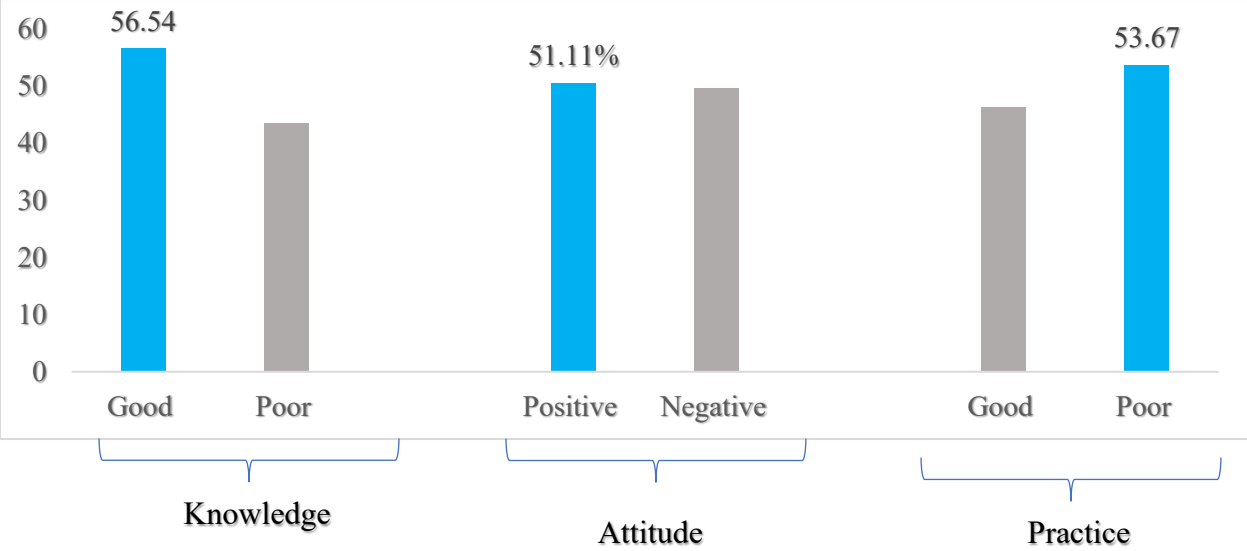


Figure 3 KAP about Environmental determinants among mothers/caregivers for children aged 6-59 at Haramaya general hospital, East Hararghe, Ethiopia, 2025.

### 4.5. Factors Associated with Stunting among Children

The bivariable and multivariable logistic regression output showing for the factors associated with stunting. Factors such as being female child (COR = 1.21; 95%CI: 1.77-3.22); fewer than two ANC visits (COR: 10.23; 95%CI: 2.86-16.13); fewer than four ANC visits (COR:11.63; 95%CI: 2.57-23.21); age of child less than 21 months (COR:1.47; 95%CI: 1.07-3.22); poor knowledge of mother/caregivers about dietary intake by children (COR: 1.53; 95%CI: 1.01-2.31); positive attitude about dietary intake (COR: 1.15; 95%CI: 1.04-2.82) and poor practice (COR: 1.09; 95%CI: 1.02-2.36) were significantly increased the odds of stunting among children aged 6-59 months as compared to their counterparts. However, mothers/caregiver that number of families were less than 4 (COR: 0.88; 95%CI: 0.45-0.99); those often-practiced exclusive breast feeding

(COR: 0.47; 95%CI: 0.19-0.87); first order (AOR: 0.55; 95%CI: 0.40-0.97) and second order of birth (AOR: 0.40; 95%CI 0.30-0.83) were significantly reduced the odds of stunting **(Table 5)**.

A multivariable logistic regression found that age of child less than mean score of 21 months (AOR:5.78; 95%CI: 3.21-11.31); poor knowledge of caregivers about dietary intake by children attributable to stunting (AOR:2.56; 95%CI: 1.21-3.56); negative attitude about dietary intake (AOR:2.86; 95%CI: 1.21-4.34); poor practice about dietary intake (AOR: 2.11; 95%CI: 1.34-4.56) ; poor knowledge about WASH attributable to stunting (AOR: 2.45; 95%CI: 1.67-6.98) ; negative attitude about WASH attributable to stunting (AOR: 2.13; 95%CI: 1.98-4.11); fewer than four ANC visits (AOR:10.34; 95%CI: 4.78-52.7); and age of mothers greater than mean score (AOR:2.45; 95%CI: 1.76-3.45) were significantly increased the odds of stunting among children aged 6-59 months. However, mothers/care givers that number of families were less than four in family (AOR: 0.34; 95%CI: 0.45-0.89) and those often-excluding breast feeding (AOR: 0.57; 95%CI: 0.19-0.76); and first order birth (AOR: 0.50; 95%CI: 0.20-0.93) were significantly reduced the odds of stunting (**Table 5**)

**Table 5:** Factors Associated with Stunting among Children Aged 6-59 Months at Haramaya general hospital, East Hararghe, Ethiopia, 2025.

| Variables | Child age among 6-59 (N=375) | | COR (95%CI) | AOR95%CI) |
|---|---|---|---|---|
| | Not stunted: Fr (%) | Stunted: Fr (%) | | |
| Child's age | | | | |
| ≥ 22 months | 124(57.41) | 76(47.80) | 1 | 1 |
| >22 months | 92(42.59) | 83(52.2) | 1.47(1.07-3.22) *** | 5.78(3.21-11.31) ** |
| No of children in family | | | | |
| ≥ 4 children | 142(65.74) | 109(68.55) | 1 | 1 |
| < 4 children | 74(34.26) | 50(31.45) | 0.88(0.45-0.99) *** | 0.34(0.45-0.89) ** |
| Lack of ANC | | | | |
| One time | 49(22.69) | 31(19.50) | 1 | 1 |
| 2or3 times | 24(11.11) | 23(14.47) | 10.23(2.86-16.13) * | 9.11(3.45-36.6) ** |
| ≥ four | 15(6.94) | 16(10.06) | 11.63(2.57-23.21) * | 10.34(4.78-52.7) |
| Didn't visit ANC | 128(59.26) | 86(54.09) | | 1.24(0.62-2.47) |
| Birth order | | | | |

| | | | | |
|---|---|---|---|---|
| 4th above | 35 (36.7) | 23(29.43) | 1 | 1 |
| 3rd born | 48 (70.0) | 32 (40.0) | 0.70 (0.48 - 1.33) | 0.60 (0.31 – 2.45) |
| 2nd born | 50 (65.6) | 34 (36.6) | 0.55 (0.40 – 0.97) *** | 0.25 (0.20 – 1.11) ** |
| 1st born | 45 (46.0) | 65 (25.0) | 0.40 (0.30 - 0.83) * | 0.50 (0.20 - 0.93) * |
| Knowledge about dietary attributable to stunting | | | | |
| Good | 126(58.33) | 76(47.80) | 1 | 1 |
| Poor | 90(41.67) | 83(52.20) | 1.53(1.01-2.31) **** | 2.56(1.21-3.56) ** |
| Attitude about dietary intake | | | | |
| Positive | 112(51.85) | 77(48.43) | 1 | 1 |
| Negative | 104(48.15) | 82(51.57) | 1.15(1.04-2.82) ** | 2.86(1.21-4.34) ** |
| Practice about dietary attributable to stunting | | | | |
| Good | 120(55.56) | 85(53.46) | 1 | 1 |
| Poor | 96(44.44) | 74(46.54) | 1.09(1.02-2.36) ** | 2.11(1.34-4.56) * |
| Knowledge about WASH attributable to stunting | | | | |
| Good | 123(3.72) | 89(1.90) | 1 | 1 |
| Poor | 129(96.28) | 34(98.10) | 2.00(1.11-6.24) *** | 2.45(1.67-6.98) ** |
| Attitude about WASH attributable to stunting | | | | |
| Positive | 115(53.24) | 74(46.54) | 1 | 1 |
| Negative | 101(46.76) | 85(53.46) | 1.31(1.01-2.03) | 2.13(1.98-4.11) ** |
| Mothers' age | | | | |
| < 32 years | 103(48.36) | 66(43.42) | 1 | 1 |
| ≥32 years | 110(51.64) | 86(159) | 1.22(1.10-2.17) | 2.45(1.76-3.45) ** |
| Exclusive breast feeding | | | | |
| Never | 145(67.13) | 114(72.15) | 1 | 1 |
| Sometime | 52(24.07) | 37(23.42) | 0.91(0.23-0.97) | 0.31(0.23-0.87) ** |
| Often | 19(8.80) | 7(4.43) | 0.47(0.19-0.87) | 0.57(0.19-0.76) |

**Keys:**

*Shows that p-values were statistically significant of <0.001

**Shows that p-values were statistically significant p-values <0.005

*** Shows that p-values were statistically significant p-values <0.20(COR)

## 5. DISCUSSIONS

This institution-based cross-sectional study assessed the magnitude and determinants of stunting among children aged 6–59 months attending the pediatric outpatient department of Haramaya general hospital in East Hararghe, Ethiopia. The findings reveal a deeply concerning nutritional landscape, with over one-third of outpatient children affected by stunting and a substantial proportion experiencing severe stunting. Several interconnected factors operating at child, maternal, and household levels were identified, offering critical insights for targeted interventions.

Accordingly, the overall prevalence of stunting among children aged 6–59 months attending the pediatric outpatient department of Haramaya general hospital in East Hararghe, Ethiopia was 42.40%. According to the previous studies, such high prevalence indicates a severe, chronic public health crisis, reflecting poor maternal nutrition, inadequate child feeding such as late breastfeeding initiation, and low socioeconomic status (Abdilahi et al., 2024, Tesfaye and Egata, 2022).

It signifies a high risk of increased morbidity, mortality, and poor cognitive development(Kalu and Etim, 2018a). This type of stunting is classified as “very high” public health problem , according to world health organization definition (Wirth et al., 2017). The other study also reported that such type of stunting prevalence significantly elevated risks of mortality, irreversible cognitive and physical deficits, and diminished human capital, perpetuating cycles of poverty (Saleh et al., 2021).

When it compares, this finding is slightly higher than previous studies in East Hararghe, which reported stunting prevalence among children aged 6-59 months reported from Meta district, eastern Ethiopia was 33.5% in (Tesfaye and Egata, 2022), 35.7% reported by (Asgedom et al., 2024) and 29% reported by (Akombi et al., 2017).

It aligns with the national estimate of 39% reported in Ethiopia's National food and nutrition strategy baseline survey (Woldeyohannes et al., 2023) and the national pooled prevalence was reported 43% last two years, reported by (Abdilahi et al., 2024). Also, the pooled prevalence of stunting among these groups of children was 39.9%, which reported recently from Ethiopia (Taderegew et al., 2025). However, it is slightly lower than the previous finding, 46% obtained from developing country, Nepal (Acharya et al., 2023). Despite of fact that it is lower than the finding [62.5%] obtained from Fedis district, East Hararghe last five years ago (Hailu et al., 2020) and

The 1st explanation of the discrepancy between the current and previous studies may be due to socio-demographic, environmental, behavioral and individual factors of participants (Gebre,, 2022, Salwe, 2011). The 2nd reason of discrepancy may be due to fear and the awareness between the participants about what their children feedings, drinking , which has influence the sustained to stunting to report among the participants (Odonkor and Sallar, 2024).

The 3rd reason of discrepancy may be due to methodologies such as sample size, data collections and induction of recall bias, which can significantly influence the outcome (He et al., 2023, Yasobant and Rajkumar, 2014). The 4th reason for the disparity could be due to wealth index policies, commitment of politics interference, which have a significant impact on the risk of stunting among children aged between 6-69 months (Detroja et al., 2025, Madan et al., 2008).

Several factors were independently associated with stunting are lack of ANC, alongside factors like low maternal education, poor sanitation, are critical, independent predictors of chronic undernutrition in children aged 6–59 months, which are reported previously (Taderegew et al., 2025, Tafesse et al., 2021, Yigezu et al., 2024). According to the current study age of child less than mean score of 21 months was significantly increased the odd of stunting by more than five-fold (AOR:5.78; 3.21-11.31) that is similar to the previous study reported by (Asgedom et al., 2024) and (Akombi et al., 2017). This implies that lack of ANC, low maternal education, and poor sanitation are critical, independent predictors of chronic stunting in children aged 6–59 months, implying that systemic, multi-sectoral, and intergenerational interventions are required. This means that addressing stunting requires improving maternal health literacy, increasing access to healthcare, and improving environmental sanitation(Abdilahi et al., 2024).

The study also found that poor awareness of mothers/caregivers about dietary intake by children was significantly increased the odd of stunting by approximal three times attributable to stunting (AOR:2.56; 1.21-3.56), which is similar to the previous study reported by (Forh et al., 2022). This study also found that negative attitude (AOR: 2.11; 1.34-4.56) and poor practice of mothers/caregivers about dietary intake about dietary intake (AOR: 2.86; 1.21-4.34) were significantly attributed to stunting among the children. This is because negative attitudes and poor dietary practices of caregivers significantly cause child stunting by restricting access to nutrient-dense, diverse foods during critical growth periods (6–23 months) (Mporanyi et al., 2025).

The overall, poor awareness, negative belief and practices, including low meal frequency, lack of responsive feeding, and insufficient, non-diverse food intake, directly impede healthy development, while negative attitudes often arise from limited knowledge (Bimpong et al., 2020). The study also found that poor awareness (AOR: 2.45; 1.67-6.98) and negative belief or attitude (AOR: 2.13; 1.98-4.11) of mothers/caregivers about WASH were attributable to stunting. This because poor awareness and negative attitudes regarding WASH are directly linked to child stunting a condition of impaired growth and development (Sahiledengle et al., 2022). The previous study found that lack of knowledge and poor WASH practices among caregivers directly cause chronic, irreversible childhood stunting by increasing exposure to environmental pathogens. This leads to repeated infections, diarrhea, and environmental enteric dysfunction (EED), which disrupt nutrient absorption and severely impair physical and cognitive development in children aged 6–59 months(Vilcins et al., 2018).

Hence, WASH and ANC programs are critical, interlinked interventions for reducing childhood stunting, which is the chronic, largely irreversible restriction of a child's potential growth. Stunting is caused by malnutrition, recurrent infections, and environmental factors often addressed through a combined multi-sectoral approach. So that they perpetuate the ingestion of fecal bacteria, leading to chronic infections and malnutrition.

