

**DETERMINANT OF ACUTE MALNUTRITION AMONG CHILDREN
AGED 6-59 MONTHS ATTENDING PUBLIC HEALTH FACILITIES
OF JIMMA TOWN, SOUTH WEST ETHIOPIA: MATCHED CASE
CONTROL STUDY**

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ABSTRACT

Background: Globally, 52 million children are suffering from acute malnutrition and every year 3.1 million children die of acute malnutrition. In Ethiopia, acute malnutrition among under five year's children is one of the potential challenges in achieving sustainable development goals in reducing child mortality.

Objective: This study was aimed to determine factors associated with acute malnutrition among children aged 6-59 months attending public health facilities of Jimma town, South-west of Ethiopia.

Methods: Institution based age matched case-control study design was employed from March to April 2017. Two hundred thirty four sampled children (78 acutely malnourished and 156 none acutely malnourished) was randomly selected. Data were collected by using semi structured and pre-tested interviewer administered questionnaire and anthropometric measurement were taken by calibrated instruments. Data entry was done by Epi data version 3.1 and analysis was done by SPSS 21.0 statistical software.

Result: Almost all children (97.5% cases and 98.3% controls) were fed breast milk in their life time. Similarly, about two third of study participants were exclusively breastfed for six months. Findings of this study showed that lack of maternal education [AOR, 4.08 (95% CI: 1.46, 11.40)], poor maternal knowledge about child feeding [AOR, 5.97(95% CI: 1.83, 19.44)], being female children [AOR, 2.99 (95% CI: 1.07, 8.38)], having more than five family members [AOR, 3.24 (95% CI: 1.14,9.21)], low wealth index [AOR, 3.76 (95% CI: 1.24,11.38)], less frequent hand-washing practice [AOR, 5.57(95% CI: 1.82,16.97)], diarrhoea report [AOR, 3.58(95% CI: 1.15, 11.07)] and bottle feeding [AOR, 3.98(95% CI: 1.29, 12.36)] were positively associated with acute malnutrition among children attending public health facilities of Jimma town.

Conclusion and recommendation: Findings of this study indicated that socio-demographic factors like gender, family size, maternal education, poor child feeding practises and household wealth index were significantly associated with acute malnutrition among children attending public health facilities of Jimma town. Therefore, emphasis should be given to strengthen caregivers' socio-economic status and knowledge of child feeding practises.

Keywords: Acute Malnutrition, Child Feeding, Public Health, Jimma Town

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TABLE OF CONTENTS

ABSTRACT	I
ACKNOWLEDGMENT	II
TABLE OF CONTENTS	III
LIST OF TABLE	V
LIST OF FIGURE	VI
ABBREVIATIONS AND ACRONYMS	VII
1. INTRODUCTION	1
1.1. Background.....	1
1.2. Statement of the problem	2
2. LITERATURE REVIEW	4
2.1. Malnutrition in Ethiopia Context	4
2.2. Determinant of acute malnutrition	4
Significance of the study	8
3. OBJECTIVES	10
4. METHODS	11
4.1. Study area and period.....	11
4.2. Study design.....	11
4.3. Populations.....	11
4.3.1. Target population	11
4.3.2. Source population	11
4.4. Inclusion and exclusion criteria	12
4.4.1. Inclusion criteria	12
4.4.2. Exclusion criteria	Error! Bookmark not defined.
4.5. Sample size and sampling techniques.....	12
4.5.1. Sample size determination	12
4.5.2. Sampling techniques	13
4.6. Variables	14
4.6.1. Dependent variable	14
4.6.2. Independent variables	14

4.7. Data collection procedure and instrument	15
4.8. Operational definitions.....	17
4.9. Data processing& analysis.....	18
4.10.Data quality management	18
4.11.Ethical Consideration.....	19
4.12.Dissemination plan.....	19
5. RESULT	20
5.1. Background characteristics of study population (children).....	20
5.2. Parental related factors.....	21
5.3. House hold and environmental related factors.....	22
5.4. Maternal and child health care related factors	23
5.5. Feeding practiceand maternal knowledge on optimal child feeding	24
6. DISCUSSION.....	29
7. STRENGTH AND LIMITATION OF THE STUDY	32
7.1. Strength of the study	32
7.2. Limitation of the study.....	32
7. CONCLUSION AND RECOMMENDATIONS.....	33
7.1. Conclusion	33
7.2. Recommendations.....	33
8. REFERENCES	34
9. ANNEX.....	37
9.1. Annex I: Assurance of principal Investigator	37
9.2. Annex II: Information sheet and consent form.....	38
9.3. Annex III: Questionnaires.....	40
9.4. Annex IV: Weight-for-height/length tables (Sample)	64

LIST OF TABLE

Table 1: Summary of computed sample size for different variable from previous studies	13
Table 2: Background characteristics of study population attending public health facilities of Jimma town, South West Ethiopia; 2017.....	20
Table 3 Socio demographic characteristics for the parent of study attending public health facilities of Jimma town, South West Ethiopia; 2017.....	21
Table 4: Household and environmental related factors of study participant attending public health facilities of Jimma town, South West Ethiopia; 2017.....	22
Table 5: Maternal and child health care related factors of study participant attending public health facilities of Jimma town, South West Ethiopia; 2017.....	23
Table 6: Feeding practice of study participants attending public health facilities of Jimma town, South West Ethiopia; 2017	24
Table 7: Independent predictors of acute malnutrition of study participants attending public health facilities of Jimma town, South West Ethiopia; 2017.....	28

LIST OF FIGURE

Figure 1: Conceptual frame work for acute malnutrition in under five years children modified from UNICEF cause of malnutrition	9
Figure 2: Diagrammatic presentation of sampling procedure of study participants attending public health facilities, Jimma town, South West Ethiopia	14
Figure 3: Children pre lacteal feeding practice attending public health facilities of Jimma town, South West Ethiopia; 2017	25
Figure 4: Maternal knowledge status regarding optimal child feeding attending public health facilities of Jimma town, South West Ethiopia; 2017.....	26

ABBREVIATIONS AND ACRONYMS

- CBN:** Community Based Nutrition
- CF:** Complementary Feeding
- CI:** Confidence Interval
- DDS:** Dietary Diversity Score
- EBF:** Exclusive Breast Feeding
- E(DHS):** Ethiopia (Demographic Health Survey)
- FANTA:** Food and Nutrition Technical Assistance
- GDP:** Gross Domestic Product
- HC:** Health Center
- HEWs:** Health Extension Workers
- HFIAS:** House Hold Food Insecurity Access Scale
- HSDP IV:** Health Sector Development Program Four
- JUMC:** Jimma University Medical Center
- MAD:** Minimum Acceptable Diet
- MMF:** Minimum Meal Frequency
- MAM:** Moderate Acute Malnutrition
- MUAC:** mid upper arm circumference
- NNP:** National Nutrition Program
- SAM:** Sever Acute Malnutrition
- SD:** Standard Deviation
- SPSS:** Statistical Package for Social Science
- UNICEF:** United Nations Children's Fund
- VIF:** Variable Inflation Factor
- WHO:** World Health organization

1. INTRODUCTION

1.1. Background

Adequate provision of nutrients, starting from early stages of life, is crucial to ensure good physical & mental development as well as for long-term health. The double burden of malnutrition is an increasing public health problem worldwide(1).

Acute malnutrition is classified into severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) according to the degree of wasting and the presence of oedema. It is severe acute malnutrition if the wasting is severe (weight-for-height < 70% WHO child growth standards median or weight-for-height less than minus 3 Z-score using the WHO-2005 growth standards (2-4). Acute malnutrition is defined as moderate acute malnutrition if a weight-for-height index between 70% and 80% WHO child growth standard median or weight-for-height between -3 and -2 z-scores (standard deviations); oedematous cases are always classified as severe(2, 3).

Another criterion used to define and classify acute malnutrition is mid upper arm circumference (MUAC). By using MUAC criteria acute malnutrition includes a child having SAM (MUAC less than 110mm) and a child with MAM (MUAC \geq 110mm to < 125mm)(5). MUAC cut off points is debatable and world health organization recommends countries to have their own cut off points to define acute malnutrition and accordingly Ethiopia set MUAC cut off points below 110mm to define SAM and 110mm to less than 120mm to define MAM (6).

1.2. Statement of the problem

Childhood malnutrition is a major global health problem, contributing to increased morbidity and mortality, impaired intellectual development, suboptimal adult work capacity and even increased risk of disease in adulthood (7). Of the 7.6 million deaths annually among children under 5 years of age, approximately 20% can be attributed to child underweight (8).

Acute malnutrition is a devastating disease with epidemic proportion. Worldwide, 55 million children under the age of five suffer from moderate acute malnutrition; 19 million of these suffer from the most serious type severe acute malnutrition. Every year, 3.1 million children die of malnutrition(9). Across the globe, an estimated 16 million children under the age of 5 are affected by severe acute malnutrition. This number is staggering most importantly, because children with severe acute malnutrition are nine times more likely to die than well-nourished children. These deaths are the direct result of malnutrition itself, as well as the indirect result of childhood illnesses like diarrhoea and pneumonia that malnourished children are too weak to survive(10). Joint UNICEF/WHO/World bank group 2017 report indicated that acute malnutrition/wasting continued to threaten the lives of an estimated 7.7 percent or nearly 52 million children younger than 5 years globally, more than two-thirds (69%) lives in Asia and more than one quarter (29%) lived in Africa. In Africa 14 million children under 5 are wasted, of which 4.1 million are severely wasted and 4.2 million were from eastern Africa countries (11).

The poor nutritional status of children and women continues to be a serious problem in Ethiopia. The health sector has increased its efforts to enhance good nutritional practices through health education, treatment of extremely malnourished children, and provision of micronutrients to mothers and children(12). The cost of hunger Africa study estimated that 4.4 million additional clinical episodes are associated with under-nutrition among children aged 5 years and below incurring an estimated cost of \$154 million in 2009. In this study, under-nutrition was associated with 24% of all child mortalities with estimated 379,000 deaths in the period 2004-2009. Over all, the study estimated that Ethiopia has lost about \$ 4.7 billion as the result of under-nutrition in 2009 alone, an equivalent of 16.5% of growth domestic product (GDP)(13).