When caregivers (Woldeyohannes et al., 2023, Sahiledengle et al., 2022, Saputra et al., 2025). In addition, it also found that missing ANC more than four (AOR: 10.34; 4.78-52.7) were significantly increased the odds of stunting by more than tenfold among children as compared to those less missing. The previous study also found that children born to mothers with no ANC follow-up have significantly higher odds of stunting, often over 2.8 times more likely (Tafesse et al., 2021). This implies that lack of knowledge, negative attitudes, and poor dietary practices significantly contribute to child stunting (6–59 months), resulting in irreversible physical/cognitive delays, increased disease susceptibility, and higher long-term healthcare costs. These factors lead to inadequate nutrient intake, improper feeding (e.g., poor complementary feeding), and increased stunting(Tafesse et al., 2021)

However, this study found that mothers/caregivers those have the number of children less than four in family (AOR: 0.34; 0.45-0.89) were significantly reduced the odds of stunting among children aged 6-59 months as compared to their counterparts. This suggested that the possible

families' disparities in feeding and care practices, even after controlling for socio-economic factors. This study also found that mothers/caregivers those often practice excluding breast feeding (AOR: 0.57; 0.19-0.76) were significantly reduced the odds of stunting among children aged 6-59 months as compared to their counterparts. The previous study found that non-exclusive breastfeeding is becoming a major cause of infant and child morbidity and mortality in developing countries including Ethiopia (Feleke et al., 2021). This finding aligns where it identified that food insecurity as the most important proximate determinant of a child's nutritional status including excluding breast feeding and highlights the critical role of diverse diets in providing essential nutrients necessary for linear growth and cognitive development (Zewdie et al., 2022).

The present study also found that the first order birth (AOR: 0.50; 0.20-0.93) was significantly reduced the odds of stunting among children aged 6-59 months as compared to their counterparts. This suggests that policies focusing solely on birth spacing without addressing overall family resource constraints may have limited effectiveness. The interaction between family size and birth order effects has been noted in other developing country contexts where resource constraints magnify the disadvantages of higher birth orders (Gribble et al., 2009).

Collectively, these determinants interact to create compounded risks for stunting. A later-born girl in a large family, whose mother engages in daily labor and whose diet is limited to a single crop, faces multiple overlapping vulnerabilities. These findings illustrate that stunting arises from multidimensional deprivation (Vilcins et al., 2018) and cannot be addressed by single-sector interventions.

### 5.1. Strengths and Limitation of the study

#### 5.1.1. Strengths of the study

The current study has certain strengths. These include the study utilized a robust sample size, objective anthropometric measurements, and multivariate analysis controlling for key confounders. Limitations include its cross-sectional design, which precludes causal inference, and the hospital-based sample, which may not fully represent the general child population. Recall and social desirability biases may also affect self-reported data. Additionally, the absence of information on household food security, maternal height, and child morbidity limits a more complete understanding of stunting pathways (Vilcins et al., 2018). The finding that maternal

education did not remain significant in the final model may reflect measurement issues or the overwhelming effect of poverty that overshadows educational advantages in this setting.

### 5.1.2. Limitation of the study

The study has certain limitations. Of these, the study was depended on 6-59 months aged children attending pediatrics outpatient department at Haramaya general hospital (HGH) from towns and surrounding rural areas. This might not represent the entire 6-59 months aged children in towns and Haramaya district since the sample children were not random taken and the number of children not to the proportion of the district population. The study is cross-sectional has no causality that led recall bias. The data collection was done over period three months and this data might be representing children aged 6-59 months attending pediatrics outpatient department over the months of the year. The cross-sectional study based on hospital attendant children and their parents/caretakers at defined months (five) and data taken for one child and his/her parent/caregivers once might represent the cause and effect that period not help to establish the long-term cause-and-effect relationships.

## 6. CONCLUSIONS AND RECOMMENDATIONS

### 6.1. Conclusions

This study demonstrates that stunting remains a major public health problem among children aged 6–59 months attending Haramaya general hospital, with a prevalence of 42.40%, which exceeds the WHO threshold ((>20% for public health significance). A substantial proportion of affected children were severely stunted, reflecting prolonged and cumulative nutritional deprivation during early life and underscoring the chronic nature of undernutrition in this setting. This study found that stunting is driven by larger family size, maternal engagement in precarious labor, low dietary diversity, poor knowledge and practice as well as unfavorable attitude about dietary intake of children and sanitation, water and hygiene also contributed the prevalence of stunting among children 6-59 months.

The findings indicate that stunting is shaped by a combination of child-, maternal-, and household-level factors. Overall, the study underscores the need to address stunting through integrated

approaches that extend beyond clinical care, focusing on household conditions, maternal circumstances, and food system characteristics that influence child nutrition and growth.

### 6.2. Recommendation

Based on the study findings, the following recommendations are proposed to guide efforts aimed at reducing the burden of stunting. These recommendations are organized by key implementing actors and sectors. Addressing stunting in this setting requires integrated, transformative approaches that enhance household economic resilience, support maternal caregiving, promote diverse diets, and ensure gender-sensitive child care within a strengthened health system. Separately, the study is advising the following concerns for further stunting mitigation among children 6-59 months. These include:

**Health Service Delivery (Haramaya General Hospital and District Health Office)**

- Strengthen nutrition education for caregivers; improve ANC coverage via community outreach. This assumption supported the Seqota Declaration where 15-year high-level commitment by the Ethiopian to end stunting in children under two years of age by 2030.
- Strengthen routine risk identification. Anthropometric measurements should be consistently conducted for all children attending pediatric services, alongside simple risk assessment focusing on family size, birth order, maternal occupation, and household food practices. Children identified as stunted should receive targeted counseling and follow-up.
- Enhance integrated nutrition counseling at health facilities. Counseling should emphasize age-appropriate feeding practices, use of locally available foods to improve dietary diversity, and responsive caregiving. Where appropriate, counseling services may also incorporate information on birth spacing and maternal workload in a culturally sensitive manner.
- Improve referral and linkage mechanisms. Strengthening coordination between health facilities, community health extension workers, and relevant social and agricultural services can facilitate continued follow-up and support for nutritionally vulnerable children and households.

**Program and Policy Planning (Regional Health Authorities, NGOs, and other Partners)**

- Effective strategies require integrated, multi-sectoral approaches linking health, agriculture, and social protection systems to improve household resources
- Promote multi-sectoral collaboration. Strengthened coordination among health, agriculture, social protection, and women's affairs sectors is essential to address the multifactorial drivers of stunting identified in this study.

**Future Research**

- Conduct qualitative and operational studies to better understand the pathways linking maternal occupation, household food practices, and child growth outcomes, as well as community perceptions related to child nutrition.
- Undertake longitudinal and intervention-based studies to establish causal relationships and to evaluate integrated intervention packages that address household size, maternal livelihood constraints, and dietary diversity.

## 7. REFERENCES


Abdella & Cheneke 2023. Adaptation and Growth Performance of Lowland Bamboo Species at Fedis District East Hararghe Zone, Oromia, Ethiopia. *American Journal of Plant Biology*.

Abdilahi, Osman & Abate 2024. Epidemiology of stunting in children aged 6-59 months, an unresolved chronic nutritional problem in Ethiopia: A systematic review and meta-analysis. *SAGE Open Med,* 12**,** 20503121241259862.

Acharya, Thapa, Kansakar, Shakya, Dhakal & Kc 2023. Stunting among Children Aged 6 to 59 Months Visiting the Outpatient Department of Pediatrics in a Tertiary Care Centre. *JNMA J Nepal Med Assoc,* 61**,** 654-657.

Aguayo, Nair, Badgaiyan & Krishna 2016. Determinants of stunting and poor linear growth in children under 2 years of age in India: an in-depth analysis of Maharashtra's comprehensive nutrition survey. *Maternal & Child Nutrition,* 12**,** 121-140.

Akhade 2017. Measuring malnutrition: needs a comprehensive indicator. *International Journal Of Community Medicine And Public Health,* 5**,** 258.

Akombi, Agho, Hall, Merom, Astell-Burt & Renzaho 2017. Stunting and severe stunting among children under-5 years in Nigeria: A multilevel analysis. *BMC Pediatrics,* 17**,** 15.

Amare Zelellw & Gebreigziabher 2014. Prevalence and Associated Factors of Stunting Among Schoolchildren, in Debre Markos Town and Gozamen Woreda, East Gojjam Zone, Amhara Regional State, Ethiopia, 2013. *Journal of Nutrition & Food Sciences,* s8.

Amoadu, Abraham, Adams, Akoto-Buabeng, Obeng & Hagan 2024. Risk Factors of Malnutrition among In-School Children and Adolescents in Developing Countries: A Scoping Review. *Children,* 11**,** 476.

Asefa, Girma, Kaso, Ferede, Agero & Beyen 2024. Prevalence of stunting and associated factors among under-five children in Robe Woreda, Arsi zone, Ethiopia. *International Journal of Africa Nursing Sciences,* 21**,** 100782.

Asgedom, Seifu, Mare, Asmare, Asebe, Kase, Shibeshi, Tebeje, Sabo, Fente, Kassie & Lombebo 2024. Levels of stunting associated factors among under-five children in Ethiopia: A multi-level ordinal logistic regression analysis. *PLOS ONE,* 19**,** e0296451.

Bantamen, Belaynew & Dube 2014. Assessment of Factors Associated with Malnutrition among Under Five Years Age Children at Machakel Woreda, Northwest Ethiopia. Journal of Nutrition & Food Science. .

Beyene, Willis, Mamo, Legesse, Regassa, Tadesse, Wolde-Hawariat & Roslan 2019. Nutritional status of children aged 0–60 months in two drought-prone areas of Ethiopia. *South African Journal of Clinical Nutrition,* 33**,** 152-157.

Bimpong, Cheyuo, Abdul-Mumin, Ayanore, Kubuga & Mogre 2020. Mothers' knowledge and attitudes regarding child feeding recommendations, complementary feeding practices and determinants of adequate diet. *BMC Nutr,* 6**,** 67.

Chopra 2003. Risk factors for undernutrition of young children in a rural area of South Africa. *Public Health Nutrition,* 6**,** 645-652.

Clark, Coll-Seck, Banerjee, Peterson, Dalglish, Ameratunga, Balabanova, Bhan, Bhutta, Borrazzo, Claeson, Doherty, El-Jardali, George, Gichaga, Gram, Hipgrave, Kwamie, Meng, Mercer, Narain, Nsungwa-Sabiiti, Olumide, Osrin, Powell-Jackson, Rasanathan, Rasul, Reid, Requejo, Rohde, Rollins, Romedenne, Singh Sachdev, Saleh, Shawar, Shiffman, Simon, Sly, Stenberg, Tomlinson, Ved & Costello 2020. A future for the world's children? A WHO–UNICEF–Lancet Commission. *The Lancet,* 395**,** 605-658.

da Silva, França, Barros, Amouzou, Krasevec & Victora 2018. Socioeconomic inequalities persist despite declining stunting prevalence in low-and middle-income countries. *The Journal of nutrition,* 148**,** 254-258.

Detroja, Mahajan & Sheth 2025. Comprehensive investigation of ergonomic challenges and predictors of work-related musculoskeletal disorders among intensive care unit nurses of Western India through convergent mixed methods study. *BMC Musculoskeletal Disorders,* 26**,** 127.

FDRE 2016. Federal Democratic Republic of Ethiopia, Ethiopia Demographic and Health Survey, author. key indicators report, central statistical agency, Addis Ababa, Ethiopia, the DHS program ICF Rockville, Maryland, USA. 2016. Oct, p. 40.

Feleke, Chanie, Wubet, Amare, Demelash, Desale, Yimer & Tesema 2023. Magnitude of stunting and its determinant factors among children age 6-59 months at Debre Tabor comprehensive specialized hospital, South Gondar zone, North central Ethiopia, 2020. *Afr Health Sci,* 23**,** 508-523.

Feleke, Kassahun, Gmariam Wmariam, Tassaw & Chanie 2021. Non-exclusive breast feeding and its factors in the first 6-month life of infants among mother-infant pairs of 6–12 months in Debre Tabor town, Northwest Ethiopia, 2019: community-based cross-sectional study. *Heliyon,* 7**,** e06922.

Forh, Apprey & Frimpomaa Agyapong 2022. Nutritional knowledge and practices of mothers/caregivers and its impact on the nutritional status of children 6-59 months in Sefwi Wiawso Municipality, Western-North Region, Ghana. *Heliyon,* 8**,** e12330.

Frison, Angood, Khara, Bahwere, Black, Briend, Connell, Fenn, Isanaka & James 2020. Prevention of child wasting: Results of a Child Health & Nutrition Research Initiative (CHNRI) prioritisation exercise. *PLoS One,* 15**,** e0228151.

Frison, Kerac, Checchi & Prudhon 2016. Anthropometric indices and measures to assess change in the nutritional status of a population: a systematic literature review. *BMC Nutrition,* 2.

Gebreayohanes 2022.

Prevalence of stunting and its associated factors among children 6–59 months of age in pastoralist

community, Northeast Ethiopia: A communitybased cross-sectional study. . *PLoS ONE* 17**,** e0256722.

Gebreeyessus 2022. Knowledge, attitude, and practices on occupational health and safety principles among cleaners: the case of Tikur Anbassa Specialized Referral Hospital, Addis Ababa, Ethiopia. *Open Health 2022; 3: 22-33,* 3**,** 22-33.

Gitau, Kimiywe, Waudo & Mbithe 2013. Effects of Nutrition Education on Nutrition Knowledge and Iron Status in Primary School Pupils of Gatanga District, Muranga Country, Kenya. *Current Research in Nutrition and Food Science Journal,* 1**,** 115-123.

Govender, Rangiah, Kaswa & Nzaumvila 2021. Malnutrition in children under the age of 5 years in a primary health care setting. *South African Family Practice,* 63.

Gribble, Murray & Menotti 2009. Reconsidering childhood undernutrition: can birth spacing make a difference? An analysis of the 2002–2003 El Salvador National Family Health Survey. *Maternal & child nutrition,* 5**,** 49-63.

Hailu, Bogale & Beyene 2020. Spatial heterogeneity and factors influencing stunting and severe stunting among under-5 children in Ethiopia: spatial and multilevel analysis. *Scientific reports,* 10**,** 16427.

Harika, Faber, Samuel, Kimiywe, Mulugeta & Eilander 2017. Micronutrient Status and Dietary Intake of Iron, Vitamin A, Iodine, Folate and Zinc in Women of Reproductive Age and Pregnant Women in Ethiopia, Kenya, Nigeria and South Africa: A Systematic Review of Data from 2005 to 2015. *Nutrients,* 9**,** 1096.

He, Xiao, Wu, Chen, Li & Yan 2023. Prevalence of work-related musculoskeletal disorders among workers in the automobile manufacturing industry in China: a systematic review and meta-analysis. *BMC Public Health,* 23**,** 2042.

Hong, Banta & Betancourt 2006. Relationship between household wealth inequality and chronic childhood under-nutrition in Bangladesh. *International Journal for Equity in Health,* 5.

Kalu & Etim 2018a. Factors associated with malnutrition among underfive children in developing countries: A review. *Global Journal of Pure and Applied Sciences,* 24**,** 69-74.

Kalu & Etim 2018b. Factors associated with malnutrition among underfive children in developing countries: A review. *Global Journal of Pure and Applied Sciences,* 24**,** 69.

Lin, Arnold, Afreen, Goto, Huda, Haque, Raqib, Unicomb, Ahmed, Colford & Luby 2013. Household Environmental Conditions Are Associated with Enteropathy and Impaired Growth in Rural Bangladesh. *The American Society of Tropical Medicine and Hygiene,* 89**,** 130-137.

Madan, Reading, Palmer & Coggon 2008. Cultural differences in musculoskeletal symptoms and disability. *International Journal of Epidemiology,* 37**,** 1181-1189.

Mara, Lane, Scott & Trouba 2010. Sanitation and Health. *PLoS Medicine,* 7**,** e1000363.

Modjadji & Madiba 2019. The double burden of malnutrition in a rural health and demographic surveillance system site in South Africa: a study of primary schoolchildren and their mothers. *BMC Public Health,* 19.

Mohamed, Onyango, de Onis, Prakash, Mabry & Alasfoor 2004. Socioeconomic predictors of unconstrained child growth in Muscat, Oman. *Eastern Mediterranean Health Journal,* 10**,** 295-302.

Mporanyi, Condo, Absolomon, Mporanyi, Rubuga & Munyanshongore 2025. Influence of maternal knowledge of causes and consequences of stunting on infant and young child feeding practices in Rwanda. *Scientific Reports,* 15**,** 44481.

Odonkor & Sallar 2024. Occupational health and safety knowledge, attitudes and practices among healthcare workers in Accra Ghana. *Scientific African,* 24**,** e02130.

Oliveira, Ferreira, Atouguia, Fortes, Guerra & Centeno-Lima 2015. Infection by Intestinal Parasites, Stunting and Anemia in School-Aged Children from Southern Angola. *PLOS ONE,* 10**,** e0137327.

Phalkey, Aranda-Jan, Marx, Höfle & Sauerborn 2015. Systematic review of current efforts to quantify the impacts of climate change on undernutrition. *Proceedings of the National Academy of Sciences,* 112.

Pinto 2023. The Role of Nutrition in Children's Growth and Development at Early Age: Systematic Review. *INTERNATIONAL JOURNAL OF RESEARCH IN SCIENCE AND TECHNOLOGY,* 13**,** 23-30.

Redi, Egata & Kedir 2017. Prevalence of Malnutrition among Children Aged 6-59 in Haramaya District, Oromia, Ethiopia. *Journal of Biometrics & Biostatistics,* 08.

Sahiledengle, Petrucka, Kumie, Mwanri, Beressa, Atlaw, Tekalegn, Zenbaba, Desta & Agho 2022. Association between water, sanitation and hygiene (WASH) and child undernutrition in Ethiopia: a hierarchical approach. *BMC Public Health,* 22**,** 1943.

Saleh, Syahrul, Hadju, Andriani & Restika 2021. Role of maternal in preventing stunting: a systematic review. *Gaceta sanitaria,* 35**,** S576-S582.

Salwe 2011. Nonfatal occupational injury rates and musculoskeletal symptoms among housekeeping employees of a hospital in Texas. *J Environ Public Health,* 2011**,** 382510.

Saputra, Lisa, Hikmi, Irawati, Azhari & Muharramah 2025. Association of inadequate WaSH, housing, and infectious diseases with undernutrition hotspots among children under five: findings from a national survey in Indonesia. *Clinical Epidemiology and Global Health,* 36**,** 102211.

Singh 2020. Childhood Malnutrition in India. *Perspective of Recent Advances in Acute Diarrhea.* IntechOpen.

Soliman, Alyafei, Alaaraj, Hamed, Mohamed, Elawwa & De Sanctis 2024. Study of long-acting vs daily growth hormone: peak levels, AUC, action duration, and IGF-1. *Academia Biology,* 2.

Taderegew, Wondie, Geremew, Maru, Tesfaye & Hailesilassie 2025. Stunting and its predictors among children aged 6–59 months in Ethiopia: a systematic review and meta-analysis. *BMC Public Health,* 25**,** 3806.

Tafesse, Yoseph, Mayiso & Gari 2021. Factors associated with stunting among children aged 6-59 months in Bensa District, Sidama Region, South Ethiopia: unmatched case-control study. *BMC Pediatr,* 21**,** 551.

Tesfaye & Egata 2022. Stunting and associated factors among children aged 6–59 months from productive safety net program beneficiary and non-beneficiary households in Meta District, East Hararghe zone, Eastern Ethiopia: a comparative cross-sectional study. *Journal of Health, Population and Nutrition,* 41**,** 13.

Tette, Sifah & Nartey 2015. Factors affecting malnutrition in children and the uptake of interventions to prevent the condition. *BMC Pediatrics,* 15.

Toma, Andargie, Alula, Kebede & Gujo 2023. 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,* 9**,** 34.

UNICEF 2019. Levels and trends in child malnutrition: key findings of the 2019 Edition. joint Child Malnutrition Estimates, 1, 1-15.

UNICEF/WHO/WB 2023. Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group joint child malnutrition estimates: key findings of the 2023 edition.

Uwineza, Hategekimana & Rutayisire 2024. Assessment of Knowledge, Attitudes, and Practices towards Sexual and Reproductive Health among Secondary School Students in Kicukiro District, Rwanda. *International Journal For Multidisciplinary Research,* 6.

Vilcins, Sly & Jagals 2018. Environmental Risk Factors Associated with Child Stunting: A Systematic Review of the Literature. *Annals of Global Health,* 84**,** 551.

Wamani, Åstrøm, Peterson, Tylleskär & Tumwine 2005. Infant and Young Child Feeding in Western Uganda: Knowledge, Practices and Socio-economic Correlates. *Journal of Tropical Pediatrics,* 51**,** 356-361.

WHO 2020. World Health organization Global Data Bank on Infant and Young Child Feeding, author. World Health Statistics. Geneva: World Health Organization. https:www/.Google Scholar.

Wirth, Rohner, Petry, Onyango, Matji, Bailes, de Onis & Woodruff 2016. Assessment of the WHO Stunting Framework using Ethiopia as a case study. *Maternal & Child Nutrition,* 13.

Wirth, Rohner, Petry, Onyango, Matji, Bailes, de Onis & Woodruff 2017. Assessment of the WHO Stunting Framework using Ethiopia as a case study. *Maternal & child nutrition,* 13**,** e12310.

Woldeyohannes, Girma, Petros, Hussen, Samuel, Dinssa, Challa, Laillou, Chitekwe, Baye, Noor, Donze, Tollera, Dangiso, Tadesse, Zelalem & Tessema 2023. Ethiopia National Food and Nutrition Survey to inform the Ethiopian National Food and Nutrition Strategy: a study protocol. *BMJ Open,* 13**,** e067641.

Yasobant & Rajkumar 2014. Work-related musculoskeletal disorders among health care professionals: A cross-sectional assessment of risk factors in a tertiary hospital, India. *Indian J Occup Environ Med,* 18**,** 75-81.

Yigezu, Zenebe, Deresse, Mekonnen, Woldamanuel, Hailu & Kebede 2024. Undernutrition and its determinants among children aged 6–59 months in Southern Ethiopia. *Scientific Reports,* 14**,** 22426.

Yisak, Gobena & Mesfin 2015. Prevalence and risk factors for under nutrition among children under five at Haramaya district, Eastern Ethiopia. *BMC Pediatrics,* 15.

Zewdie, Negash & Tsegaye 2022. Stunting and its associated factors in children aged 6–59 months in Ilubabor zone, Southwest Ethiopia. *Nutrition & Food Science,* 52**,** 581-594.

# 8. APPENDIX

8.1. Informed Voluntary Consent Form for Head of the Hospital

1. **Introduction:** My name is Elizabeth Nigussie. I am the Principal Investigator of the study to be conducted in Haramaya General Hospital. I am studying for my Master's degree at Haramaya University, the College of Health and Medical Sciences. I kindly request you to lend me your attention to explain you about the study and your institution being selected as the study setting.

**2. Study Title:** Prevalence and Associated Factors of Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department at Haramaya General Hospital, in East Hararghe, Oromia, Ethiopia

**3. Purpose:** The purpose of this study can be paramount importance for the hospital to plan intervention programs to prevent Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department which in return helps to prevent Stunting in the community.

**4. Procedure and Duration:** Besides asking the staffs of the department, I will be taking height and length measurements to provide me with pertinent data that is helpful for the study.

**5. Risk and Benefit:** The risk of participating in this study is very minimal which means the study procedures involve no foreseeable risks or harm to you. You are asked to respond to 126 questions about your personal information, your family support and your practice about exclusive breastfeeding using the questionnaires for 40 minuetes. The information will be used to write a research report on prevalence and associated factors of stunting among children aged 6-59 months in Haramaya General Hospital and surrounding rural areas.

**6. Confidentiality:** The information I can gather for the study will be kept confidentiality. Only the investigator and the major advisors are eligible to access the data. Your name and any identifying information will not be used in the report of the study. All the papers of your information will be damaged after completion of the study.

**7. Rights:** Your participation in this study is voluntary. You have the right to participate or not to participate. You also have the right to withdraw at any time. Lastly, if you are agreed to participate in the study please sign in and return the questionnaires with appropriate responses. If you do not

want to sign in this paper, but respond and return the questionnaires, it will indicate your willingness to participate in the study.

**8. Contact Address:** If there are any questions or enquires any time about the study or the procedures, please contact at mobile number: 09-34-33-26-94, and email address: elsabethnigussie969@gmail.com as well as contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone: 0254662011 or P.O. Box: 235, Harar, Ethiopia.

**9. Declaration of informed voluntary consent:** I have read the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that participants have the right to withdraw from the study at any time or not to answer any question that they do not want. I am also informed that the Hospital has the right to stop this study from being conducted if any misdeeds and unethical procedures are observed during the data collection process in the Hospital's premises. Therefore, I declare my voluntary consent on behalf of Haramaya General Hospital management to allow this study to be conducted in the Hospital with my initials.

Name and Signature of the Hospital: _____ Date: _____

Name and Signature of the PI: _____ Date: _____

8.2. Information Sheet and Informed Voluntary Consent for Participants of Mothers age ≥18 years

**1. Introduction:** My name is _____. I am working as a data collector for the study being conducted in this General Hospital by _____ who is studying for her Master's degree at Haramaya University, the College of Health and Medical Sciences. I kindly request you to lend me your attention to explain you about the study and being selected as the study participant.

**2. Study Title:** Prevalence and Associated Factors of Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department at Haramaya General Hospital, in East Hararghe, Oromia, Ethiopia

**3. Purpose:** The purpose of this study can be of paramount importance for the woreda health office to plan intervention programs to prevent Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department which in return helps to prevent Stunting in your community. Moreover, the aim of this thesis as a partial requirement for the fulfilment of a Master's program in General Public Health for the principal investigator.

**4. Procedure and Duration:** I will be interviewing you using a questionnaire to provide me with pertinent data that is helpful for the study. There are questions to answer where I will fill the questionnaire by interviewing you. The interview will take about 20 minutes, so I kindly request you to spare me this time for the interview.

**5. Risk and Benefit:** The risk of being participating for your child in this study is very minimal; but only taking few minutes from your time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners.

**6. Confidentiality:** The information you will provide us will be confidential. There will be no information that will identify you in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons or housing. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

**7. Rights:** Participation for this study is fully voluntary. You have the right to declare to participate or not in this study. If you decide to participate, you have the right to withdraw from the study at any time and this will not label you for any loss of benefits which you otherwise are entitled. You do not have to answer any question that you do not want to answer.

**8. Contact Address:** If there are any questions or enquires any time about the study or the procedures, please contact at mobile number: 09-34-33-26-94, and email address: elsabethnigussie969@gmail.com as well as contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone: 0254662011 or P.O. Box: 235, Harar, Ethiopia.

**9. Declaration of informed voluntary consent:** I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate in this study with my initials (signature).

Name and signature of the participant: _____ Date: _____

Name and signature of Data Collector: _____ Date: _____

8.3. Information Sheet and Informed Voluntary Consent for Parent/Guardians of children < 18 Years

**1. Introduction:** My name is _____. I am working as a data collector for the study being conducted in this General Hospital by _____ who is studying for her Master's degree at Haramaya University, the College of Health and Medical Sciences. I kindly request you to lend me your attention to explain you about the study and your institution being selected as the study setting.

**2. Study Title:** Prevalence and Associated Factors of Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department at Haramaya General Hospital, in East Hararghe, Oromia, Ethiopia

**3. Purpose:** The purpose of this study can be of paramount importance for the woreda health office to plan intervention programs to prevent Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department which in return helps to prevent Stunting in your community. Moreover, the aim of this thesis as a partial requirement for the fulfilment of a Master's program in General Public Health for the principal investigator.

**4. Procedure and Duration:** I will be measuring the Middle Arm Circumference (MUAC) of your child using a standard measuring instrument as well I will ask you 126 questions about your child that will help us to know the nutritional status of the child. This procedure will take you 40 minutes. Therefore, I kindly request you to spare me this time and allow me perform this procedure on your child.

**5. Risk and Benefit:** The risk of being participating for your child in this study is very minimal; but only taking few minutes from your time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners.

**6. Confidentiality:** The information that we will collect from this study will be confidential. There will be no information that will identify your child or yourself in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons or housing. The data that we gather from the measurements will exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

**7. Rights:** Participation for this study is fully voluntary. You have the right to declare to allow your child to be involved in this study or not. If you would allow your child for this study, you have the right to withdraw him/her from the study at any time and this will not label you/your child for any loss of benefits which you/your child otherwise are entitled. You do not have to answer any question that you do not as well.

**8. Contact Address:** If there are any questions or enquires any time about the study or the procedures, please contact at mobile number: 09-34-33-26-94, and email address: elsabethnigussie969@gmail.com as well as contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone: 0254662011 or P.O. Box: 235, Harar, Ethiopia.

**9. Declaration of informed voluntary consent:** I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw my child from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to allow my child to participate (be involved) in this study with my initials (signature).

Name of the participant: _____(Assent affirmed if a minor age of 08-18 years ☐

Name and signature of parent/legal guardian: _____ Date: _____

Name and signature of Data Collector: _____ Date: _____

8.4. Information Sheet and Informed Voluntary Consent for Participants of Mothers age ≥18 years (Afaan Oromo Version)

**1. Seensa:** Maqaan koo ____. Qorannoo Hospitaala Waliigalaa kana keessatti gaggeeffamaa jiruuf ___ Yunivarsiitii Haramayaa, Kolleejjii Saayinsii Fayyaa fi Meedikaalaatti Digrii Mastersii barachaa jirtuuf daataa walitti qabaa ta'ee hojjechaa jira. Waa'ee qorannichaa fi hirmaataa qorannichaa ta'ee filatamuu kee akka siif ibsuuf xiyyeeffannoo keessan akka naaf liqeessitan kabajaan isin gaafadha.

**2. Mata Duree Qo'annoo**: Babal'ina fi Qabxiilee Wal-qabatee Daa'imman Umriin Ji'oota 6-59 Ji'a 6-59 Hospitaala Waliigalaa Haramayaatti, Hararghe Bahaa, Itiyoophiyaa, Kutaa Yaala Daa'immanii Alaatti Hirmaatan

**3. Dhimma:** Argannoon qorannoo kanaa waajjirri fayyaa woreda sagantaalee gidduu seensaa Daa'imman Umrii Ji'a 6-59 Ji'a 6-59 Kutaa Yaala Alaa Daa'immanii Dhaabbatan Ittisuuf Karoorsuun barbaachisummaa olaanaa qabaachuu danda'a kunis deebi'ee hawaasa keessan keessatti Stunting ittisuuf gargaara. Kana malees, kaayyoon barruu qorannoo kanaa qorataa muummichaaf sagantaa Mastersii Fayyaa Hawaasaa Waliigalaa galmaan ga'uuf gartokkoon barbaachisaa ta'uu isaati.