Ethiopia has one of the highest rates of malnutrition in Sub-Saharan Africa, and faces acute and chronic malnutrition and micronutrient deficiencies(3). The high malnutrition rate in the country poses a significant obstacle for achieving better child health outcomes. The percentages of children who are stunted were 38 percent; of which 18 percent were severely stunted, 24 percent of all children were underweight, and 7 percent of children were severely underweight, 10 percent were wasted and 3 percent were severely wasted. In Oromia region of Ethiopia, the percentage of children who are severely stunted, severely wasted & severely underweight were 17.1%, 3.5%, and 6.6% respectively(12, 14).

Cognizant of the nutrition issues, a national nutrition strategy and program (NNP) has been developed and implemented in a multi-sectoral approach. The HSDP IV has integrated nutrition into the Health Extension Programme to improve the nutritional status of mothers and children through Community Based Nutrition program (CBN), Health Facility Nutrition Services, and Micronutrient Interventions and Essential Nutrition Actions / Integrated Infant and Young Feeding Counseling Services. Besides, more than 10,000 health facilities are treating Severe Acute Malnutrition(15). However, the problem is still high in its magnitude and causing challenges for the attainment of the goals to reduce child mortality and it is one of the traits in attaining sustainable development goal (SDG). Therefore, determining determinants of acute malnutrition has significant advantage in making things easy for prevention of acute malnutrition. Therefore this study is aiming at determining household factors, child characteristics factors, child caring practice factors and environmental factors of acute malnutrition.

2. LITERATURE REVIEW

2.1. Malnutrition in Ethiopia Context

Worldwide, malnutrition is an underlying cause in the deaths of more than 3.5 million children under the age of 5 each year (7). Ethiopia has witnessed encouraging progress in reducing malnutrition over the past decade. However, baseline level of malnutrition remain so high that the country must continue to make significant investments in nutrition (16). Accordingly, the proportion of children underweight declined more substantially by 39 percent over the period between 2000 and 2014 (12). There was only a minimum decline in the prevalence of wasting over the last 15 years. Overall, 10 percent of Ethiopian children are wasted, and 3 percent are severely wasted. Wasting, or acute malnutrition, is highest in children less than 6 months of age and children age 6-8 months (15.4 percent, each), male children (10.2 percent), and in children from households with the lowest wealth quintile (14.1 percent)(12, 14).

2.2. Determinant of acute malnutrition

Parental Education Status

In a cross-country analysis from 63 countries, found that women's education was strongly associated with child malnutrition in developing countries(17). Study conducted in under two children in Uganda also reported maternal education to be associated with child malnutrition(18). The results of the DHS 2011 survey for Ethiopia showed a positive relationship between mothers' education and the nutritional status of their children(19).

Study conducted in southern Ethiopia found out under five children whose mother is illiterate were 8 times more likely to be severely wasted than those children whose mother is literate (AOR = 8.67, 95% CI 2.67 – 28.26) while the same study did not found significant relationship with paternal illiteracy (20). Another study conducted in southern Ethiopia found out that underweight among children whose fathers were illiterate was 6.7 times (AOR = 6.7, 95% CI: 1.8-62.2) more likely than children whose fathers were literate(21). On contrary study conducted in India found that maternal, rather than paternal illiteracy was an independent risk factor for SAM (22, 23).

Monthly income/House hold wealth index

The risk of acute malnutrition is increased when the monthly income is lower than 50 USD. Poor family income has been found as a risk factor for severe acute malnutrition in studies done in Nigeria (24). Acute malnutrition is most common in children in those in the lowest two wealth quintiles (19). Children from families in poor and middle socio-economic positions were more likely to be undernourished than their counterparts. Children from households with poor and middle socio-economic status were nearly twice at increased risk of wasting(25).

Family Size

A larger family size is associated with an increased risk of acute malnutrition. The effect of a large family size with overcrowding and inadequate spacing has been implicated as a risk factor for severe malnutrition in different studies as well (24, 26). Study conducted in Pakistan and Malaysia indicated that very large family size was significantly higher among the cases in comparison to the controls (27, 28). A case control study conducted in western Ethiopia indicated that there is a statistically significant difference between children in the cases and the control groups regarding their family size; as very large family size was significantly higher among the cases in comparison to the controls(23). However study conducted in southern Ethiopia indicated that family size were not statistically significant in the multivariate analysis of the current study(20).

Household food insecurity

Study done in Bangladesh found that food insecurity is negatively associated with nutritional status. Food insecurity significantly contributes in increasing the risk of underweight as well as wasting among under five years children. This higher risk of under nutrition among under five years children holds even after adjusting some major significant socioeconomic characteristics (29). Children in Ethiopia are exposed to multiple risks of malnutrition including, inadequate food access, insufficient care and unsanitary environment (7, 12, 19). Different research had examined the association between food security and nutritional status of children but revealed mixtures of evidence. Study indicated food insecure house holders are about two times likelihood of having acute malnutrition than the food secure house holders (25). To the contrary another

study found out that household food security was significantly associated with underweight and stunting but not with wasting(30).

Water, sanitation and hygiene (WASH) related factors

The likelihood of acute malnutrition were fourteen fold higher among children whose mothers had practices of hand washing only at the time of after visiting latrine or before serving/preparing food or after cleaning child faces or not wash their hands at all as compared to those whose mothers had practices of hand washing at each activity. However another study conducted in southern Ethiopia did not revealed statistical significant association between latrine availability and acute malnutrition(20).

Health carerelated factors

In many studies, obstetric factors like a mother haven't antenatal care follow up is associated with acute malnutrition of the children (31, 32). However study conducted in south Ethiopia revealed that, there is no significant difference in children whose mother haven't antenatal care follow up and those having in relation to acute malnutrition. Similar study revealed out that children who were taken to health institution within 24 hours are less likely to be severely wasted than those who were not taken(20).

Child health related factors

Recurrent infection has been associated with malnutrition, especially diarrhoea(33). A prospective study carried out in other parts of Ethiopia found that malnourished children had significantly higher incidences of diarrheal diseases than their well-nourished counterparts, signifying that malnutrition in itself increased the risk of infection among fewer than five children (34). Morbidity status of the child by diarrheal disease in the last 2 weeks preceding the survey were also seen one of the determinant of the severe wasting in under five children. The likelihood of acute malnutrition was higher among children with febrile illness indicating about two times more risk of acute malnutrition for children who had febrile illness(23). Similarly another study found a significant association between acute malnutrition and diarrheal disease which indicated fourfold risk of acute malnutrition among children who had diarrhoea (23, 35, 36). However, to the contrary another study found that diarrhoea and fever were not significantly associated with the nutritional status of the child(37).

Child feeding and caring practice

As a global public health recommendation, infants should be exclusively breastfed for the first 6 months of life to achieve optimal growth, development and health. Thereafter to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond(1). In India it was found that exclusive breast feeding (BF) during the first 6 month of life protected against development of acute malnutrition while the occurrence of acute malnutrition was not found to be affected by discontinuation of BF after 1 year. A significantly higher proportion of children with acute malnutrition were deprived of colostrum; rather they received prelacteals at birth (22). Bottle feeding was shown in the present study to be an independent risk factor for acute malnutrition, similar to the results of others (22, 36). Study conducted in Malaysia showed that there was no significant association between duration of exclusive breast feeding and nutritional status (28) and another study conducted in west Oromia in Non-exclusively breastfed children found out that children who did not exclusively breastfed were about 2.5 times more likely to be acutely malnourished than their exclusively breastfed counter parts (23).

Introduction of other diet before six months of age is 3.2 times more common with cases than in the controls; and initiation of complementary diet after one year of age was 3.4 times more common in the malnourished group (36).The study conducted in China showed that introduction of complementary feeding before six months of life increased the prevalence of pneumonia and diarrheal diseases which in turn interrupt nutritional status of the child(38). Another study revealed that children who had sub optimal frequency of complimentary feeding (≤ 2 times a day) were 3 times more likely to be severely wasted than children who took 3-5 times per a day (20). Regarding the relationship between dietary diversity and acute malnutrition, study conducted in southern and eastern Ethiopia found out that there was no significant association between dietary diversity score with nutritional status (25, 39).

In general, acute malnutrition is the major public health problem and the magnitude of acute malnutrition varies from locality to locality as the determinant of acute malnutrition also varies in different settings. Therefore identifying determinant factors of acute malnutrition has significant advantage in improving the effectiveness and efficiency of the intervention. Therefore this study is intended to determine determinant factors of acute malnutrition in the study locality.

Significance of the study

Knowledge about major risk factors associated with acute malnutrition is an important precondition for developing nutritional intervention strategies. A few studies were conducted in different parts of the country, but there is no previous study conducted to address determinant of acute malnutrition in the study area.

Therefore, the findings of this study can be used as reference for the prevention of malnutrition among young children and to plan resources needed for effective management of malnutrition. The findings of this study also expected to be used as reference by other researchers, governmental and nongovernmental organizations working with child nutrition and food security to redesign their implementation strategies. Overall, the findings have important implications for policy and programme efforts towards improved child nutritional status.