**4. Hojimaataa fi turtii kan**: Daataa barbaachisaa ta'ee fi qorannichaaf gargaaru naaf kennuudhaaf gaaffilee fayyadamee isin gaafadha. Gaaffiiwwan deebii kennuu qaban eessatti gaaffii fi deebii isiniin guutee akkan guutu jiru. Gaaffii fi deebii gara daqiiqaa 20 waan fudhatuuf yeroo kana gaaffii fi deebii kanaaf akka na qusattan kabajaan isin gaafadha.

**5. Balaa fi faayidaa qabaachuu:** Balaan qorannoo kana irratti daa'ima keessaniif hirmaachuu baay'ee xiqqaadha; garuu yeroo kee irraa daqiiqaa muraasa qofa fudhachuudhaan. Qorannoon kana irratti hirmaachuuf kaffaltiin kallattiin hin jiraatu ture. Garuu argannoon qorannoo kanarraa argamu karoorsitoota fayyaa naannoo sanaaf odeeffannoo barbaachisaa ta'e mul'isuu danda'a.

**6. Iccitii qabaachuu:** Odeeffannoon isin nuuf kennitan iccitii ta'a. Odeeffannoon addatti si adda baasu hin jiraatu. Argannoon qorannichaa hawaasa qorannichaaf waliigalaa kan ta'u yoo ta'u, namoota dhuunfaa ykn mana jireenyaa adda ta'e kan hin calaqqisiifne ta'a. Gaaffiin maqaa agarsiisu akka hin dabalamneef koodii ni kennama. Gabaasa afaaniin ykn barreeffamaan hirmaattoota qorannicha waliin walqabsiisuu danda'u keessatti eeruun hin kennamu.

**7. Mirga:** Qorannoon kanaaf hirmaannaan guutummaatti fedhii ofiitiin kan raawwatamudha. Qo'annoo kana irratti hirmaachuu fi dhiisuu kee labsuuf mirga qabda. Yoo hirmaachuuf murteessite yeroo barbaaddetti qo'annoo irraa ba'uuf mirga qabda kunis faayidaa kasaaraa karaa biraatiin siif malu kamiyyuu si hin mallatu. Gaaffii deebii kennuu hin barbaanne kamiyyuu deebisuun si hin barbaachisu.

**8. Teessoo:** Waa'ee qorannichaa ykn hojimaata yeroo kamiyyuu gaaffiin ykn gaaffii yoo jiraate lakkoofsa moobaayilaa: 09-34-33-26-94, fi teessoo imeelii: elsabethnigussie969@gmail.com akkasumas teessoo quunnamtii itti gaafatamummaa qabu Koree Gamaaggama Naamusa Qorannoo Fayyaa Dhaabbilee (IHRERC) bilbila waajjira: 0254662011 ykn P.O. Sanduuqa: 235, Harar, Itoophiyaa.

**9. Hayyama tola ooltummaa beekumsa qabu labsuu:** Waraqaa odeeffannoo hirmaattotaa dubbiseera/ naaf dubbifameera. Kaayyoo qorannichaa, hojimaata, balaa fi faayidaa, dhimmoota iccitii, mirga hirmaachuu fi teessoo quunnamtii gaaffii kamiyyuu sirriitti hubadheera. Wantoota ifa hin taane ta'uu danda'aniif gaaffii akkan gaafadhu carraan naaf kennameera. Yeroo barbaadetti qo'annoo keessaa ba'uuf ykn gaaffii ani hin barbaanne kamiyyuu deebisuuf mirga akkan qabu naaf himameera. Kanaafuu, qorannoo kana irratti hirmaachuuf fedhii kootiin hayyama koo qubee jalqabaa (mallattoo) kootiin nan ibsa.

Maqaa fi mallattoo hirmaataa: _____ Guyyaa: _____

Maqaa fi mallattoo Walitti qabaa Odeeffannoo: _____ Guyyaa: _____

8.5. Information Sheet and Informed Voluntary Consent for Parent/Guardians of children < 18 Years (Afaan Oromo Version)

**1. Seensa:** Maqaan koo ____. Qorannoo Hospitaala Waliigalaa kana keessatti gaggeeffamaa jiruuf ___ Yunivarsiitii Haramayaa, Kolleejjii Saayinsii Fayyaa fi Meedikaalaatti Digrii Mastersii barachaa jirtuuf daataa walitti qabaa ta'ee hojjechaa jira. Waa'ee qo'annichaa fi dhaabbati keessan akka bakka qo'annootti filatamuu isaa akka isiniif ibsuuf xiyyeeffannoo keessan akka naaf liqeessitan kabajaan isin gaafadha.

**2. Mata Duree Qo'annoo:** Babal'ina fi Qabxiilee Wal-qabatee Daa'imman Umriin Ji'oota 6-59 Ji'a 6-59 Hospitaala Waliigalaa Haramayaatti, Hararghe Bahaa, Itiyoophiyaa, Kutaa Yaala Daa'immanii Alaatti Hirmaatan

**3. Dhimma:** Argannoon qorannoo kanaa waajjirri fayyaa woreda sagantaalee gidduu seensaa Daa'imman Umrii Ji'a 6-59 Ji'a 6-59 Kutaa Yaala Alaa Daa'immanii Dhaabbatan Ittisuuf Karoorsuun barbaachisummaa olaanaa qabaachuu danda'a kunis deebi'ee hawaasa keessan keessatti Stunting ittisuuf gargaara. Kana malees, kaayyoon barruu qorannoo kanaa qorataa muummichaaf sagantaa Mastersii Fayyaa Hawaasaa Waliigalaa galmaan ga'uuf gartokkoon barbaachisaa ta'uu isaati.

**4. Hojimaataa fi turtii kan**: Meeshaa safartuu sadarkaa isaa eeggate fayyadamuun Naannoo Harka Giddugaleessaa (MUAC) daa'ima keessanii akkasumas waa'ee daa'ima keessanii gaaffii haala soorataa daa'imaa beekuuf nu gargaaran isin gaafadha. Hojimaanni kun daqiiqaa muraasa si fudhata. Kanaaf yeroo kana na qusachuun adeemsa kana daa'ima keessan irratti akkan raawwadhu akka naaf hayyamtan kabajaan isin gaafadha.

**5. Balaa fi faayidaa qabaachuu:** Balaan qorannoo kana irratti daa'ima keessaniif hirmaachuu baay'ee xiqqaadha; garuu yeroo kee irraa daqiiqaa muraasa qofa fudhachuudhaan. Qorannoon kana irratti hirmaachuuf kaffaltiin kallattiin hin jiraatu ture. Garuu argannoon qorannoo kanarraa argamu karoorsitoota fayyaa naannoo sanaaf odeeffannoo barbaachisaa ta'e mul'isuu danda'a.

**6. Iccitii qabaachuu:** Odeeffannoon qorannoo kana irraa walitti qabnu iccitii ta'a. Odeeffannoon addatti daa'ima keessan ykn ofii keessan adda baasu hin jiraatu. Argannoon qorannichaa hawaasa

qorannichaaf waliigalaa kan ta'u yoo ta'u, namoota dhuunfaa ykn mana jireenyaa adda ta'e kan hin calaqqisiifne ta'a. Daataan safartuuwwan irraa walitti qabnu maqaa agarsiisuu ni hambisa. Gabaasa afaaniin ykn barreeffamaan hirmaattoota qorannicha waliin walqabsiisuu danda'u keessatti eeruun hin kennamu.

**7. Mirga:** Qorannoon kanaaf hirmaannaan guutummaatti fedhii ofiitiin kan raawwatamudha. Mucaan keessan qorannoo kana keessatti akka hirmaatu hayyamuu fi dhiisuu isaa labsuuf mirga qabdu. Yoo daa'ima kee qorannoo kanaaf hayyamte, yeroo barbaaddetti qo'annoo keessaa baasuuf mirga qabda kunis faayidaa ati/daa'imni kee karaa biraatiin mirga qabdu kamiyyuu si/mucaa kee irratti maqaa hin moggaasu. Gaaffii akkasuma hin kennine kamiyyuu deebisuu hin qabdu.

**8. Teessoo:** Waa'ee qorannichaa ykn hojimaata yeroo kamiyyuu gaaffiin ykn gaaffii yoo jiraate lakkoofsa moobaayilaa: 09-34-33-26-94, fi teessoo imeelii: elsabethnigussie969@gmail.com akkasumas teessoo quunnamtii itti gaafatamummaa qabu Koree Gamaaggama Naamusa Qorannoo Fayyaa Dhaabbilee (IHRERC) bilbila waajjira: 0254662011 ykn P.O. Sanduuqa: 235, Harar, Itoophiyaa.

**9. Hayyama tola ooltummaa beekumsa qabu labsuu:** Waraqaa odeeffannoo hirmaattotaa dubbiseera/ naaf dubbifameera. Kaayyoo qorannichaa, hojimaata, balaa fi faayidaa, dhimmoota iccitii, mirga hirmaachuu fi teessoo quunnamtii gaaffii kamiyyuu sirriitti hubadheera. Wantoota ifa hin taane ta'uu danda'aniif gaaffii akkan gaafadhu carraan naaf kennameera. Yeroo barbaadetti mucaa koo qo'annoo keessaa baasuu ykn gaaffii ani hin barbaanne kamiyyuu deebisuuf mirga akkan qabu naaf himameera. Kanaafuu, mucaan koo qorannoo kana irratti akka hirmaatu (hirmaatu) hayyama fedhii kootiin qubee jalqabaa (mallattoo) kootiin nan labsa.

Maqaa hirmaataa: _____(Umriin xiqqaan waggaa 08-18 yoo ta'e hayyamni mirkanaa'e ☐

Maqaa fi mallattoo warraa/guddistuu seeraa: _____ Guyyaa: _____ .

Maqaa fi mallattoo Walitti qabaa Odeeffannoo: _____ Guyyaa: _____

8.6. Data Collection Checklist (instrument)

**1. Demographic data collection checklist**

**1.1. Socio-demographic questionnaire for caregivers**

| | | |
|---|---|---|
| Caregiver | | |
| 1. Name and code | What is your name? | |
| | Insert respondent code | |
| 2. Relationship | Insert relationship | Mother ☐ Grandmother ☐ |
| | | Grandfather ☐ Other ☐ |
| 3. Sex | Insert the sex of the caregiver | Male ☐ Female ☐ |
| 4. Mother's Age | Insert the age in years | |
| 5. Address | Insert the address | Urban ☐ Rural ☐ |
| Rural | Insert the distance from the Hospital in km | |
| Transport | Insert the means of transport | |
| 6. Religion | Insert the religion | |
| 7. Marital status | | Separated |
| | | Lived with husband ☐ |
| | | Divorced ☐ Widowed ☐ |
| 8. Only for women | Insert the mother information | Number of children |
| 9. Educational level | Insert the highest grade/form/year the respondent completed at that level | Illiterate ☐ Primary school ☐ |
| | | Secondary school ☐ |
| | | Undergraduate ☐ Graduate ☐ |
| | | Postgraduate ☐ |
| 10. Mother's occupation | | Housewives ☐ Employment ☐ |
| | | Day labour ☐ Caretaker ☐ |

| | | |
|---|---|---|
| 11. Family monthly income | Insert the family monthly income | |
| 12. Number of family members | Insert the number of family | |

**1.2. Socio-demographic questionnaire for children**

| | |
|---|---|
| Child | |
| 1. Child Sex | Male ☐ Female ☐ |
| 2. Date of birth | |
| 3. Age of child | Month……----------.days---------- |
| 4. Order of child birth | 1 First baby 2 Second baby 3 Third 4 Fourth |
| | 5 th Other (Pleasey specify child birth order) |
| 5. Place of giving birth | 1 Home 2 Hospital 3 Private clinics |
| | 4 Other (Please identify)…… |
| 6. Delivery assistant | 1 Doctor 2 Nurses 3 Traditional Birth Attendant (TBA) / Skill |
| | 4 Relatives 5 Other (please identify)…… |
| 7. What is your child's Ethnicity | |
| 8. Does he/she have a health /vaccination card, if yes specify | Yes No |
| | |
| 9. How old was the child at his/her last birthday? | Year Month |
| 10. What is the height of your child? | |

**2. Knowledge, attitude and practice of families related factors**

| **2.1. Practices** | |
|---|---|
| 1. Did you give the child pre-lactation food/fluid | ¨ Yes ¨ No ¨ Don't know/no answer |
| If yes to Q 1 what did you give him/her? | 1. Water 2. Butter 3. Milk 4. Other (specify)--------- |
| 2. Did you squeeze out and throw the first milk (colostrums) | ¨ Yes ¨ No ¨ |

| **3. Breastfeeding Practice** | |
|---|---|
| a. I start breast milk within 1 hour after child birth | ¨ Yes ¨ No ¨ |
| b.I stop breastfeeding before 6 months to my baby | ¨ Yes ¨ No ¨ |
| c. I provide prelacted food to my baby before 6 months | ¨ Yes ¨ No ¨ |
| d. I introduce supplementary for my baby just completion 6 months | ¨ Yes ¨ No ¨ |
| e. I provide powder milk or mixed food for my baby before 6 months | ¨ Yes ¨ No ¨ |
| f. I provide sugar water for my baby before 6 months | ¨ Yes ¨ No ¨ |
| 4.Was the baby breastfed yesterday during the day or at night | ¨ Yes ¨ No ¨ Don't know/no answer |
| 5. Did the baby consume breastmilk only from breast? | ¨ Yes ¨ No ¨ Don't know/no answer |
| If the baby fed breastmilk in different ways specify Eg.:by spoon/ cup/ bottle, or breastfed by another woman | |
| 6. When you are not home or cannot feed the baby yourself, who does it? | Father ¨ Grandmother ¨ Other children ¨<br>Other_____¨ Don't know/no answer |
| 7. If you are not there to feed the baby, what type of food is the baby fed? | Breastmilk by spoon, cup or bottle<br>Infant formula by spoon, cup or bottle ¨ Other liquids |
| 8.Introducing liquids to child | |
| Did the baby) have any of the following liquids? | |

| | |
|---|---|
| a. Plain water ¨ | Yes ¨ No ¨ Don't know |
| b. Infant formula such as ----------,----------,---------- | Yes ¨ No ¨ Don't know |
| c. Milk, such as tinned, powdered or fresh animal milk | Yes ¨ No ¨ Don't know |
| d. Juice or juice drinks | Yes ¨ No ¨ Don't know |
| e. Yogurt | Yes ¨ No ¨ Don't know |
| f. Thin porridge | Yes ¨ No ¨ Don't know |
| g. Any other liquids such as (list other water-based liquids | |
| available in the local setting) | Yes ¨ No ¨ Don't know |
| h. Any other liquids | Yes ¨ No ¨ Don't know |
| Good Knowledge | |
| Poor Knowledge | |
| 9. Which food you give frequently for your child? (More than one answer is possible? | 1. Cow's milk 2. Butter 3. Sugar solution. 4. Formula milk 5. Atmite/ bula 6. Pourage 7. Other (specify)_____ |
| 10. Do you prepare the food for your child from different crops? | Yes ¨ No ¨ |
| 11. What do you use to feed child? | 1. Bottle 2. Cup 3. Spoon 4. Other (specify)---------- |
| 12. Who is usually taking care of the child feeding? | 1. Mother 2. Father 3. Sister 4. Grandmother |

| | |
|---|---|
| | 5. House maid 6. Other (specify)_____ |
| 13. How frequent you wash the dishes? | 1. Twice daily 2. Once daily 3. Every other day.<br>4. Immediately after use 5. Other (specify) -- -------- |
| 14. Do you wash your hands whenever you feed your child? | Yes ¨ No ¨ |
| Good Practice | |
| Poor Practice | |

**2.2. Family members overall support and related to breastfeeding**

**1. Perceived overall support related to breastfeeding received from family members**

| Source | Support level | | | | |
|---|---|---|---|---|---|
| | Not at all | Poor | Fair | Good | Very good |
| Husband | | | | | |
| Parents | | | | | |
| Mother-in-law | | | | | |
| Grandmother | | | | | |
| Others (specify) | | | | | |
| | | | | | |
| | | | | | |

| **2.Family members support related to breastfeeding** | | | | | | |
|---|---|---|---|---|---|---|
| No | **1.Emotional support item** | Never | Sometimes | Often | Very often | Always |
| 1 | My family members encourage me to provide breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 2 | My family shows me empathy when I have problems to provide | 1 | 2 | 3 | 4 | 5 |
| 3 | My family gives me cheerfulness when I have problems to provide breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 4 | My family helps me to relax by taking care of my baby | 1 | 2 | 3 | 4 | 5 |
| 5 | My family carefully listens to me when I talk about my feeling regarding breastfeeding | 1 | 2 | 3 | 4 | 5 |
| | **2.Instrumental support item** | | | | | |
| 6 | My family provides good quality of diet promoting my exclusive breastfeeding | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | My family provides financial support during breastfeeding period | 1 | 2 | 3 | 4 | 5 |
| 8 | My family takes care my baby when I take some rest | 1 | 2 | 3 | 4 | 5 |
| 9 | My family helps me in household work when I give breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 10 | My family members make good environment or comfortable when I give breastfeeding | 1 | 2 | 3 | 4 | 5 |
| | **3.Informational support item** | | | | | |
| 11 | I hear about benefit of exclusive breastfeeding from my family | 1 | 2 | 3 | 4 | 5 |
| 12 | My family provides information to me related to breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 13 | My family gives me advice to strictly breastfeed to six months | 1 | 2 | 3 | 4 | 5 |
| 14 | My family helps me in finding sources of information about breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 15 | My family shows me how to give breastfeeding | 1 | 2 | 3 | 4 | 5 |
| **4. Appraisal support item** | | | | | | |
| 16 | My family helps me to take decision about giving exclusive breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 17 | My family tells me that I have ability to give enough breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 18 | My family gives me a positive feedback after giving breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 19 | My family appreciates me about giving breastfeeding | 1 | 2 | 3 | 4 | 5 |
| 20 | My family helps me how to solve the common breastfeeding problems | 1 | 2 | 3 | 4 | 5 |

| | |
|---|---|
| **2.3. Knowledge** | |

| | |
|---|---|
| 1. What is the first food a newborn baby should receive? | 1. Only breastmilk 2.Other---------- 3. Don't know |
| 2. Have you heard about exclusive breastfeeding? | Yes No |
| What exclusive breastfeeding mean? | 1. Infant gets only breastmilk and no other liquids or foods 2.Other---------- 3. Don't know |
| 3. How long should a baby receive nothing more than breastmilk? | 1. From birth to six months 2. Other---------- 3. Don't know |
| 4.Breastmilk is sufficient for babies from birth to six months old | |
| a. Why do you think breastmilk is the only food recommended for infants up to six months old? | |
| b. Why is breastmilk alone sufficient to feed babies during the first six months? | 1. breastmilk provides all the nutrients and liquids a baby needs in its first six months 2. babies cannot digest other foods before 6 months old 3. Other ---------- 4. Don't know |
| 5. How often should a baby younger than six months be breastfed or fed with breastmilk? | 1. On demand, whenever the baby wants 2. Other ---------- 3. Don't know |
| 6. What are the benefits for a baby if he or she receives only breastmilk during the first six months of life? | 1. He/she grows healthily ¨ 2.Protection from diarrhoea and other infections 3.Protection against obesity & chronic diseases in adulthood 4. Protection against other diseases. |

| | |
|---|---|
| | Specify _____<br>5. Other ----------6.<br>Don't know |
| 7. What are the physical or health benefits for a mother if she exclusively breastfeeds her baby? | 1.Delays fertility<br>2.Helps her lose the weight she gained during pregnancy<br>3.Lowers risk of cancer (breast and ovarian) ¨<br>4. Lowers risk of losing blood after giving birth<br>or less risk of post-partum haemorrhage<br>5. Improves the relationship between the mother and baby<br>6. Other ----------7.<br>Don't know |
| 8. Please tell me different ways a mother can keep up her milk supply | 1. Breastfeeding exclusively on demand ¨<br>2. Manually expressing breastmilk<br>3.Having a good nutrition or eating well and having a healthy or diversified diet<br>4.Drink enough liquids during the day<br>5. Other ----------6.<br>Don't know |
| 9. When you work and separated from your baby, how could you continue feeding the baby exclusively with breastmilk? | 1.Expressing breastmilk by hand, storing it and asking<br>someone to give breastmilk to the baby<br>2. Other ----------3.<br>Don't know |
| If you have difficulties feeding breastmilk what you should do to overcome them? | |
| 10. Who can help the mother to solve the problem? | 1.Seek professional help from health-care services: |

| | |
|---|---|
| | doctors, nurses, midwives or other health professionals<br>2. Other ----------3. Don't know |

Each of the questions of knowledge that will be answered either 'Yes', 'No' or 'Do not know will be scored as 1 (one) mark that will be given to a correct answer, 0 (zero) mark for wrong and don't know option. **Note:** The preliminary analysis with Knows and does not know for the answers of the respondents for 10 questions will be made as follows:

| | | **Preliminary analysis** | |
|---|---|---|---|
| Q. No. | Knowledge question | Knows | Does not know |
| 1 | Breastmilk at birth | 1 | 0 |
| 2 | Meaning of exclusive breastfeeding | 1 | 0 |
| 3 | Recommended length of exclusive breastfeeding | 1 | 0 |
| 4 | Breastmilk is sufficient for babies from birth to six months old | 1 | 0 |
| 5 | Frequency of feeding | 1 | 0 |
| 6 | Benefits of exclusive breastfeeding for babies | 1 | 0 |
| 7 | Benefits of exclusive breastfeeding for mothers | 1 | 0 |
| 8 | Maintaining breastmilk supply | 1 | 0 |
| 9 | Overcoming barriers to breastfeeding | 1 | 0 |
| 10 | Seeking health care if breastfeeding difficulties arise | 1 | 0 |
| | Total | | |

The total number of knows will be converted to percentage and interpreted.

| **2.4. Attitudes towards an ideal or desired nutrition-related practices** | |
|---|---|
| **1. Breastfeeding exclusively for six months perceived benefits** | |
| a. How good do you think to breastfeed your baby exclusively for 6 months? | 1. Not good 2. You're not sure |

| | |
|---|---|
| | 3. Good |
| If Not good: Can you tell me the reasons why it is not good? | |
| **Perceived barriers** | |
| b. How difficult is it for you to breastfeed your baby exclusively for 6 months? | 1. Not difficult 2. So-so<br>3. Difficult |
| If Difficult: Can you tell me the reasons why it is difficult? | |
| **2. Breast feeding on demand Perceived benefits** | |
| a. How good do you think it is to breastfeed your baby on demand that is when the baby wants to feed? | 1. Not good 2. You're not sure<br>3. Good |
| If Not good: Can you tell me the reasons why it is not good? | |
| **Perceived barriers** | |
| b. How difficult is it for you to breastfeed your child on demand? | 1. Not difficult 2. So-so<br>3. Difficult |
| If Difficult: Can you tell me the reasons why it is difficult? | |
| **3. Self-confidence on breastfeeding** | |
| 1. How confident do you feel in breastfeeding your child? | 1. Not confident 2. Ok/so-so 3. Confident |
| If Not confident: Can you tell me the reasons why you do not feel confident? | |
| 2.Expressing and storing breastmilk: | |
| How confident do you feel in expressing and storing breastmilk so that someone else can feed your baby? | 1. Not confident 2. Ok/so-so<br>3. Confident |
| If Not confident: Can you tell me the reasons why you do not feel confident? | |

**3. Checklist for data collection for Dietary intake related factors**

| **3.1. Feeding practices of 6-59 months** | | | |
|---|---|---|---|
| 1. Dietary diversity | Food list | Yes | No |

| | | | |
|---|---|---|---|
| a Grains, roots and tubers | Porridge, bread, rice, or other foods made from grains | | |
| | Potatoes, white sweetpotatoes or any other foods from roots | | |
| b. Legumes and nuts | Any foods made from beans, peas, lentils, nuts or seeds | | |
| c. Dairy products | Infant formula, such as | | |
| | How many times? | | |
| | Milk, such as tinned, powdered or fresh animal milk | | |
| | How many times? | | |
| | Yogurt or drinking yogurt | | |
| | How many times? | | |
| | Cheese or other dairy products | | |
| d. flesh foods | Liver, kidney, heart or other organ meats | | |
| | Any meat, such as beef, lamb, goat, chicken or other | | |
| | Fresh or dried fish | | |
| e. Eggs | Eggs | | |
| f. Vitamin A fruits and vegetables | Pumpkin, carrots, yellow or orange flesh sweet potatoes | | |
| | Any dark green vegetables eg. Gomen, Cabbage etc. | | |
| | Fresh ripe mangoes, fresh ripe papayas etc. | | |
| g. Other fruits and vegetables | Other fruits eg. Orange, or vegetables | | |
| h. others not listed dietary diversity | Any oil, fats, or butter or foods made with any of these | | |
| | Any sugary foods, such as chocolates, sweets, candies, pastries, cakes or biscuits | | |

| | | | |
|---|---|---|---|
| | Condiments for flavour, such as chillies, spices, herbs or fish powder | | |
| 2. Baby not consume food | The baby does not consume any food other than breastmilk | | |
| **Frequency of meal for the child** | | No. times | Don't know |
| 3. Minimum meal frequency | How many times the baby eat foods and snacks other than liquids yesterday during the day or at night? | | |
| 4. For breastfed children: | How many times for breastfed infants 6–8 months? | | |
| | How many times for breastfed infants 9–23 months? | | |
| | How many times for breastfed infants >23 months? | | |
| 5. If the child non-breastfed | How many times eat food/meal for infants 6–23 months? | | |
| | How many times eat food/meal for infants >23 months? | | |

| **3.2. Knowledge and attitudes towards an ideal or desired nutrition-related practices** | |
|---|---|
| **3.2.1. Knowledge** | |
| 1.Continued breastfeeding: Until what age is recommended a mother continues breastfeeding? | Six months or less ¨ |
| | 6–11 months ¨ |
| | 12–23 months ¨ Other ¨ Don't know |
| | 24 months and more (correct response) |
| | Don't know |
| 2.At what age should babies should start eating foods in addition to breastmilk? | At six months<br>Other<br>Don't know |

| | |
|---|---|
| 3.Why is it important to give foods in addition to breastmilk to babies from the age of six months? | 1. Breastmilk alone is not sufficient needed for growth/from six months |
| | 2. Other |
| | 3.Don't know |
| 4. Do yo give thick or liquid type porridge? | 1. thick 2. Medium 3. liquid type |
| Why you give thick or liquid type meals? | |
| 5. Which type or from one or two or more crps you prepare food? | 1. From 0ne crop namely |
| | 2. From two crops namely |
| | 3. From three or more crops namely |
| 6. What you add on food you prepared to make it more nutritious? | Animal-source Milk Egg Fish Meat |
| | Sugar honey other---------- |
| 7. Do you know any ways to encourage young children to eat? | 1.Giving them attention during meals, talk to them, make meal times happy times<br>2. clap hands 3.make funny faces/play/laugh<br>3. demonstrate opening your own mouth<br>4. Say encouraging words 5. draw the child's attention<br>6. Other ----------7. Don't know |
| **3.2.2. Attitudes towards an ideal or desired nutrition-related practice** | |

| | |
|---|---|
| 1. How confident do you feel in preparing food for your child? | 1. Not confident 2. Ok/so-so 3. Confident |
| If Not confident: Can you tell me the reasons why you do not feel confident? | |
| 2. How good do you think it is to give different types of food to your child each day? | 1. Not good 2. You're not sure 3. Good |
| If Not good: Can you tell me the reasons why it is not good? | |
| 3.How difficult is it for you to give different types of food to your child each day? | 1. Not difficult 2. So-so 3. Difficult |
| If Difficult: Can you tell me the reasons why it is difficult? | |
| 4. How good do you think it is to feed your child several times each day? | 1. Not good 2. You're not sure 3. Good |
| If Not good: Can you tell me the reasons why it is not good? | |
| 5.How difficult is it for you to feed your child several times each day? | 1. Not difficult 2. So-so 3. Difficult |
| If Difficult: Can you tell me the reasons why it is difficult? | |
| 6. How good do you think it is to continue breastfeeding beyond six months? | 1. Not good 2. You're not sure 3. Good |
| If Not good: Can you tell me the reasons why it is not good? | |
| 7. How difficult is it for you to continue breastfeeding beyond six months? | 1. Not difficult 2. So-so 3. Difficult |
| If Difficult: Can you tell me the reasons why it is difficult? | |

**Note:** The preliminary analysis with Knows and does not know for the answers of the respondents for seven (3.2.1) questions will be made.