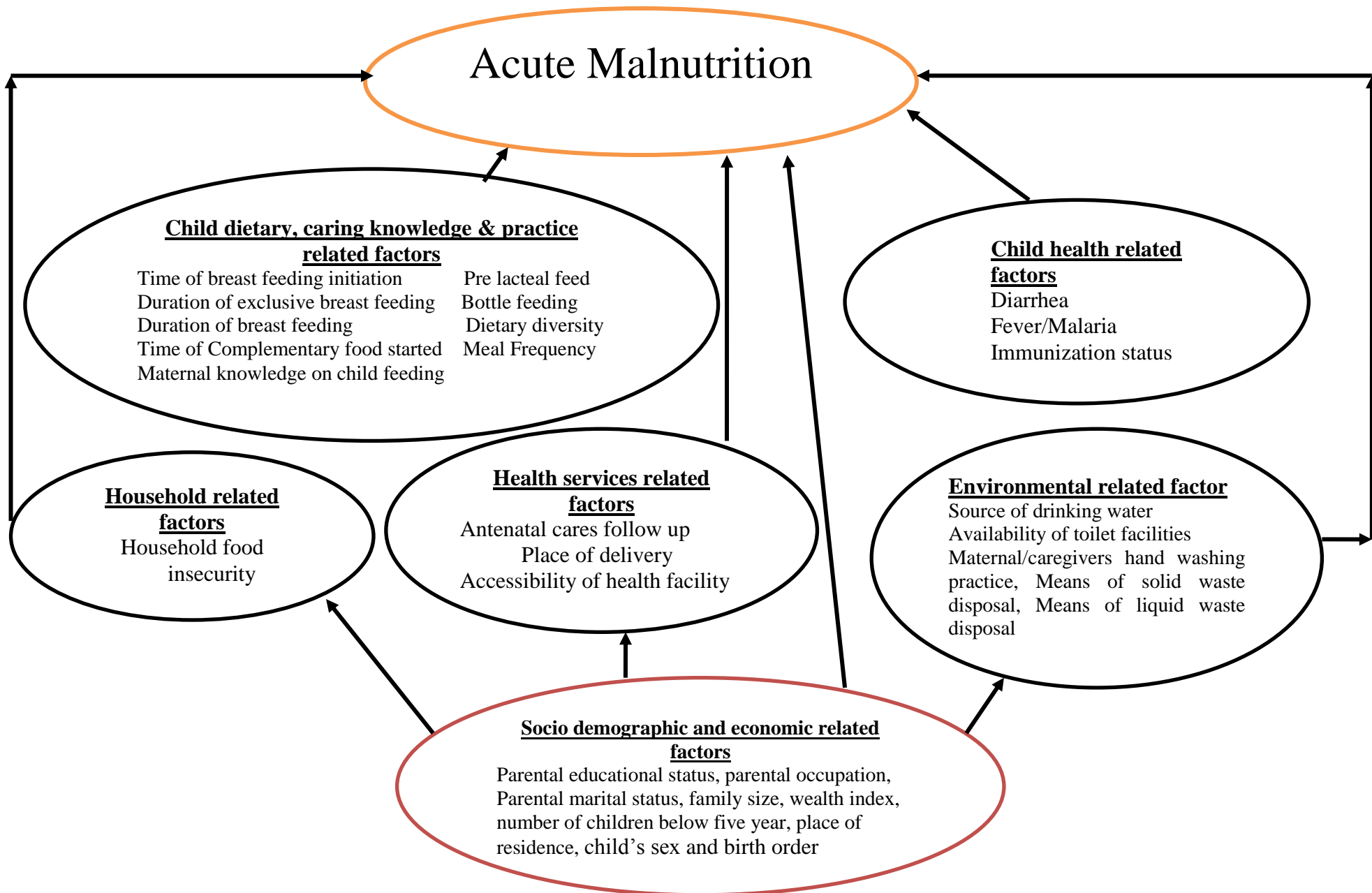


Figure 1: Conceptual frame work for acute malnutrition in under five years children modified from UNICEF cause of malnutrition

3. OBJECTIVES

- To identify determinant factors of acute malnutrition among aged 6-59 months attending public health facilities of Jimma town, South West Ethiopia.

4. METHODS

4.1. Study area and period

The study was conducted in public health facilities of Jimma town which is located in Jimma zone, Oromia regional state, Ethiopia. The town is situated in south west of Ethiopia and covers a total area of 4,623 hectares. The town has a latitude and longitude of 7° 40'N 36° 50'E. The daily mean temperature of the town ranges from 20°C to 25°C year round and an average annual rainfall is 1500mm. In Jimma zone, cereals contributed 88.9% of the grain crop area and 93.08% of the production, pulses covers 8.35% of the grain crop area, red peppers and Ethiopian cabbage covers 47.08% and 44.62% of the area under vegetables respectively. Administratively the town is divided into 13 Kebeles and there are four public health centres delivering primary health care services, one zonal hospital and one medical center namely Jimma health center, Higher two health center, Mandera Koche health center, Bacho Bore health center, Shenan Gibe hospital and Jimma University medical center (JUMC) which are providing clinical service for acutely malnourished children. The study was conducted in those public health services from March to April, 2017.

4.2. Study design

Institution based age-matched case control study design was employed.

4.3. Populations

4.3.1. Target population

All children aged 6-59 months in Jimma town and their corresponding mothers.

4.3.2. Source population

All children aged 6-59 months attending public health facilities of Jimma town for different health care services during the study period were the source population.

4.3.3. Study population

For cases

All randomly selected children aged 6 to 59 months attending public health facilities of Jimma town during data collection period and who had acute malnutrition (weight-for-height z-score below -2SD or below 80% the median WHO child growth standard or by a mid-upper arm circumference (MUAC) < 125mm) during study period with their corresponding mother.

For controls

All randomly selected children aged 6 to 59 months attending public health facilities of Jimma town and without acute malnutrition (weight-for-height z- score above -2SD or $\geq 80\%$ the median WHO child growth standard or by a mid-upper arm circumference (MUAC) $\geq 125\text{mm}$) during study period and who were age interval matched with cases with their corresponding mother. Age intervals used for matching were 6 – 11 month, 12 month – 23 month, 24 – 35 month, 36 month – 47 month, 48 month – 59month.

4.4. Inclusion and exclusion criteria

4.4.1. Inclusion criteria

For cases:

All children of age 6 – 59 months attended public health facilities of Jimma town during the study period and who were newly diagnosed with acute malnutrition during data collection period and their corresponding mothers were recruited into the study.

For controls:

All children of age 6 – 59 months attended public health facilities of Jimma town and who were declared free of acute malnutrition during the study period and their corresponding mothers were recruited into the study.

4.5. Sample size and sampling techniques

4.5.1. Sample size determination

The sample size was computed by using STATCALC application of Epi Info 7. Statistical software with the following assumptions: proportion of households having family size of five and above among controls were 46.9 % and among cases were 68.14 % (23), 95 % confidence interval, 80 % power of the study, case to control ratio of 1:2 to detect an odds ratio of 2.42 and adding 10 % of non-response rate. Thus, the sample size required for the study was 234(78 cases and 156 controls). Among other variables family size was selected as determinant variable for calculation of sample size as it gave maximum sample size.

Table 1: Summary of computed sample size for different variable from previous studies

Variable	Percentage of exposure among cases	Percentage of exposure among controls	Confidence level	power	Case to control ration	Total Sample size(cases and controls)
Family size(23)	68.14	46.9	95%	80%	1:2	234
Maternal educational status(23)	49.56	83.63	95%	80%	1:2	88
Handing washing practice(23)	65.49	11.95	95%	80%	1:2	36
Time of initiation of BF(36)	59.8	33.3	95%	80%	1:2	152
Exclusive BF (40)	43.7	21	95%	80%	1:2	180
Child illness in the last two weeks(40)	58	26.6	95%	80%	1:2	108

4.5.2. Sampling techniques

All public health facilities which were found in Jimma town i.e. Jimma health center, Higher two health center, Mandera Koche health center, Bacho Bore health center, Shenan Gibe hospital and Jimma University medical center (JUMC) were approached and five month data of patient flow prior to data collection was obtained from each facilities and an average mothly flow of acute malnutrition cases were 74, 52, 16, 14 and 17 for JUMC, Shanan Gibe hospital (SGH), Jimma HC, Higher two HC and Mandera Koche HC respectively. Sample of cases were proportionally allocated for the health facilities i.e. 34, 23, 7, 6 and 8casesfor JUSH, SGH, Jimma HC, Higher two HC and Mandera Koche HC respectively. Systematic random sampling technique was used to select every 2nd child from each health facility. Controls were selected from the same health facility from which cases were selected. Finally 78 children who were acutely malnourished (cases) and 156 none acutely malnourished children (controls) were selected in to the study.

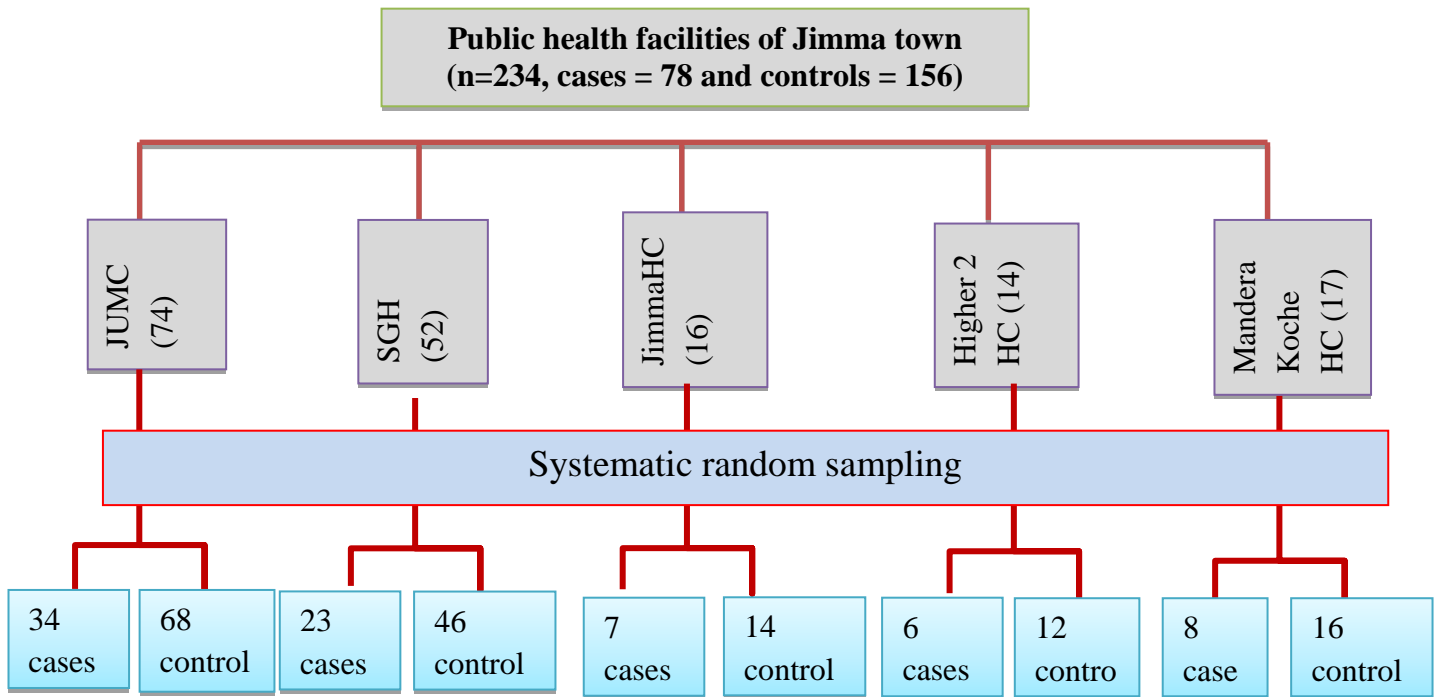


Figure 2: Diagrammatic presentation of sampling procedure of study participants attending public health facilities, Jimma town, South West Ethiopia