**4. Health care related factors**

| | |
|---|---|
| **4.1.Nutrition during pregnancy and lactation** | |
| 1. What do you eat during pregnancy? | 1.Same to non-pregnancy 2.Different foods |
| If different list at least one or more food | |
| 2. Do you eat more food during pregnancy? | Yes No |
| If yes how it is more food? | |
| 3. do you eat different food during lactating? | 1.Same to non-pregnancy 2.Different foods |
| If different list at least one or more food | |
| 4. Do you eat more food during lactating? | |
| If yes how it is more food? | |
| 4. How good do you think it is to eat more food during pregnancy? | 1. Not good 2. You're not sure 3. Good |
| If Not good: Can you tell me the reasons why it is not good? | |
| 5. How difficult is it for you to eat more food during pregnancy? | 1. Not difficult 2. So-so 3. Difficult |
| If Difficult: Can you tell me the reasons why it is difficult? | |
| 6. How can you find out if the baby is growing well or not? | |
| 7. Who can help the mother to find out if the baby is growing well? Where can she go? | 1. Go to the health centre/ask a doctor or nurse or seeking health-care services for growth monitoring |
| | 2. Other----------3.Don't know |
| **4.2.Health care during pregnant** | |
| 1.How many times had you been attended ANC during pregnancy (for the selected child) | 1. One times 2. Two to three time 3. Greater than or equals to four |
| | 4. Do not have ANC visits 5. Don't know |

| | |
|---|---|
| 2. Did your child fully immunized (observe the card if) | 1. Yes 2. No |
| 3. Did your child ever illed? | 1. Yes 2. No |
| If yes for Q3, list them | |
| **4.3.Food safety** | |
| 1.Cleaning of dirty surfaces, plates and utensils | |
| Can you describe how you clean them usually? | 1.Scrape excess food into rubbish bin |
| | 2.Wash with hot water |
| | 3.Wash with detergent |
| | 4. Don't know/no answer |
| 2. How do you store perishable fresh foods such as raw meat, poultry and seafood? | 1.In the refrigerator (below 5 °C)/cool box ¨ |
| | 2.Covered (protected from insects, rodents, pests and dust) |
| | 3.Separated from cooked or ready-to-eat foods ¨ |
| | 4. Other |
| | 5. Don't know/no answer |
| 3.When cooking soups and stews, what sign shows that the foods are ready and safe to be served? | 1.They are boiling/ well cooked |
| | 2. Other |
| | 3. Don't know |
| 4. What should you do before eating raw fruits and vegetables? | 1.Wash them with clean water |
| | 2. Other |
| | 3. Don't know |
| 5. How good do you think it is to reheat leftovers before eating or serving them? | 1. Not good 2. You're not sure 3. Good |
| If Not good: Can you tell me the reasons why it is not good? | |

| | |
|---|---|
| 6. How difficult is it for you to reheat leftovers before eating or serving them? | 1. Not difficult 2. So-so 3. Difficult |
| If Difficult: Can you tell me the reasons why it is difficult? | |
| 4.4.Personal hygiene | |
| 1. Could you please describe step by step how you wash your hands? | |
| 2. When you need to wash your hands to prevent germs from reaching food? | 1.After going to the toilet/latrine |
| | 2.After cleaning the baby's bottom/changing a baby's nappy |
| | 3.Before preparing/handling food |
| | 4. Before feeding a child/eating |
| | 5. After handling raw food |
| | 6.After handling garbage |
| | 7. Other 8. Don't know |

**5. Environmental related factors**

| **5.1. Water source** | |
|---|---|
| 1.What is the main source of drinking water for members of your HH | 1. Piped into dwelling |
| | 2. Piped to plot/yard |
| | 3. Public tap |
| | 4. Bottled water know |
| | 5. Protected well |
| | 6. Unprotected well |
| | 7. Others specify |
| 2. Collection of water | |
| Do you collect water for domestic use? | Yes No |
| If yes What item do you use to collect water? | |
| If no Did you treat this item in any way to make it clean? | Yes No Don't know |
| If Yes: How? | Use of water and soap (clean container) |
| | Other |
| | Don't know/no answer |
| 3. Could you describe how you store water? | 1.Clean container or jar |
| | 2.Covered container or jar |
| | 3.Clean and covered container or jar |
| | 4.Other |
| | 5.Don't know/no answer |
| 4. Do you treat your water in any way to make it safe to drink? | Yes No Don't know |
| If Yes: What do you usually do to the water to make it safer to drink? | 1. Boil it<br>2. Add bleach/chlorine<br>3. Strain it through a cloth<br>4. Use a water filter (ceramic, sand, composite, etc.)<br>5. Use solar disinfection |

| | |
|---|---|
| | 6. Let it stand and settle<br>7.Other<br>8. Don't know/no answer |
| **5.2. Toilet and waste facilities** | |
| 1. Do you have functional toilet facility in your house (observe) | 1. Yes 2. No |
| 2. Is there solid waste disposal system practice | 1. Yes 2. No |
| 3. Is there liquid waste disposal system practice | 1. Yes 2. No |

**8.7. Data Collection Checklist (instrument) Afaan Oromo Version**

**1. Tarree Sakatta'iinsa odeeffannoo dimogiraafii**

**1.1. Gaaffii hawaas-dimoogiraafii kunuunsitootaaf**

| | | |
|---|---|---|
| Kunuunsitu | | |
| 1. Maqaa fi koodii | Maqaan kee eenyu? | |
| | Koodi deebii kennitu galchi | |
| 2. Hariiroo | Hariiroo galchi | Haadha ☐ Adaadaa ☐ |
| | | Akaakayyuu ☐ Kan biraa ☐ |
| 3. Saalaa | Saala nama kunuunsu galichi | Dhiira ☐ Dhalaa ☐ |
| 4. Umurii Haadhaa | Umrii wagga keessatii akka gaariitti galchi | |
| 5. Teessoo | Teessoo galchi | Magaalaa ☐ Baadiyyaa ☐ |
| Baadiyyaa | Fageenya haopitaala irraa kilo meetiraan galchi | |
| Geejjiba | Meeshaa geejjibaa galchuu | |
| 6. Amantii | Amantii galchi | |
| 7. Haala gaa'elaa | | Addaan ba'aniiru |
| | | Abbaa warraa wajjin jiraachaa ture ☐ |
| | | Wal hiikan ☐ Dubartii abbaan manaa irraa du'e ☐ |
| 8. Dubartoota qofaaf | Odeeffanno haadha galchi | Baay'ina daa'immanii |
| 9. Sadarkaa barnootaa | Qabxii/unka/wagaa ol'aanaa deebii kennaan sadarkaa sanatii xumure galchuu | Dubbisuu fi barreesu hin dandeenye ☐ Mana barumsaa sadarkaa tokkoffaa ☐ |
| | | Mana barumsaa sadarkaa lammaffaa ☐ |

| | | |
|---|---|---|
| | | Digirii jalqabaa ◻ Eebbifamuu ◻ |
| | | Eebbifamtoota boodaa ◻ |
| 10. Hojii haadha | | Haadhoti manaa ◻ Hojii ◻ |
| | | Hojii guyyaa ◻ Kunuunsituu ◻ |
| 11. Galii maatii ji'a ji;aan | Galii maatii ji'a ji'aan argatu galchuu | |
| 12. Baay'ina miseensota maatii | Lakkoofsa maatii galchi | |

**1.2. Gaaffii dimogiraafii hawaasummaa daa'immaniif**

| Daa'ima | |
|---|---|
| 1. Walqunnamtii saalaa daa'immanii | dhiira ◻ Dhalaa ◻ |
| 2. Guyyaa dhalootaa | |
| 3. Umurii daa'imaa | Ji'a……----------. Guyyoota---------- |
| 4. Tartiiba dhaloota daa'imaa | 1 Daa'ima jalqabaa 2 Daa'ima lammaffaa 3 Sadaffaa 4 Afraffaa |
| | 5ffa Kan biroo (Maaloo tartiiba dhaloota daa'imaa ibsi) |
| 5. Bakka da'umsaa | 1 Mana 2 Hospitaala 3 Klinikoota dhuunfaa |
| | 4 Kan biraa (adda baafadhaa)…… |

| | |
|---|---|
| 6. Gargaaraa geejjibaa | 1 Doktara 2 Narsiiwwan 3 Dhaloota Aadaa(TBA)/Dandeettii |
| | 4 Firoota 5 Kan biraa ( adda baafadhaa)…… |
| 7. Sabummaan mucaa keessanii maali | |
| 8. Kaardii fayyaa/talaallii qabaa,yoo eeyyee ta'e ibsi | Eeyyee Lakki |
| | |
| 9. Mucaan guyyaa dhaloota isaa dhumaa irratti issa meeqa ture? | Waggaa Ji'a |
| 10. Dheerinni mucaa keessanii maali | |

**2. Beekumsa, ilaalchaa fi shaakala maatii wajjin walqabatu**

| **2.1. Shaakala** | |
|---|---|
| 1. Nyaata/dhangala'aa daa'ima harma hoosisuu duraa kenniteettaa | ¨ Eeyyee ¨ Lakki ¨ Hin beeku / deebii hin qabu |
| Yoo eeyyee ta'e G1f maal kennite/isheef? | 1. Bishaan 2. Dhadhaa 3. Aannani 4. Kan Biroo (ibsi)--------- |
| 2. Aannan (colostrums) isa jalqabaa micciirtee baatee darbatte? | ¨ Eeyyee ¨ Lakki ¨ |
| **3. Shaakala Harma Hoosisuu** | |
| a. Qeenxee daa'ima erga dhaladhee booda sa'aatii 1 keessatti aannan harmaan nan jalqaba | ¨ Eeyyee ¨ Lakki ¨ |
| b.Harme hoosisuu ji'a 6 dura daa'ima kootti nan dhiisa | ¨ Eeyyee ¨ Lakki ¨ |
| c. Daa'ima kootiif nyaata prelacted ji'a 6 dura nan kenna | ¨ Eeyyee ¨ Lakki ¨ |
| d. Daa'ima kootiif dabalata reefuu xumuruu ji'a 6 nan beeksisa | ¨ Eeyyee ¨ Lakki ¨ |

| | |
|---|---|
| e. Ji'a 6 dura daa'ima kootiif aannan budaa ykn nyaata makaa nan kenna | ¨ Eeyyee ¨ Lakki ¨ |
| f. Ji'a 6 dura daa'ima kootiif bishaan suukkaara nan kenna | ¨ Eeyyee ¨ Lakki ¨ |
| 4.Daa'imni kaleesa guyyaa moo halkan harma hoosistee turte | ¨ Eeyyee ¨ Lakki ¨ Hin beeku/deebii hin qabu |
| 5. Daa'imni aannan harmaa harma irraa qofa fayyadamee? | ¨ Eeyyee ¨ Lakki ¨ Hin beeku/deebii hin qabu |
| Daa'imni karaa adda adaatiin aannan harmaa yoo nyaachise Fkn… spoon/koopii/qaruuraatiin,ykn dubartii biraatiin harma hoosifame' | |
| 6. Yeroo mana hin jirre ykn ofii keetii daa'ima nyaachisuu dadhabde eenyutu raawwata? | Abbaa¨ Adaadaa ¨ Ijoollee biro ¨ |
| | Kan biro Hin beeku/deebii hin qabu |
| 7. Yoo ati achi hin jirre mucaa nyaachisuuf, mucaan nyaata akkamii nyaata? | Aannan harmaatiin |
| | Furmulaa mucaa dhibaa,koobbaa ykn botolaan ¨Dhugaatii biro |
| **8.Dhugaatii mucaaf kennamee** | |
| **Mucaan dhugaatii armaan gadii keessaa tokkoon jiraa?** | |
| a.Bishaan qulqulluu | Eeyyee ¨ Lakki ¨ Hin beeku |
| b. Furmulaa mucaa akka Liptomiil | Eeyyee ¨ Lakki ¨ Hin beeku |
| c. Aannan, akka aannan caneedaa, xaa'oo, yookiin aannan haaraa | Eeyyee ¨ Lakki ¨ Hin beeku |
| d. Juusii yookiin ghugaatii juusii | Eeyyee ¨ Lakki ¨ Hin beeku |
| e. Ittituu | Eeyyee ¨ Lakki ¨ Hin beeku |

| | |
|---|---|
| f. Thin porridge | Eeyyee ¨ Lakki ¨<br>Hin beeku |
| g. Dhugaatii biro (dhugaatii bishaan irratti hundaa'e bakka naannoo jiru keessatti argamu | Eeyyee ¨ Lakki ¨<br>Hin beeku |
| h. Dhugaatii biro | Eeyyee ¨ Lakki ¨<br>Hin beeku |
| 9. Nyaata ati yeroo hedduu mucaa kee nyaachitu kam? (deebiin hedduun ni danda'ama) | 1. Aannan loonii 2. Daadhii 3. Solutionii sukkaara 4. Aannan formulaa 5. Atmiti/ bulaa 6. Marqaa 7. Kan biraa (ibsu)_____ |
| 10. Nyaata mucaa kee qaeqara gosa qamadii gara gara irraa qopheessita? | Eeyyee ¨ Lakki ¨ |
| 11. Mucaa nyaachisuuf maal fayyadamta? | 1. Qaruuraa 2. Waancaa 3. Fal'aana 4. Kan biraa (ibsu)---------- |
| 12.Eenyutu yeroo baay'ee mucaa kunuunsa yeroo nyaachisu kennaa? | 1. Haadha 2. Abbaa 3. Obboleettii 4. Adaadaa<br>5. Hojjettuu manaa 6. Kan biraa (ibsu)_____ |
| 13. Hammam yeroo meeshaa dhiqxuu? | 1. Guyyaatti al lama 2. Guyyaatti al tokko 3. Guyyaa tokko, guyyaa tokko booda<br>4. Erga itti fayyadamee booda battalumatti 5. Kan biraa (ibsu) |
| 14. Yeroo mucaa nyaachistu hunda harka dhiqxaa? | Eeyyee ¨ Lakki ¨ |

**2.2. Miseensota maatii hunda deeggarsa harma hoosisuu wajjin walqabatu**

**1. Deeggarsa waligalaa harma hoosisuu wajjin walqabatee mieensota maatii irra argate**

| Madda | Sadarkaa deeggarsa |
|---|---|

| | Gonkumaa miti | Hiyyeessa | Walqixxee | Gaarii | Baay'ee gaarii |
|---|---|---|---|---|---|
| Abbaa warraa | | | | | |
| Maatii | | | | | |
| Haadha warraa | | | | | |
| Adaadaa | | | | | |
| Kan biraa (ibsu) | | | | | |
| | | | | | |
| | | | | | |

| **2.Deeggarsa miseensonni maatii harma hoosisuu wajjin walqabatu** | | | | | | |
|---|---|---|---|---|---|---|
| No | **1.Meeshaa deeggarsa miraa** | Gonkumaa | Yeroo tokko tokko | Yeroo heddu | Yeroo baay'ee | Yeroo hunda |
| 1 | Miseensonni maatii koo akkan harma hoosisu na jajjabeessuu | 1 | 2 | 3 | 4 | 5 |
| 2 | Maatiin koo yeroon rakkina dhiheessuu qabu natti mararfatu | 1 | 2 | 3 | 4 | 5 |
| 3 | Maatii koo yeroon harma hoosisuuf racoon na mudatu gammachuu naaf kennu | 1 | 2 | 3 | 4 | 5 |
| 4 | Maatiin koo daa'ima koo kunuusuudhaan akkan boqodhu na gargaaru | 1 | 2 | 3 | 4 | 5 |
| 5 | Maatii koo yeroon harma hoosisuu liaalchisee miira koo dubbadhu ofeeggannoodhaan na dhaggeeffatu | 1 | 2 | 3 | 4 | 5 |
| | **2.Meeshaa deeggarsa meeshaa** | | | | | |
| 6 | Maatiin koo qulqullina nyaataa nyaata harma hoosisuu koo qofa beeksisu ni kennu | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | Maatiin koo yeroo harma hoosisuu deeggarsa maallaqaa ni godhu | 1 | 2 | 3 | 4 | 5 |
| 8 | Maatiin koo yeroon boqonnaa fudhadhu daa'ima koo kunuunsu | 1 | 2 | 3 | 4 | 5 |
| 9 | Maatiin koo yeroon harma hoosisu hojii mana keessaa na gargaaru | 1 | 2 | 3 | 4 | 5 |
| 10 | Miseensonni maatii koo yeroon harma hoosisu naannoo gaarii ykn mijataat taasisu | 1 | 2 | 3 | 4 | 5 |
| | **3.Meeshaa deeggarsa odeeffannoo** | | | | | |
| 11 | Faayidaa harma qofa hoosisuun qabu maatii koo irraan dhaga'a | 1 | 2 | 3 | 4 | 5 |
| 12 | Maatiin koo odeefannoo harma hoosisuu wajjin walqabatu naaf kennu | 1 | 2 | 3 | 4 | 5 |
| 13 | Maatii koo hanga ji'a 6tti harma cimsee akkan hoosisu gorsa naaf kennu | 1 | 2 | 3 | 4 | 5 |
| 14 | Maatii koo madda odeeffanno waa'ee harma hoosisuu argachuuf na gargaaru | 1 | 2 | 3 | 4 | 5 |
| 15 | Maati koo akkaataa harma hoosisu natti argarsiis | 1 | 2 | 3 | 4 | 5 |
| | **4. Qabxii deeggarsa madaallii** | | | | | |
| 16 | Maatii koo harma qofa hoosisuu irratti murtoo akkan godhu na gargaaru | 1 | 2 | 3 | 4 | 5 |
| 17 | Maatiin koo dandeettii harma gahaa kennuu akkan qabu natti himu | 1 | 2 | 3 | 4 | 5 |
| 18 | Maatii koo erga harma hoosisanii booda yaada gaarii naaf kennu | 1 | 2 | 3 | 4 | 5 |
| 19 | Maatii koo waa'ee harma hoosisuu na dinqisiifatu | 1 | 2 | 3 | 4 | 5 |
| 20 | Maatiin koo rakkoolee harma hoosisu barame akkamitti akkan furu na gargaaru | 1 | 2 | 3 | 4 | 5 |

| | |
|---|---|
| **2.3. Beekumsa** | |
| 1. Nyaani jalqabaa daa'ima reefu dhalate keessatti maal argachuu qaba? | 1. Aannan harmaa qofa 2.kan biraa -------- ---------- 3. Hin beeku |
| 2. Waa'ee harma hoosisuu qofa dhageessanittu? | Eeyyee ¨ Lakki ¨ |
| Harma qofa hoosisunn maal jechuudha? | 1. Daa'imman aannan harmaa fi dhangala'oo biro ykn nyaata qofa argatu 2. kan biraa -- ---------- 3. Hin beeku |
| 3. Daa'iman hanga yoomiitii aannan harma malee homaa argachuu hin qabu ? | 1. Dhaloota iraa kaaee hanga ji'a jahaattii 2. kan biraa ---------- 3. Hin beeku |
| 4.Daa'imman harmaa jirraa kaasee hanga ji'a 6 jiraniif aannan harmaa gahaadha | |
| a. Maaliif aannan harmaa nyaata daa'imman hanga ji'a 6 jiraniif gorfamu qofa jettanii yaaddu? | |
| b. Maaliif aanan harmaa qofti daa'ima nyaachisuuf session ammalle ji'oota 6 jalqabaa keesatti? | 1. Aannan harmaa soorata dhangala'o daa'imni tokko ji'oota 6 jalqabaa keessatii barbaachisu hund ani kenna<br>2. Daa'imman ji'a dura nyaata biro daakuun hin danda'amu<br>3. kan biraa ---------- 4. Hin beeku |
| 5. Daa'imni ji'a 6 gadi ta'e yeroo meeqa harma hoosisuu ykn aannan harma hoosisuu ykn aannan harmaa nyaachisuu qaba? | 1. Yeroo daa'imni barbaade hunda gaaffii irratti<br>2. kan biraa ---------- 3. Hin beeku |
| 6. Daa'imni ji'oota 6 jalqabaa keessatti aannan harmaa qofa yoo argate faayidaan iaa maali? | 1. Fayyaan guddata ¨<br>2.Dhukkuba garaachaa fi dhukkboota biro irra ittisuu |

| | |
|---|---|
| | 3. Furdina garmalee fi dhukkboota yeroo dheeraa ga'eessota ta'an irraa eegumsa<br>4. Dhukkunoota biro irraa ittisuu.<br>Ifa godhi_____<br>5. kan biraa ----------6.<br>Hin beeku |
| 7. Haati tokko daa'ima ishee harma qofa yoo hoosistu faayidaan qaamaa ykn fayyaa maali? | 1.Dhala namaa harkisa<br>2.Ulfaatina yeroo ulfa dabalte akka hir'isuuf ishee gargaara<br>3. Carraa kaansariitiin qabamuu ni hir'isa (Harmaa and ovaarii)¨<br>4. Erga da'ee booda carraa dhiiga dhabuu ni hir'isa ykn carraa dhiigni da'<br>5. Harma hariiroo haadhaa fi daa'ima gidduu jiru ni fooyyessa<br>6. kan biraa ----------7.<br>Hin beeku |
| 8. Mee karaa adda addaa haati tokko dhiyeessii aannani ishee itti fufuu dandeessu natti himaa | 1. Harma hoosisuu gaaffi irratti qofa ¨<br>2. Aannan harmaa harkaan ibsuu<br>3.Nyaata gaarii qabaachuu ykn nyaata gaarii nyaachuu fi nyaata fayya qabeessa ykn Garaagarumma qabaachuu<br>4.Guyyaa dhangala'aa gahaa dhuguu<br>5. kan biraa ----------6.<br>Hin beeku |
| 9. Yeroo hojjettee fi daa'ima kee irraa adda baate akkamitti daa'ima aannan harmaa qoffaan nyaachisuu itti fufta? | 1. Aannan harmaa harkaan kuusuudhaan ibsuu fi nama aannan harmaa daa'imaaf akka kennu gaafachuu<br>2. kan biraa ----------3.<br>Hin beeku |

| | |
|---|---|
| Yoo aannan harmaa nyaachisuuf rakkoon si mudate isaan irra aanuuf maal gochuu qabda? | |
| 10. Rakko furuuf haadha eenyutu gargaaruu danda'a? | 1.Gargaarsa ogeessaa tajaajila egumsa fayya hakiimota,narsoota deessiftoota fi ogeessota fayyaa biro irraa barbaaduu<br>2. kan biraa ----------3. Hin beeku |

Tokkoon tokkoon gaaffilee beekumsaa deebii argatu eeyyee lakki ykn hin beekne akka qabxii tokkootti (1) kan kennamu deebii sirrii ta'eef ni kennama (0) dogoggoraaf mallattoo fi filanoo beekta. Hubachiisa: xiinxalli duraa beekaa fi hin beeku waliin deebii deebii kennitootaa gaaffilee 10f akka armaan gadiitti ni taasifama

| | | **Xiinxala duraa** | |
|---|---|---|---|
| Lakk gaaffii. | Gaaffii beekumsaa | Beeka | Hin beeku |
| 1 | Aannan harmaa yeroo dhalatan | 1 | 0 |

| | | | |
|---|---|---|---|
| 2 | Hiika aannan harmaa qofa | 1 | 0 |
| 3 | Dheerina harma qofa hoosisuu gorfame | 1 | 0 |
| 4 | Aannan harmaa daa'imman dhaloota irraa kaasee hanga ji'a 6tti fudhachuu | 1 | 0 |
| 5 | Irra deddeebiin harmaa kennuu | 1 | 0 |
| 6 | Faayidaa daa'immaniif harma qofa hoosisuu | 1 | 0 |
| 7 | Faayidaa harma qofa hoosisuun haadholiitiif qabu | 1 | 0 |
| 8 | Dhiyeessii aannan harmaa eeguu | 1 | 0 |
| 9 | Danqaawwan harma hoosisuu irra aanuu | 1 | 0 |
| 10 | Yoo rakkoon harma hoosiuu uumame kunuuna fayyaa barbaaduu | 1 | 0 |
| | Ida'ama | | |

Lakkoofsi waliigalaa beekaa gara dhibbeentaatti jijjiiramee ni hiikama.

| **2.4. Ilaalchi yaada ykn gochaalee soorataa wajjin walqabatan barbaadamu jalqaba** | |
|---|---|
| **1. Ji'a 6f harma hoosisuun faayidaa akka qabutti fudhatame** | |
| a. Daa'ima keesan ji'a 6f harma qofa hoosisuun hangam gaarii jettanii yaaddu? | 1. Gaarii miti 2. Mirkanaa'aa miti 3. Gaarii |
| Yoo gaarii hin taane sababa gaarii hin taane natti himu dandeessaa? | |
| **Gufuulee hubataman** | |
| b. Daa'ima keessan ji'a 6f harma qofa hoosisuun hangam iinitti ulfaata? | 1. Rakkisaa miti 2. Kanaaf-akkas 3. Rakkisaa |
| Yoo rakkisaa ta'e sababa ulfaataa ta'eef natti himuu dandeessaa? | |
| **2. Gaaffii irratti harma hoosisuun faayidaa hubatame** | |
| a. How good do you think it is to breastfeed your baby on demand that is when the baby wants to feedGaaffii irratti daa'ima kee harma hoosiuun hammam gaarii akka ta'e sitti fakkaata innis yeroo daa'imni barbaadu? | 1. Gaarii miti 2. Mirkanaa'aa miti 3. Gaarii |
| Yoo gaarii hin taane ababa gaarii hin taane natti himu dandeessaa? | |

| | |
|---|---|
| **Gufuulee hubataman** | |
| b. Gaafii irratti daa'ima keessan harma hoosisuun hammam isinitti ulfaata? | 1. Rakkisaa miti<br>2. Kanaaf-akkas<br>3. Rakkisaa |
| Yoo rakkisaa ta'e sababa ulfaataa ta'eef natti himuu dandeessaa? | |
| **3. Harma hoosisuu irratti ofitti amanamummaa qabaachuu** | |
| 1. Daa'ima keessan harma hoosisuun hammam ofitti amanamummaa iinitti dhaga'ama? | 1. Ofitti amanamummaa hin qabu 2. Kanaaf-akkas 3. Ofitti amanaa |
| Yoo ofitti amanamummaa hin qabne ta'e sababa ofitti amanumummaan sitti hin dhaga'amne natti himuu dandeessaa? | |
| 2.Aannan harmaa ibsuu fi kuusuu: | |
| Namni biraa daa'ima kee akka nyaachisuuf aannan harmaa ibsuu fi kuusuu irratti hammam ofitti amanamumma sitti dhaga'ama? | 1. Ofitti amanamummaa hin qabu 2. Kanaaf-akkas 3. Ofitti amanaa |
| Yoo ofitti amanamummaa hin qabne ta'e sababa ofitti amanumummaan sitti hin dhaga'amne natti himuu dandeessaa? | |

**3. Tarree sakatta'iinsaa odeeffanno walitti qabuuf sababoota fudhatama nyaataa wajjin walqabatan**

| **3.1. Shaakala nyaata kennuu ji'a 6-59** | | | |
|---|---|---|---|
| 1. Garaagarummaa nyaata | Tarree nyaataa | Eeyyee | Lakki |
| a Midhaan,hidda fi qamadii | Ruuzii daabboo daabboo ykn fuduraalee biro midhaan irraa hojjetaman | | |
| | | | |

| | | | |
|---|---|---|---|
| b. Legumes and nuts | Nyaata baaqelaa baaqelaa qamadii muuzaa ykn sanyii irraa hojjetame kamiyyuu | | |
| c. oomishaalee annaniin qophaa'an | Foormulaa daa'immanii kan akka | | |
| | Yeroo meeqa? | | |
| | Aannan kan akka aannan beeyladaa qaruurra budaa ykn haaraa | | |
| | Yeroo meeqa? | | |
| | Ittitu ykn ittitu dhuguu | | |
| | Yeroo meeqa? | | |
| | Daabboo ykn oomishaalee aannani biroo | | |
| d. nyaataa foon | Kale ,tiruu ,one ykn foon qama biro | | |
| | Foon kamiyyuu kan akka foon hoolaa re'ee hoolaa ykn kan biroo | | |
| | Qurxummii haaraa ykn goggogaa | | |
| e. hanqaaquu | Hanqaaquu | | |
| f. Vitamin A kuduraa fi muduraa | Dubaa,kaarotaa foon keello ykn burtukaanaa boqqolloo mi'aawaa | | |
| | Kuduraale magariisa dukkanaa'oo kamiyyuu eg. Raafuu raafuu maraa etc. | | |
| | maangoo, bilchatee haaraa paapaayaa bilchaatee haaraa etc. | | |
| g. Kuduraalee fi muduraalee biroo | Fuduraalee biro fakkeenya burtukaana ykn kuduraalee | | |
| h. Garaagarummaa nyaataa hin tarreessine | Cooma zayitaa ykn dhadhaa ykn nyaata kanneen keessaa tokkoon hojjetaman kammiyyuu | | |
| | Nyaata sukkaara kamiyyuu kan akka chokoletii mi'aawaa karameellaa, paastaa,keekii ykn biskutii | | |
| | Condiments for flavour, such as chillies, spices, herbs or fish powder | | |

| | | | |
|---|---|---|---|
| 2. Daa'imman nyaata nyaachuu dhabuu | Daa'imni aannan harmaa malee nyaata biraa hin nyaatu | | |
| **Irra deddeebiin nyaata daa'imaaf** | | Baay'in a yeroo | Hin beekne |
| 3. Irra deddeebiin nyaata xiqqaa ta'e | Daa'imni guyyaa ykn halkan yeroo meeqa nyaata fi nyaata | | |
| | Salphaa dhangala'aa malee nyaata? | | |
| 4. Daa'imman harma hoosisaniif: | Daa'imman harma hoosisaniif ji'a 6 hanga 8 yeroo meeqa? | | |
| | Daa'imman harma hoosisaniif ji'a 9 hanga ji'a 23 yeroo meeqa? | | |
| | Daa'ima harma hoosisuuf yeroo meeqa>ji'a 23? | | |
| 5. Yoo daa'imni harma hin fudhanne | Daa'imman ji'a 6-23 yeroo meeqa nyaata nyaatu? | | |
| | Daa'imman > ji'a 23 ta'anii yeroo meeqa nyaata nyaatu? | | |

| | |
|---|---|
| **3.2. Beekumsaa fi ilaalcha gochaalee soorata waliin walqabatan garii ykn barbaadamu** | |
| **3.2.1. Beekumsaa** | |
| 1.Harma hoosisuu itti fufe: Hanga umrii akkamii akka gorfamutti haati harma hoosisuu itti fufti? | Ji'a 6 fi isaa gadi ¨ |
| | Ji'oota 6-11 ¨ |
| | Ji'oota 12–23 ¨ kan biraa" Hin beeku ¨ |
| | ji'a 24 fi isaa ol(deebii sirrii) |
| | Hin beeku |
| 2.Daa'imman umrii meeqatti aannan harmaa malee nyaata nyaachuu jalqabuu qabu? | Ji'a jahatti<br>kan biraa<br>Hin beeku |
| 3.Daa'imman umurii ji'a 6 irraa eegalee aannan harmaa dabalatee nyaata kennuun maaliif barbaachisaa ta'a? | 1. Aannan harmaa qofi guddinaaf/ji'a jaha irraa eegalee gahaa miti |
| | 2. kan biraa |
| | 3. Hin beeku |