4.6. Variables

4.6.1. Dependent variable

- Acute Malnutrition (Case/Control)

4.6.2. Independent variables

❖ Socio demographic and socio economic related factors

- Maternal age
- Religion
- Ethnicity
- Family size
- Place of residence
- Wealth index
- Number of under five children
- Marital Status
- Parental educational status
- Parental occupation
- Child's sex
- Birth order

❖ Child health related factors

- Diarrhoea
- Fever/Malaria
- Vaccination status

❖ **Household factors**

- Household food insecurity status

❖ **Health services related factors**

- Accessibility of health facility
- Maternal antenatal care follow up
- Frequency of ANC follow up
- Place of delivery

❖ **Environmental related factors**

- Availability of toilet facilities
- Source of drinking water
- Means of solid disposal
- Means of liquid disposal
- Maternal hand washing practice

❖ **Dietary, caring knowledge & practice related factors**

- Time of breast feeding initiation
- Pre lacteal feed
- Duration of exclusive breast feeding
- Duration of breast feeding
- Maternal knowledge
- Time of CFinitiation
- Bottle feeding
- Minimum dietary diversity
- Minimum meal frequency

4.7. Data collection procedure and instrument

Data was collected from all eligible children and corresponding mothers by data collectors by using semi structured and pre-tested interviewer administered questionnaires. Anthropometric data was collected using anthropometric measurement tools (MUAC tape, standiometer, digital weight scale and salter scale) from all children. Measurements were taken twice by different measurers for each child. Weight was measured using digital electronic measuring scale (SECA) to the nearest 0.1 kg on bare foot and with the minimum possible light clothes. Height/length was measured using standard procedure (frankfurt position) in standing position using height measuring board/ stadiometry to the nearest 0.1 cm for children who are 24 months and older and for children below 24 months of age, it was measured in a recumbent position and MUAC was measured using easily portable measurement device on left hand half way between the olecranon and acromion process by using armband/tape. Children were also assessed for the presence or absence of edema of the feet.

Selection of cases were made by measurers based on set criteria (i.e. weight-for-height z- score below -2SD or below 80% the median WHO child growth standard or by MUAC < 125mm) and once a case was selected two eligible respective controls which were age interval matched with cases were selected. Semi structured interviewer administered questionnaire which was adapted after thorough review of different literatures was used to collect data related to the objectives of the study. The questionnaires were prepared in English then translated to Afaan Oromo and Amharic and finally back translated to English language by other person who has good command of English, Afaan Oromo and Amharic to check for its consistency. The questionnaire covered a range of topics including socio-economic and demographic factors, child characteristics, and child feeding and caring practices, maternal characteristics and environmental health conditions. Food security status of the households were determined based on nine standard household food insecurity (HFIAS) questions that were developed for this purpose by food and nutrition technical assistance (FANTA) in 2007 for developing country. The respondents were asked about the the amount and variety of meal eaten, and the occurrence of food shortage for household members, causing them not to eat the whole day or eat the whole day or eat at night only, in the past four weeks preceding the survey(41). Data collected on dietary consumption was used to calculate the dietary diversity score (DDS) and the minimum meal frequency (MMF) which were based on qualitative data collection over the past 24 hours dietary recall preceding the survey. Seven nurses were recruited as data collector, five nurses with their assistance were recruited as measurer and two nurses were recruited as supervisors. Training was given for data collectors, measurers and supervisors for two days on overall procedure of the study.

4.8. Operational definitions

Acute malnutrition: A child having weight-for-height z - score below -2SD or below 80% from the median WHO child growth standard or by a mid-upper arm circumference (MUAC) < 125mm.

Knowledge: If the mother responds correctly to less than 60% of the total knowledge related questions considered as having poor knowledge, respond correctly 60-75% considered as having fair knowledge and greater than 75% considered as having good knowledge.

Minimum dietary diversity: The proportion of children who were fed foods from 4 or more food items out of the seven major food items within 24 hours dietary recall preceding the survey.

Minimum meal frequency: The proportion of children who received solid, semi-solid, or soft foods the minimum number (2 times for breast fed infants 6-8 months, 3 times for breast fed children above 9 months and 4 times for non-breast fed children above 6 months by using 24 hours dietary recall method preceding the survey.

Diarrhea: Passing of three or more loose or watery stool in a 24 hour's period over a period of two weeks period prior to the survey.

Pre lacteal feed: anything either edible or non-edible given for the new born neonate other than breast milk in the first three days after delivery.

Bottle feeding: Any liquid or semi-solid food given to the child from a bottle with nipple.

Food security: a household can be considered as food secure if the response for question number 1 is "no" or "yes" and "rarely" for question "1a" if question 1 is answered "yes" and "no" for the rest questions of HFIAS which assess household food security with a recall period of four weeks (30 days).

Hand washing frequently: Mothers who wash hands always at all of the following activities after latrine, before preparing food, before serving food, after farming, after cleaning child feces and before breast feeding.

4.9. Data processing& analysis

Data was checked for completeness, edited, coded and entered into Epi data version 3.1 and exported to SPSS version 21.0 statistical software for analysis. Descriptive statistics such as mean, median, frequency and percentage was used and presented using charts and tables. Bivariate analysis was done and all explanatory variables which had association with the outcome variable with P-value less than 0.25 were included in multivariable analysis. Multi variable analysis was employed to determine independent determinant factor among explanatory variables. Adjusted odds ration (AOR), 95% confidence interval and P-value less than or equal to 0.05 was used to decide statistically significant association with outcome variable. Anthropometric measurements were taken twice and a difference of 0.1 kg in weight and 0.1 cm in length/height was accepted as normal. However, mean results of repeated measurers were used upon significantly larger difference. After then, WHZ- scores were generated by WHO Anthro statistical software version 3.2.2. Wealth index was determined based on ownership of fixed assets and ownership of each fixed asset was given a value one and non ownership a value of zero. After checking for assumption, factor score was generated through principal component analysis and rank ordered in to five quintiles. The resulting score was distributed with mean of zero and standard deviation one. Q1 and Q2 were considered as low, Q3 as medium, and Q4 and Q5 as high. Household food insecurity access scale score (0-27), for each household were summed to produce an index of household food insecurity. Later on, food secure households were coded “1” and food insecure ones “0” for further analysis. Model fitness was assessed using hosmer and lemeshow test and it was found to be 0.75. Multicollinearity was checked by variance inflation factor (VIF) and tolerance test. The result of VIF was found to be less than 2 while tolerance test was greater than 0.1, which was within the normal limit.

4.10. Data quality management

Regarding anthropometric measurement tools, calibration of instruments was done with known fixed weight and height object and random auditing was done on a daily basis. The questionnaire was prepared first in English and translated into Afaan Oromo/Amharic then back translated to English by another person who was blinded for English version to check clarity of questionnaire. Seven nurse data collectors and 2 supervisors were trained on the objectives of the study,

interview technique, and data collection process. Five measurers & their assistances that had an experience as measurer were trained on the techniques of measurements, on how to classify study participants in to cases and controls and sampling procedure for two days. Questionnaire was pre-tested on 10 cases and 20 controls in Seka hospital to identify the clarity of questionnaire, sequence of questionnaire and competence of data collectors & measurers. Discussion was held based on the result of the pre-test and necessary correction was made on method of question skipping and correcting wording of questionnaire with local language. Data was checked for completeness and consistency by supervisors and principal investigator on daily bases during data collection time. Classification of children which was made by measurers was chalked using WHO Anthro statistical soft ware.

4.11. Ethical Consideration

Ethical approval and clearance was obtained from Jimma University Ethical review board. Official letters was submitted to all respective health facilities and permission was secured. Informed consent was obtained from mothers by explaining the purpose of the study, participants' involvement in the study was on voluntary basis and those who were unwilling to participate in the study & those who wish to quit their participation at any stage were informed to do so without any restriction. Confidentiality was maintained at all levels of the study by anonymously avoiding the name of the participants from the questionnaire. All acutely malnourished children were linked to the service center in the hospitals and health centres.

4.12. Dissemination plan

The finding of the study is presented to institute of health department of population and family health, Jimma University as part of MSc thesis. The finding of the study will be distributed to all health facility staffs and other organizations working on nutrition. The findings may also be presented in different seminars, meetings and workshops and publication in a scientific journal will be considered to enable for wider access.

5. RESULT

5.1. Background characteristics of study population (children)

Two hundred thirty four (78 cases and 156 controls) participants were included in the study. The mean age of the study participants were 17.2 ± 10.2 months (18.29 ± 10.23 months for cases & 16.6 ± 10.2 months for controls). The mean weight for cases was 6.6 ± 1.7 kg and 9.0 ± 2.9 kg for controls (Table 2).

Table 2: Background characteristics of study population attending public health facilities of Jimma town, South West Ethiopia; 2017

Variable	Case (n = 78) N (%)	Control (n=156) N (%)	P-value
Child sex			< 0.001
Female	53(67.9)	57(36.5)	
Male	25(32.1)	99(63.5)	
Place of residence			< 0.001
Rural	56(71.8)	47(30.1)	
Urban	22(28.2)	109(69.9)	
Child Age in months			0.297
6-11	26(33.3)	59(37.8)	
12-23	29(37.2)	60(38.5)	
24-35	16(20.5)	32(20.5)	
36-47	7(9.0)	5(3.2)	
Birth order			< 0.001
> 3	53(67.9)	43(27.6)	
1-3	25(32.1)	113(72.4)	

5.2. Parental related factors

Majority mothers of the study participants were Muslim (80.2% of cases & 74.4% of controls). More than two third (69.2%) mothers of cases and more than one third mothers of controls (30.8%) had no formal education (**Table 3**).

Table 3 Socio demographic characteristics for the parent of study attending public health facilities of Jimma town, South West Ethiopia; 2017

Variable	Case (n = 78) N (%)	Control (n=156) N (%)	P-Value
Maternal age			< 0.001
15-24	6(5.0)	9(7.4)	
25-34	52(43.0)	43(35.5)	
35-44	31(25.6)	37(30.6)	
Maternal education			< 0.001
No Formal Education	54(69.2)	48(30.8)	
Formal Education	24(30.8)	108(69.2)	
Parental Marital status			0.002
Divorced/Widowed	13(16.7)	7(4.5)	
Married	65(83.3)	149(95.5)	
Maternal Occupation			0.189
Gov't worker	6(7.7)	25(25)	
Farmer	20(25.6)	37(23.7)	
Merchant	6(7.7)	20(12.8)	
House wife	40(51.3)	60(38.5)	
Daily Labourer	6(7.7)	14(9.0)	
Paternal Educational Status			0.924
No Formal Education	30(38.5)	61(39.1)	
Formal Education	48(61.5)	95(60.9)	
Paternal Occupational			< 0.001
Gov't worker	5(6.4)	25(16.0)	
Farmer	56(14.1)	71(45.5)	
Merchant	8(10.3)	45(28.8)	
Daily Laborer	9(11.5)	15(9.6)	

5.3. House hold and environmental related factors

Wealth index of the household was determined based on ownership of fixed asset by householders. Principal component analysis was used to generate factors and components that define the index. Finally the factors which fulfill the assumption for the analysis and computed to generate the index were ownership of mobile phone, bed with mattress, chair and having electricity. Accordingly, more than half (57.7%) of cases and about two third (64.7%) of control householders were found to be having lowest and highest wealth index respectively. About 73% of cases and 36% of controls had reported food insecurity in the last month prior to data collection period. Regarding hand washing, forty eight (61.5%) of case and 32(20.5%) of mothers in control wash their hands less frequently during critical time (Table 4).

Table 4: Household and environmental related factors of study participant attending public health facilities of Jimma town, South West Ethiopia; 2017

Variable	Case (n =78) N (%)	Control (n=156) N (%)	P-value
Family size			< 0.001
Above five	42(53.8)	21(13.5)	
Five and less	36(46.2)	135(86.5)	
Wealth index			< 0.001
Lowest	45(57.7)	29(18.6)	
Middle	5(6.4)	26(16.7)	
Highest	28(35.9)	101(64.7)	
House hold Food security status			< 0.001
Food Insecure	57(73.1)	57(36.5)	
Food Secure	21(26.9)	99(63.5)	
Solid waste disposal site			< 0.001
Other than waste pit	39(50.0)	37(23.7)	
Solid waste pit	39(50.0)	119(76.3)	
Liquid waste disposal site			< 0.001
Other than waste pit	48(61.5)	39(25.0)	
Liquid waste pit	30(38.5)	117(75.0)	
Mother hand washing practice			< 0.001
Less frequently	48(61.5)	32(20.5)	
More frequently	30(38.5)	124(79.5)	
Source of drinking water			< 0.001
Non piped water	34(43.6)	20(12.8)	
Piped water	44(56.4)	136(87.2)	

5.4. Maternal and child health care related factors

Majority of cases (89.7%) and controls (91.7%) mother had ANC follow up during pregnancy and of them more than half of them were attended the recommended number of visits. Thirty four (43.6%) of cases and significant number of controls (12.8%) had diarrhea episode last two weeks prior of data collection period (**Table 5**).

Table 5: Maternal and child health care related factors of study participant attending public health facilities of Jimma town, South West Ethiopia; 2017

Variable	Case (n = 78) N (%)	Control (n=156) N (%)	P-value
Place of delivery			0.249
Home	15(19.2)	21(13.5)	
Health institution	63(80.8)	135(86.5)	
Distance of HF			0.079
≥ 10 minute	70(89.7)	126(80.8)	
< 10 minute	8(10.3)	30(19.2)	
ANC			0.628
No	8(10.3)	13(8.3)	
Yes	70(89.7)	143(91.7)	
Diarrhea in the last two weeks			< 0.001
Yes	34(43.6%)	20(12.8%)	
No	44(56.4%)	136(87.2%)	
Feverin the last 2 wks			0.284
Yes	23(29.5)	57(36.5)	
No	55(70.5)	99(63.5)	
Vaccination status			0.148
Incomplete	18(23.1)	24(15.4)	
Completed	60(76.9)	132(84.6)	

5.5. Child feeding practice and maternal knowledge on child feeding

Almost all children (97.5% cases & 98.3% controls) were fed breast in their life time. Similarly about two third of study participants (both cases and controls) were exclusively breastfed for six months (Table 6).

Table 6: Child feeding practice & knowledge on child feeding of study participants attending public health facilities of Jimma town, South West Ethiopia; 2017

Variable	Case (n = 78) N (%)	Control (n=156) N (%)	P-value
Breast feeding initiation			0.269
> 1hour	21(26.9)	32(20.5)	
≤ 1hour	57(73.1)	124(79.5)	
Per lacteal feed			0.114
Yes	18(23.1)	23(14.7)	
No	60(76.9)	133(85.3)	
Colostrum			0.571
Discarded	4(5.1)	11(7.1)	
Given to child	74(94.9)	145(92.9)	
Duration of EBF			0.900
< or > than 6 months	22(28.2)	42(26.9)	
For 6 months	56(71.8)	114(73.1)	
DDS			0.001
Low DDS	71(91.0)	111(71.2)	
High DDS	7(9.0)	45(28.8)	
Bottle feeding			< 0.001
Yes	37(47.4)	35(22.4)	
No	41(52.6)	121(77.6)	
Way of feeding			0.714
All children together	6(7.7)	10(6.4)	
With separate dish	72(92.3)	146(93.6)	
Maternal Knowledge			<0.001
Poor	45(57.7)	48(30.8)	
Fair	18(23.1)	21(13.5)	
Good	15(19.2)	87(55.8)	

As to prelacteal feeding, about 23 % cases and 14.7% of controls were given pre lacteal fed for their children and the commonest type were plain water, butter and sugar/sugar in water and the major reasons were to keep infant healthy and strong, to smoothen gastro intestinal tract and to relief abdominal pain (Figure 4).

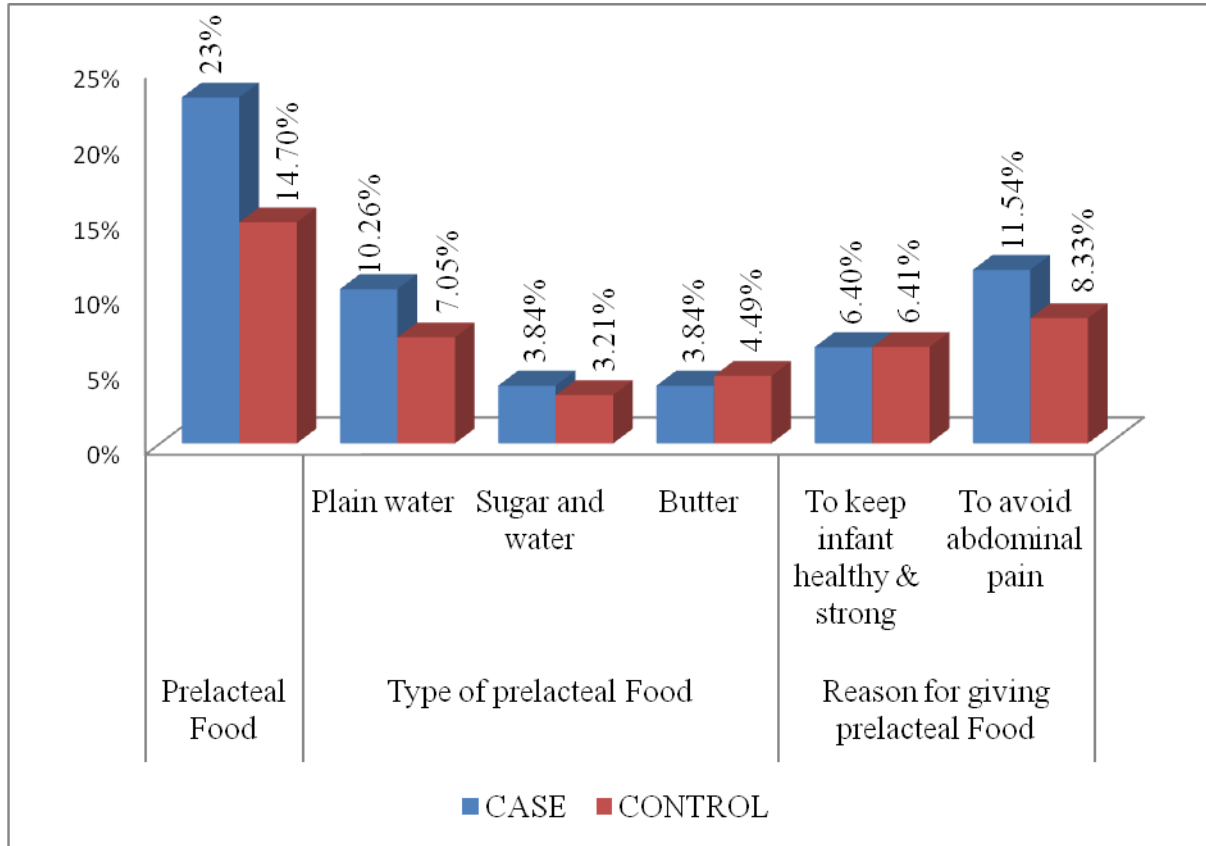


Figure 3: Children pre lacteal feeding practice attending public health facilities of Jimma town, South West Ethiopia; 2017

Regarding maternal knowledge about optimal child feeding above half of mothers/caretakers from cases and controls were found to score less than 60% and greater than 75% for knowledge questions respectively.