| | |
|---|---|
| 4. Marqaa furdaa moo dhangala'aa ni kennituu? | 1. Furdaa 2. Giddugaleessa 3. Gosa dhangala'aa |
| Nyaata furaa ykn gosa dhangala'aa maaliif ker | |
| 5. Gosa kam ykn midhaan tokko ykn lamaa fi isaa ol irraa nyaata qopheessita? | 1. Midhaan tokko irraa jechuunis |
| | 2. Midhaan lama irraa jechuunis |
| | 3. Midhaan sadii fi isaa ol irraa jechuunis |
| 6. Nyaata qopheessite irratti mal dabalta, akka inni soorata caaluuf? | Aannan madda bineensotaa Killee Foon qurxummii |
| | Damma argachuuf kan biraa ---------- |
| 7. kraalee ijooleen xixiqqoo nyaata akka nyaatani? | 1. Yeroo nyaataa xiyyeeffannoo isaaniif kennuudhaan haasa'uu yeroon nyaataa yeroo gammachuu akka haqamu taasisa<br>2. Harka rukutuu 3. Fuula nama kofalchiisu/taphachuu/kolfaa<br>3. demonstrate opening your own mouth<br>4. Jechoota jajjabeessaa dubbadhu<br>5. Xiyyeeffannaa daa'imaa harkisuu<br>6. Kan biraa ----------7. Hin Beekne |
| **3.2.2. Ilaalcha gaarii ykn barbaadamu tokkof qaban gochaalee soorataan walqabatan** | |
| 1. Nyaata mucaa keessaniif qopheesuu irratti hammam ofitti amanamummaa isinitti dhagahama? | 1. Ofitti amanamummaa hin qabu 2. Ok/akkas-akkasuma 3. Ofitti amanaa |
| Yoo ofitti amanamummaa hin qabne ta'e sababa ofitti amanumummaan sitti hin dhaga'amne natti himuu dandeessaa? | |
| 2. Guyyaa guyyaan nyaata gosa adda addaa daa'ima keessaniif kennuun hammam gaarii ta'e jettanii yaaddu? | 1. Gaarii miti 2. Mirkanaa'aa miti 3. Gaarii |

| | |
|---|---|
| Yoo gaarii hin taane sababa gaarii hin taane natti himu dandeessaa? | |
| 3. Guyyaa guyyaan nyaata gosa adda addaa daa'ima keessaniif kennuun hammam isinitti ulfaata? | 1. Rakkissaa miti 2. akkas-akkasuma<br>3. Rakkissaa |
| Yoo rakkisaa ta'e sababa ulfaataa ta'eef natti himuu dandeessaa? | |
| 4. Ilma akee guyyaa guyyaatti yeroo hedduu nyaachisuun maal akka gaarii ta'e sitti fakkaata? | 1. Gaarii miti 2. Mirkanaa'aa miti 3. Gaarii |
| Yoo gaarii hin taane sababa gaarii hin taane natti himu dandeessaa? | |
| 5.Ilma kee guyya guyyaatti yeroo hedduu nyaachisuun siif hammam rakkisaa dha? | 1. Rakkissaa miti 2. akkas-akkasuma<br>3. Rakkissaa |
| Yoo rakkisaa ta'e sababa ulfaataa ta'eef natti himuu dandeessaa? | |
| 6. Harma ittiin jabeessuun ji'a 6 booda itti fufuun maal akka gaarii ta'e sitti fakkaata? | 1. Gaarii miti 2. Mirkanaa'aa miti 3. Gaarii |
| Yoo gaarii hin taane sababa gaarii hin taane natti himu dandeessaa? | |
| 7. Harma ittiin jabeessuun ji'a 6 booda itti fufuun siif hammam rakkisaa dha? | 1. Rakkissaa miti 2. akkas-akkasuma<br>3. Rakkissaa |
| Yoo rakkisaa ta'e sababa ulfaataa ta'eef natti himuu dandeessaa? | |

**Note:** Xiinxalli duraa kan beeku fi hin beeku waliin deebii kennitootaa gaaffilee 7f (3.2.1) ni taasifama.

**4. Dhimmoota kunuunsa fayyaa wajjin walqabatan**

| | |
|---|---|
| 4.1. Soorata yeroo ulfaa harma hoosisuu keessa | |
| 1.Yeroo ulfaa maal nyaatta? | 1.Wal fakkaata ulfa hin taane 2. Nyaata adda addaa |

| | |
|---|---|
| Yoo adda ta'e yoo xiqqaate nyaata tokko ykn isaa ol tarreessu | |
| 2. Yeroo ulfaa nyaata baay'e nyaattaa? | 1. Eeyee 2. Lakki |
| Yoo eeyyee ta'e akkamitti nyaata caalu? | |
| 3. Yeroo harma hoosistu nyaata adda adda ani nyaatta? | 1.Wal fakkaata ulfa hin taane 2. Nyaata adda addaa |
| Yoo adda ta'e yoo xiqqaate nyaata tokko ykn isaa ol tarreessu | |
| 4. Yeroo ulfaa nyaata baay'ee nyaachuun hangam gaarii sitti fakkaata? | 1. Gaarii miti 2. Mirkanaa'aa miti 3. Gaarii |
| Yoo gaarii hin taane sababa gaarii hin taane natti himu dandeessaa? | |
| 5. Yeroo ulfaa nyaata baay'ee nyaachuun hammam sitti ulfaata? | 1. Rakkissaa miti 2. akkas-akkasuma<br>3. Rakkissaa |
| Yoo rakkisaa ta'e sababa ulfaataa ta'eef natti himuu dandeessaa? | |
| 6. Daa'imni akka gaariitti guddachaa jiraachuu fi dhiisuu isaa KKmitti baruu dandeessa? | |
| 7. Eenyutu haadha daa'imaa gargaaree akka daa'imni sirritti guddachaa jiru itti hima? Eessa deemuu dandeetti? | 1. Gara buufata fayyaa deemuun hakiima ykn narsii gaafachuu ykn hordoffii guddinaatiif tajaajila kunuunsa fayyaa barbaaduu |
| | 2. Kan biraa----------3. Hin beekne |
| **4.2. Kunuuna fayyaa yeroo ulfaa** | |
| 1. Yeroo ulfaa yeroo meeqa ANC irratti argamteetta (mucaa filatameef) | 1. Yeroo tokko 2. Yeroo lama ykn sadi 3. Dachaa afur ol ykn walqixa ta'e |
| | 4. Daawwannaa ANC hin qaban 5. Hin beekne |
| 2. Daa'imni keessan guutummaatti talaallii fudhateera? | 1. Eeyee 2. Lakki |
| 3. Mucaan keessan dhukkubsatee beekaa? | 1. Eeyee 2. Lakki |

| | |
|---|---|
| Gaaffii lakkoofsa 3f eeyyee yoo ta'e isaan tarreessi | |
| **4.3. Nageenya nyaataa** | |
| 1. Fuula suphaa, maxinoo fi meeshaalee nyaataa suphuun yeroo baay'ee akkamitti akka suphitu ibsituu dandeessa? | 1.Nyaata hafe gara boolla xuraa'aa itti darbanitti qulqulleessi |
| | 2.Bishaan ho'aan dhiqachuu |
| | 3. Saamunaan dhiqachuu |
| | 4. Hin beeku/deebi hin qabu |
| 2. Nyaata haaraa badaa kan akka foon qalamaa, qamadii fi nyaata galaanaa akkamitti kuufattu? | 1. Firijii 5 °C gadi ykn saanduqa qabbanaa'aa keessatti |
| | 2.Uwwifamee (bifa, sangoo, ilbiisaa fi foolii irraa eegamee) |
| | 3.Nyaata bilcheeffamee yookaan qophaa'ee nyaatamuu danda'u irraa adda baafamee |
| | 4. Kan biraa |
| | 5. Hin beeku/deebi hin qabu |
| 3.Yeroo soorataa fi nyaata bilcheessinu, mallattoon nyaatni sun qophaa'ee fi dhiheessuu nageenya akka qabu agarsiisu maali ? | 1.Ni bulluqaa jiru/ni bilcha'aa |
| | 2. Kan biraa |
| | 3. Hin beeku |
| 4. Kuduraa fi muduraa qalamaa nyaachuu dura maal gochuu qabdu? | 1.Isaan bishaan qulqulluu waliin dhiqii |
| | 2. Kan biraa |
| | 3. Hin beeku |
| 5. Nyaata hafe nyaachuu ykn tajaajiluu dura irra deebi'anii ho'isuun hangam gaarii ta'a jettanii yaaddu? | 1. Gaarii miti 2. Mirkanaa'aa miti 3. Gaarii |
| Yoo gaarii hin taane sababa gaarii hin taane natti himu dandeessaa? | |

| | |
|---|---|
| 6. Nyaata hafe nyaachuu ykn tajaajiluu dura irra deebi'anii ho'isuun hammam rakkisaadha? | 1. Rakkissaa miti 2. akkas-akkasuma<br>3. Rakkissaa |
| Yoo rakkisaa ta'e sababa ulfaataa ta'eef natti himuu dandeessaa? | |
| 4. Qulqullina dhuunfaa | |
| 1.Mee akkamitti akka harka dhiqattan tartiibaan ibsuu dandeessu? | |
| 2. Jarmii nyaata bira akka hin geenye yoom harka dhiqachuu qabna? | 1.Erga mana fincaanii deemeen booda |
| | 2.Erga jala daa'imaa qulqulleesanii booda |
| | 3.Nyaata qopheessuu ykn qabachuu dura |
| | 4. Daa'ima nyaachisuu ykn nyaachuu dura |
| | 5. Nyaata dheedhii erga qabatanii booda |
| | 6.Erga balfa qabatanii booda |
| | 7. Kan biraa 8. Hin beekne |

**5. Qabxiilee naannoo waliin walqabatan**

| **5.1. Madda bishaanii** | |
|---|---|
| 1.Maddi bishaan dhugaatii guddaan miseensota HH keessanii maali? | 1. Tuuboodhaan gara mana jireenyaatti |
| | 2. Tuuboo gara pilaatii/mooraa |
| | 3. Tap ummataa |
| | 4. Bihaan qaruuraa |
| | 5. Akka gaariitti eegumsa argate |
| | 6. Akka gaariitti eegumsa hin qabne |
| | 7. Kanneen biro ibsu |
| 2. Bishaan walitti qabuu | |
| Bishaan mana keessaaf oolu walitti qabduu? | Eeyyee Lakki |
| Yoo eeyyee ta'e bishaan walitti qabuuf meeshaa akkamii fayyadamta? | |
| Yoo lakki meeshaa kana qulqulleessuuf karaa kamiinuu ilaaltee? | Eeyyee Lakki Hin beekne |

| | |
|---|---|
| Yoo eeyyee: Akkamitti? | Bishaanii fi saamunaa fayyadamuu |
| | Kan biraa |
| | Hin beekne /Deebii hin qabu |
| 3. Akkaataa bishaan itti kuufattu ibsuu dandeessaa ? | 1.Meeshaa qulqulluu ta'e |
| | 2.Meeshaa haguugame |
| | 3.Meeshaalee ykn qamadii qulqulleessuu fi haguugame |
| | 4.Kanneen biroo |
| | 5.Hin beeku/deebii hin qabu |
| 4. Bishaan keessan akka dhuguuf nageenya qabuuf karaa kamiinuu ni qulqulleessitu? | Eeyyee Lakki Hin beeku |
| Yoo eeyyee: Yeroo baay'ee bishaan sana akka dhuguuf nageenya qabuuf maal goota? | 1. Itti bilcheessuu<br>2. Biilichii/kilooriin itti dabaluu<br>3. Huccuu keessaa calaluu<br>4. Filtara bishaanii (seeraamikii, cirracha, kompozitii fi kkf) fayyadamuu<br>5. Disinfection aduu fayyadamuu<br>6. Dhaabbatee haa qubatu<br>7. Kanneen biroo<br>8. Hin beeku/deebii hin qabu |
| **5.2. Bakka mana fincaanii fi balfaa** | |
| 1. Mana keessan kessatti bakka mana fincaanii hojiirra oolu ni qabduu (ilaalu) | 1. Eeyyee 2. Lakki |
| 2. Hojiin sirna balfa jajjaboo gatuu ni jiraa? | 1. Eeyyee 2. Lakki |
| 3. Hojiin sirna balfa dhangala'aa gatuu ni jiraa? | 1. Eeyyee 2. Lakki |

## 8.8. Curriculum Vitae of the Investigators

### 1. PERSONAL PROFILE

- **NAME:----------** Elizabeth Negussie Seifu
- **SEX:----------** Female
- **CURRENT ADDRESS:----------** Haramaya
- **MOBILE PHONE:----------** 09-34-33-26-94
- **EMAIL:----------** elsabethnigussie969@gmail.com
- **TITLE:** Prevalence and Associated Factors of Stunting Among Children Aged 6-59 Months Attending the Paediatric Outpatient Department at Haramaya General Hospital, Maya City, Oromia, Ethiopia

## 2. EDUCATIONAL BACKGROUND

- Elementary school: Bate primary school
- Secondary and preparatory school: Harar Medehanialem Secondary and preparatory school
- Higher education: Diploma in Clinical Nursing at Harar Science College
- Higher education: Bachelor of Science Degree in Nursing at Haramaya University

## 3. WORK EXPERIENCE

- I have 28 (Twenty-Eight) year work experience on different departments as a head of the department and as a staff nurse as well.
- Currently working in internal medicine department as a staff nurse at Haramaya Referral Hospital.

## 4. TRAINING ATTENDED

- Voluntary Counselling and Testing on HIV/VCT conducted by the Family Guidance Associate of Ethiopia.
- Integrated Pharmaceutical Logistics System Training by the Pharmaceutical Fund and Supply Agency (PFSA) in collaboration with USAID/DELIVER PROJECT.
- Comprehensive TB, Leprosy and TB/HIV Training Organized by Oromia Regional Health Bureau.
- Essential Nutrition Action Counsellor's organized by Essential Service for Health in Ethiopia.

## 5. SKILLS IN COMPUTER

- Microsoft Office (MS Word, MS Excel, MS PowerPoint)
- Database access

## 6. PERSONAL SKILL

- Excellent verbal and written communication skills
- Effective listening skill
- Strong interpersonal skills
- Strong time management skills
- Highly organized
- Ability to identify and resolve issues
- Adaptability and flexibility
- Ability to prioritize tasks

## 8.9. APPROVAL SHEET

## POSTGRADUATE PROGRAMS DIRECTORATE

Prevalence and Associated Factors of Stunting among Children Aged 6-59 Months Attending the Pediatric Outpatient Department at Haramaya General Hospital, Maya City in East Hararghe, Oromia, Ethiopia

MPH Thesis Research

**Submitted by:**

| | | |
|---|---|---|
| **Elizabeth Nigussie** | _____ | _____ |
| Name of Student | Signature | Date |

**Approved by:**

| | | |
|---|---|---|
| **1. Dr. Kedir Teji (PhD)** | _____ | _____ |
| Major Advisor | Signature | Date |
| **2. Dr. Ibsa Mussa (PhD)** | _____ | _____ |
| Co-advisor | Signature | Date |
| **3.** _____ | _____ | _____ |
| Research Thematic Area Leader | Signature | Date |
| **4.** | _____ | _____ |
| Name of Chairperson, SGC | Signature | Date |
| **5.** _____ | _____ | _____ |
| Name of Director, PGPD | Signature | Date |