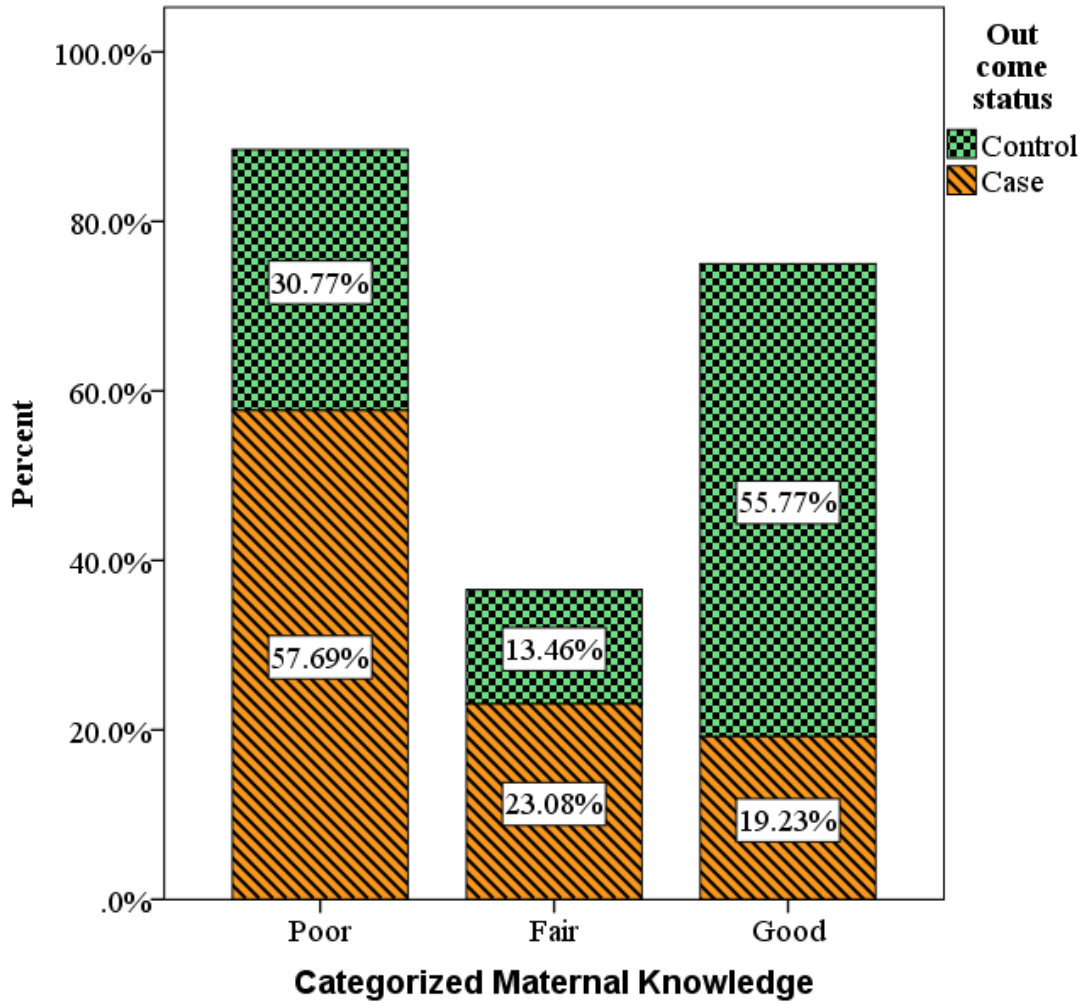


Figure 4: Maternal knowledge status regarding optimal child feeding attending public health facilities of Jimma town, South West Ethiopia; 2017

Multi variable Analysis

All variables with P- value less than 0.25(sixteen variables) in bivariate analysis were a candidate for multi variable analysis. Conditional logistic regression was used to identify independent predictors of acute malnutrition. Ten variables were found to be an independent predictors of acute malnutrition i.e. sex of child, family size, birth order, maternal educational status, bottle feeding, liquid waste disposal, diarrhea, maternal knowledge and wealth index. Among Socio-demographic factors of study population sex of the children and birth order were found to be independently significant associated with acute malnutrition. Female children and those whose birth order above three had three times [AOR 2.99(95% CI 1.07, 8.38)] and four times [AOR 4.25 (95% CI 1.44, 12.53)] more likely to be acutely malnourished than male counterpart and those with birth order one to three respectively. Regarding parental factors, maternal education and maternal knowledge regarding optimal child feeding were found independently statistically significantly associated with acute malnutrition. Children's of mother who had no formal education and poor optimal child feeding knowledge had about four times [AOR 4.08(95% CI 1.46,11.40)]and six times [AOR 5.97(95% CI 1.83,19.44)]more likely to be acutely malnourished than those attending formal education those who had good optimal child feeding knowledge respectively.

Among household and environmental factors family size, wealth index, liquid waste disposal method and maternal hand washing practice were independently significantly associated with acute malnutrition. Children from householders of family size above five [AOR 3.24(95% CI 1.14,9.21)], from lowest wealth index house holders [AOR 3.76(95% CI 1.24,11.38)], which dispose liquid other than waste pit [AOR 5.95(95% CI 1.83,16.97)] and whose mother used to wash hand less frequently [AOR 5.57(95% CI 1.82,16.97)] were more likely to develop acute malnutrition. As to maternal and child health care related factors, only history of diarrhea attack in the last two weeks prior to data collection period had statistically associated with acute malnutrition thus children who had diarrhea in the last two weeks were about four times more likely to be acutely malnourished than children who had no attack of diarrhea in the last two weeks prior to data collection [AOR 3.58(95% CI 1.15,11.07)]. Child who used to bottle fed was found to be four times more likelihood of developing acute malnutrition than children who did not use bottle feeding [AOR 3.98(95% CI 1.29,12.36)]. The relationship of maternal knowledge regarding optimal child

feeding and acute malnutrition was also identified in current study. Similarly, the finding showed that child whose mothers had poor knowledge was six times more likelihood of having acute malnutrition than child whose mother had good knowledge of optimal child feeding AOR 5.97(95% CI 1.83,19.44)].

Table 7: Independent predictors of acute malnutrition of study participants attending public health facilities of Jimma town, South West Ethiopia; 2017

Variable	Case (n = 78) N (%)	Control (n=156) N (%)	COR(95% CI)	AOR(95% CI)
Child sex				
Female	53(67.9)	57(36.5)	3.68(2.07,6.55)***	2.99(1.07,8.38)*
Male	25(32.1)	99(63.5)	1	1
Wealth index				
Lowest	45(57.7)	29(18.6)	5.59(2.99,10.48)***	3.76(1.24,11.38)*
Middle	5(6.4)	26(16.7)	0.69(0.24,1.97)	0.49(0.09,2.52)
Highest	28(35.9)	101(64.7)	1	1
Birth order				
above 3	53(67.9)	43(27.6)	5.57(3.09,10.06)***	4.25(1.44,12.53)**
1-3	25(32.1)	113(72.4)	1	1
Maternal education				
No Formal Education	54(69.2)	48(30.8)	5.06(2.81,9.12)***	4.08(1.46,11.40)**
Formal Education	24(30.8)	108(69.2)	1	1
Family size				
Above five	42(53.8)	21(13.5)	7.5(3.96, 14.22)***	3.24(1.14,9.21)*
Five and less	36(46.2)	135(86.5)	1	1
Liquid waste disposal site				
Other than waste pit	48(61.5)	39(25.0)	4.8(2.68, 8.59)***	5.95(1.83,16.97)**
Liquid waste pit	30(38.5)	117(75.0)	1	1
Mother hand washing practice				
Less frequently	48(61.5)	32(20.5)	6.2(3.41, 11.29)***	5.57(1.82,16.97)**
Frequently	30(38.5)	124(79.5)	1	1
Diarrhea				
Yes	34(43.6%)	20(12.8%)	5.25(2.75,10.05)***	3.58(1.15,11.07)*
No	44(56.4%)	136(87.2%)	1	1
Bottle feeding				
Yes	37(47.4)	35(22.4)	3.12(1.74, 5.59)***	3.98(1.29,12.36)*
No	41(52.6)	121(77.6)	1	1
Maternal Knowledge				
Poor	45(57.7)	48(30.8)	5.44(2.75,10.76)***	5.97(1.83,19.44)**
Fair	18(23.1)	21(13.5)	4.97(2.16,11.45)***	2.94(0.67,12.80)
Good	15(19.2)	87(55.8)	1	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

6. DISCUSSION

Acute malnutrition is a major cause of death in children of developing countries and the magnitude of acute malnutrition persist longer without reduction. Although study with strongest design like the present study is the method of choice to ascertain the determinant factors of acute malnutrition which provide an input for the reduction of the problem, there have been a few studies on the predictors of acute malnutrition among 6-59 months children in the study locality. Thus, this study was designed to determine determinant factors of acute malnutrition among children aged 6-59 months attending public health facilities of Jimma town, South West Ethiopia.

Among socio demographic and economic factors of the study participants, child's sex, maternal education status, birth order, family size and wealth index were found to be independently statistically significant associated with acute malnutrition. In the present study, children of mother who did not attend formal education were four times more likely acutely malnourished than children whose mother attended formal education. The study finding is consistent with study conducted in North Gondar, West Oromia, Ethiopia (23, 36, 37, 42-44).

However in the current study, it was observed that paternal education was not significantly associated with acute malnutrition which is not consistent with other studies (36, 45). The possible explanation might be culture and tradition of the study area in which case it is mothers and not the father of the children are majorly responsible in caring their children. A side of this, fathers of children are usually involved in agriculture and outdoor activities.

This study showed that female children were found to be more likely affected by acute malnutrition than male counterpart which is consistent with other studies (46-48). In contrary other studies reported that male have high likelihood to be affected by acute malnutrition than female children (14, 49). The reason being female child have high likelihood for the case is unclear but might be because of societal cultural or tradition which is highly valuing male child which may lead to disadvantaging female children in care and feeding.

Participants living in family members more than five were more likely to be affected by acute malnutrition. The finding is in line with other studies (23, 37). This could be the effect of a large family size with competition for food or families with more children experience more economic strain for food consumption and hence they are more likely to suffer from poor nutritional status

in other words, inadequate allocation of household resources among many children may lead to low nutritional status. The other possible explanation might be due to resource depletion which exposed to poverty and decrement in health care seeking practice, house hold environmental sanitation and food availability so nutritional depletion become common.

The study indicated that children from lowest wealth index were higher likelihood to be acutely malnourished as compared to highest wealth index. Study done in North Shewa indicated that children belonging to the low-income group were at a higher risk of being wasted than children of better income families (40, 50). Although the economic differentials seem to be silent in rural society it appears to be an important predictor of childhood nutritional status. Low income levels of developing nation limits the kinds and the amounts of food available for consumption. Low income also increases the likelihood of infection through such mechanisms as inadequate personal and environmental hygiene. In addition to these high socioeconomic status households have greater purchasing power for food and other goods needed to ensure the health of children (14, 51, 52).

The study finding indicated that maternal hand washing practice is statistically significantly associated with acute malnutrition. Children from mothers whom used to wash their hands less frequently during critical time is about five times more likely to be affected by acute malnutrition than children whose mother used to wash their hands frequently. This is in agreement with the study findings of northwest and western Ethiopia (23, 35). This probably due to hand washing prevents from several infections. Among household and environmental related factors household food insecurity status was not found to be statistically significantly associated with acute malnutrition. This possibly indicates and support the notion 'guarantying food security does not mean guarantying nutrition security'. In this study source of drinking water and means of solid disposal were not found to be statistically significantly associated with acute malnutrition.

Child who had diarrhea attack in the last two weeks prior to the survey were found to be about 4 times more likelihood for acute malnutrition than child who had no diarrhea. This can be due to excessive loss of fluids and electrolytes, loss of appetite, lack of absorption of food during diarrhea episodes. Similar finding was seen in the studies done in Gimbi (45). On the other hand, the present study did not showed significant association between morbidity status of the child with fever preceding 2 weeks before the onset of acute malnutrition. This is consistent with similar studies in Gimbi and Hidhabu Abote (40, 45). This might be due to high endemic nature of malaria

in the study area, resulting in the homogeneity of the febrile disease among the cases and the controls.

Regarding feeding and caring practice and knowledge, bottle feeding and maternal knowledge regarding optimal child feeding were found to be independently statistically significantly associated with acute malnutrition. Bottle fed child had more likelihood of having acute malnutrition than non bottle fed child. Many studies showed that bottle feeding should be discouraged at any age because it is usually associated with increased risk of illness and especially diarrheal disease because of hygienic problem which is difficulty in sterilizing the nipples properly. It also shortens the period of postpartum amenorrhea and increases the risk of pregnancy (12, 36). Hospital based study conducted in Gondar University hospital also strengthen the evidence about risk of bottle feeding which was commonly observed in acutely malnourished group than the controls(36). A statistically significant difference in knowledge on the recommended optimal child feeding between the caregivers of acutely malnourished children and the controls were observed in this study. This finding is in line with study done at Gondar University hospital (36). In this study dietary diversity in the last 24 hours prior to survey was found to be marginal insignificantly associated with acute malnutrition.

7. STRENGTH AND LIMITATION OF THE STUDY

7.1. Strength of the study

- The researcher use measurers other than data collectors in order to minimize interviewer bias

7.2. Limitation of the study

- Tools used to measure some explanatory variables were relied on participants' self reported data, which was prone to recall bias and social desirability bias.
- Explanatory variable like environmental enthropathy was not adressed in the study.

7. CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

From the present study it can be concluded that several factors were found to be associated with acute malnutrition. Sex of child, family size, birth order, maternal educational status, household wealth index, bottle feeding, liquid waste disposal, diarrhea and maternal knowledge were found to be an independent predictors of acute malnutrition. Female child, family size above five, birth order above three, child from mother who had no formal education, poor maternal knowledge, child who fed by using bottle and who were from lowest wealth index had a high likelihood of developing acute malnutrition.

7.2. Recommendations

Based on the finding the following recommendations were made:

➤ **To Jimma Town Education Bureau**

- Strengthening adult education.

➤ **To Jimma Town Health Office & Health Facilities**

- Emphasis should be given on prevention and control of childhood diarrheal disease.
- Strengthening awareness creation program on optimal child feeding
- Strengthening family planning program

➤ **To Research Community**

- Further study need to done to explore the relationship between environmental enthropathy and acute malnutrition.

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9. ANNEX

9.1. Annex I: Assurance of principal Investigator

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of health Institute in effect at the time of grant is forwarded as the result of this application.

Name of the student: _____

Date. _____ Signature _____

APPROVAL OF THE ADVISORS

Name of the first advisor: _____

Date. _____ Signature _____

Name of the second advisor: _____

Date. _____ Signature _____

9.2. Annex II: Information sheet and consent form

Title of the research project: Determinant of acute malnutrition among children aged 6-59 months attending public health facilities of Jimma town, south west Ethiopia: a matched case control study

Name of principal investigator: Shimelis Girma

Name of the Organization: Jimma University, Institute of health

Name of the Sponsor: Self-sponsor

Purpose

You are invited to participate in this research study. The purpose of this study is determine feeding practice and determinant factors of acute malnutrition among under five years children attending public health facilities of Jimma town, south west Ethiopia.

Procedure

You will be asked to complete a questionnaire that will take you approximately 30 to 45 minutes. This will be taking place at health facility where you are attending or visiting clinical service. You don't have to worry about any things because everything is confidential. You will be requested to do this after finishing patient care activities to avoid interruption of care activities.

Risks

There are no risks associated with your participation in this study because it will not involve any invasive procedure

Benefits and Compensation

You will not be compensated for participating in this study and there are no direct benefits for you as an individual participant, however the findings of this study will help in the designing of effective implementation strategy that would help in the reviewing and improvement of policies, protocols and procedures on preventive strategy and management of acute malnutrition cases.

Voluntary Participation and Withdrawal

Your participation is entirely voluntary and should you change your mind, you have the right to withdraw from participating in the study at any time without penalty.

Confidentiality

We will do our best to keep your personal information confidential. You are not required to give your name so there will be no way to identify individual participants. So information cannot be specifically traced back to you

Contact Person

Should you have questions about the content of this study, participant; please contact the principal investigator, Shimelis Girma, on the telephone number 0911721438, Mr. Dessalegn Tamiru and Mr. Getu Gizaw. If you have any issues pertaining to your rights and participation in the study, please contact the Chairperson of the Institutional Review Board, Jimma University institute of health.

Confirmation of Consent

Are you willing to participate in this study?

Yes _____ No _____

If yes, please sign

Name:

_____ Sign: _____ Time _____ Date _____

Researcher:

_____ Sign: _____ Time _____ Date _____

9.3. Annex III: Questionnaires

JIMMA UNIVERSITY

INSTITUTE OF HEALTH

Department of population and family health

English Version Questionnaires for master thesis

Introduction

This questionnaire is designed to assess determinant of acute malnutrition among children aged 6-59 months attending public health facilities of Jimma town, South West Ethiopia.

Instruction: This questionnaire is designed for the purpose of face to face interview to collect data from mother/care taker to child pair participating in this study. It will have five major sections and it will take you 30-45 minutes.

Note: This questionnaire has to be filled only by the interviewer once informed consent is obtained from respondents. Please fill the numbers that contain answers or in circle the answer you received.

Questionnaire ID No / Code of participant /number _____

Name of health facility _____

Date of Interview ____/____/____

Interviewer Name _____ signature _____

Checked by Supervisor Name _____ Signature _____

PART I: SOCIO DEMOGRAPHIC DATA

101. Child's sex _____ 1. Male 2. Female

102. Date of child birth ____/____/____

103. Age of the child? _____ (months)

104. Birth order _____ th child

105. Number of under 5 children in the family _____

NO		Age	Religion	Ethnicity	Educational status	Occupational status	Place of residence	Marital status	Family size
106 to 119	Mother								
	Father								

Religion:

1. Muslim
2. Orthodox
3. Protestant
4. Other specify _____

Ethnicity:

1. Oromo
2. Kaffa
3. Yem
4. Dawuro
5. Amhara
6. other

Educational status:

1. No formal education
2. Primary school
3. Secondary
4. Above secondary

Marital status:

1. Never married
2. Married
3. Divorced
4. Widowed

Residence

1. Urban
2. Rural

Occupational status:

1. Gov/ worker
2. Farmer
3. Merchant
4. House wife
5. Daily labor
6. Other _____

PART II: CHILD FEEDING AND CARING PRACTICE			
201	Did your child ever breast fed	1. Yes 2. No	<i>If yes skip to 203</i>
202	If no, for 201 reason for not breastfeeding?	1. Maternal illness 2. Maternal interest 3. Extra marital birth 4. Other	
203	If yes, for 201, how long after birth did the child first put to the breast?	_____hours	
204	In the first three days after delivery, was the child given anything to drink other than breast milk?	1. Yes 2. No	<i>If no skip to 207</i>
205	If yes, for 204, What was given for the child to drink?	1. Milk (other than breast milk) 2. Plain water 3. Sugar or glucose water 4. Fruit juice 5. Infant formula 6. Honey 7. Raw butter 8. Ersho 9. Other, specify	
206	If yes, for 204 what is the importance of giving pre lacteal feed	1. Soften the gastrointestinal tract 2. Keep the infant healthy and strong 3. To avoid abdominal pain 4. Just as a tradition.	
207	What did you do with the first milk (colostrum)?	1. Given to child 2. Throw away (discarded)	
208	Does the child breast feed now?	1. Yes 2. No	<i>If No skip to 210</i>
209	If yes, for 208 when is breast feed given?	1. According to child demand 2. When child cry 3. According to mothers feeling 4. Other	
210	For how long did you breastfeed the child?	In Months_____ or In year _____	

211	For how long did you give the child breast milk only? (Exclusive breastfeeding?)	1. Less than 6 months 2. For 6 months 3. Greater than 6 months	
212	At what age did you start feeding complimentary food for the child?	1. Less than 6 months 2. For 6 months 3. Greater than 6 months	
213	What was the first complementary food given to the child?	1. Milk 2. Soup 3. Genfo 4. Other(Specify)_____	
214	What do you use to feed the child 1. Spoon 2. Bottle 3. Cup 4. Hand 5. Other(Specify)_____	0. No 1. Yes 0. No 1. Yes 0. No 1. Yes 0. No 1. Yes	
215	How do the children feed in the family?	1. With separate dish 2. All children together 3. Other	
216	<p>Dietary diversity assessment</p> <p>Food groups consumed by the child in the last 24 hours</p> <p>Instruction to participants: Please take some time to memorize foods and drink you usually give for your child in the previous 24 hour period. Then I will call you a number of food items from the list.</p> <p>Instruction to Data collectors: Give ample time for mother/care takers and help or assist them to recall, probe the respondents without forcing and finally review all food eaten and drink in chronological order what they gave for their child for the last 24 hours. Fill food/drink items consumed in table below and summarize in seven food groups consumed last 24 hours and circle all the food type.</p>		
	Time (Frequency)	Name of food give to child	Recipe (Detailed composition of food item)

	Grains, roots, and tubers	1. No 2. Yes	
	Legumes and nuts	1. No 2. Yes	
	Dairy products (milk, yogurt, cheese)	1. No 2. Yes	
	Flesh foods (meat, fish, poultry, and liver/organ meats)	1. No 2. Yes	
	Eggs	1. No 2. Yes	
	Vitamin A-rich fruits and vegetables	1. No 2. Yes	
	Other fruits and vegetables	1. No 2. Yes	
PART III: HOUSE HOLD RELATED FACTORS (HFIAS AND WEALTH INDEX)			
301	1. In the past four weeks, did you worry that your household would not have enough food?	0. No 1. Yes	(skip to 302)
301a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks) 3. Often (more than ten times in the past four weeks)	

302	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0. No 1. Yes	(skip to 303)
302a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks) 3. Often (more than ten times in the past four weeks)	
303	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	0. No 1. Yes	(skip to 304)
303a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks) 3. Often (more than ten times in the past four weeks)	
304	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	0. No 1. Yes	(skip to 305)
304a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks) 3. Often (more than ten times in the past four weeks)	
305	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	0. No 1. Yes	(skip to 306)
305a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks)	

		3. Often (more than ten times in the past four weeks)	
306	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	0. No 1. Yes	(skip to 307)
306a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks) 3. Often (more than ten times in the past four weeks)	
307	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	0. No 1. Yes	(skip to 308)
307a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks) 3. Often (more than ten times in the past four weeks)	
308	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	No Yes	(skip to 309)
308a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks) 3. Often (more than ten times in the past four weeks)	
309	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	0. No 1. Yes	
309a	How often did this happen?	1. Rarely (once or twice in the past four weeks) 2. Sometimes (three to ten times in the past four weeks)	

		3. Often (more than ten times in the past four weeks)	
<u>Household wealth</u>			
Does the household have any of the following properties?			
310	Electricity	0. No 1. Yes	
311	Mobile telephone	1. No 2. Yes	
312	Bed with cotton/sponge/spring mattress	0. No 1. Yes	
313	Chair	0. No 1. Yes	
314	Television	0. No 1. Yes	
315	Radio	0. No 1. Yes	
316	Table	0. No 1. Yes	
317	Bank or microfinance saving account	0. No 1. Yes	
318	Cemented type of floor	0. No 1. Yes	
319	Corrugated with iron sheet type of roof	0. No 1. Yes	
320	Refrigerator/Fridge	0. No 1. Yes	
321	Electric stove/Gas stove/Cylinder	0. No 1. Yes	
PART IV: WASH RELATED FACTORS			
401	Do you use to wash your hands during the following		

	activities? 1. After latrine use 2. Before preparing food 3. Before and after serving food 4. Before feeding child 5. After cleaning child feces 6. Before breastfeeding child 7. After agriculture work	0. No 1. Yes 0. No 1. Yes 0. No 1. Yes 0. No 1. Yes 0. No 1. Yes 0. No 1. Yes 0. No 1. Yes	
402	How do you wash your hand?	1. Using water only 2. Using soap some times 3. Using soap always 4. Using ash some times	
403	What is the main source of drinking water for members of your household?	1. Pipe water 2. None pipe water	
404	Where do you dispose solid waste?	1. Solid waste pit 2. Open field 3. Burning 4. Other(Specify) _____	
405	Where do you dispose liquid waste?	1. Liquid waste pit 2. Open field 3. Other (Specify) _____	
406	Do you have toilet facility for members of your household?	0. No 1. Yes	
PART V: ANTHROPOMETRIC, CLINICAL AND HEALTH CARE RELATED DATA			
No	Questions	Possible choices/Answers	Skip/Remark
501	Child weight	M1 _____ Kg M2 _____ Kg	
502	Child height/length	M1 _____ cm M2 _____ cm	
503	MUAC	M1 _____ mm M1 _____ mm	
504	Do you have health facility nearby you?	1. No 2. Yes	
505	If yes for 504, how far from you?	_____ km or _____ min	
506	Did you visit health facility for ANC?	1. No 2. Yes	
507	Where did you gave birth?	1. Health institution 2. Home	
508	Does the child ever been vaccinated?	1. Yes 2. No	

509	If yes, for 508 what is vaccination status	1. Completed 2. Incomplete	
510	Is your child had history of passing three or more loose or watery stool in a 24 hour's period over a period in the last two weeks?	1. Yes 2. No	<i>If no skip to 512</i>
511	If yes, for 510 how frequent does it happen in the last two weeks	_____ times	
512	Has the child been ill with fever/ malaria at any time in the last two weeks?	1. Yes 2. No	
513	Does the child develop respiratory disease in the last two weeks	1. Yes 2. No	
514	Was the child seen at a health facility during the illness?	1. Yes 2. No	
PART VI: MATERNAL KNOWLEDGE ON CHILD FEEDING			
601	Do you think breast feeding best for the infant than other food?	0. No 1. Yes	
602	Do you think initiating breast feeding within 1hr is important for the newborn and mother?	0. No 1. Yes	
603	Giving food or fluid before starting breast feeding harmful for the child?	0. No 1. Yes	
604	Is giving only breast for the infant the first 6 month enough for the infant?	0. No 1. Yes	
605	Is continuing breast feeding until 2 year and more important for child growth?	0. No 1. Yes	
606	Do you think providing complementary food after 6 month is crucial for child development?	0. No 1. Yes	
607	Is feeding the child with bottle harm the child?	0. No 1. Yes	
608	Do you think diversifying the child food with different group of food is important?	0. No 1. Yes	
609	Do you think increasing the frequency of feeding is necessary when the child age increase?	0. No 1. Yes	
610	Is giving the children food in separate dish important?	0. No 1. Yes	
611	Is active feeding helpful to feed the children	0. No 1. Yes	

Thank you for your cooperation!!!

ጅማ ዩኒቨርሲቲ

ጤና ሳይንስ ኢንስቲትዩት

የስነ ህዝብና ቤተሰብ ጤና ትምህርት ክፍል

መረጃ ማሰባሰቢያ ቅጽ በአማርኛ የተዘጋጀ

መግቢያ

ይህ የጥናት ቃለ መጠይቅ በአጭር ጊዜ የምክሰት የምግብ እጥረት በሽታ ያጋለጭነት ምክንያቶች እና ችግሮች እድሜያቸው ከ6 -59 ወር ባሉ ህፃናት በጅማ ከተማ የህዝብ ጤና ተቋማት ክትትል ለምደደርጉት ለመፈተሽ የተዘጋጀው ነው።

ይህ የጥናት ቃለ መጠይቅ የተዘጋጀው በዚህ ጥናት ላይ ለምሳሌት እናቶች ወይም ከተንከባከቢዎች በቀጥታ በቃለ መጠይቅ መረጃን ለመሰብሰብ የተዘጋጀ ነው። ቃለ መጠይቁ 5 ክፍሎች ስኖሩት ከ 30-45 ደቂቃዎችን ይወስዳል።

ማስታወሻ

ይህ የጥናት ቃለ መጠይቅ በጠያቂ በለሞያ የምሞላ ሲሆን በመጥይቁ ለመሳተፍ ፍቃደኛ ከሆኑ እናቶች ወይም ከተንከባከቢዎች ነው። የተመለሰውን መልስ በተሰጠው ቦታ ይሙሉት ወይም ያክብቡት።

የቃለ መጠይቅ ቁጥር/ኮድ _____

የጤና ተቋሙ ስም _____

የቃለ መጠይቅ ቀን _____/_____/_____

የመረጃ ሰብሳቢ ስምና ፉርማ _____

የተቆጣጣሪ ስምና ፉርማ _____

ክፍል 1: የሥነ ህዝብና ማህበራዊ ጉዳዮች

- 101. የልጅ ያታ 1. ወንድ 2. ሴት
- 102. ልጅ የተወለደበት ቀን _____/_____/_____
- 103. የልጅ እድሜ _____ (ወር)
- 104. የልጅ ወሊድ ቅደም ተከተል _____ ኛ ልጅ
- 105. በቤተሰብ ውስጥ እድሜያቸው ከ 5 አመት በታች ያሉ ብዛት _____

ተ.ቁ	እድሜ	ሃይማኖት	ብሔር	ትምህርት ደረጃ	የሥራ ሁኔታ	የመኖሪያ ስፍራ	የጋብቻ ሁኔታ	የቤተሰብ ብዛት
106	እናት							
119		አባት						

ሃይማኖት
 1. ሙስሊም
 2. ኦርቶዶክስ
 3. ፕሮቴስታንት
 4. ሌላ(ይግለፁ) _____

ብሔር
 1. አርሞ
 2. ከፋ
 3. የም
 4. ደወር
 5. አማራ
 6. ሌላ(ይግለፁ) _____

ትምህርት ደረጃ
 1. መደበኛ ትምህርት ያልተማረ/ች
 2. አንደኛ ደረጃ
 3. ሁለተኛ ደረጃ
 4. ከ ሁለተኛ ደረጃ በላይ

የጋብቻ ሁኔታ
 1. ያላገባች
 2. ያገባች
 3. የተፋታች
 4. ባሏ የሞተባት

የመኖሪያ ስፍራ
 1. ከተማ
 2. ገጠር

የሥራ ሁኔታ
 1. የመንግስት ሰራተኛ
 2. ገበሬ
 3. ነጋዴ
 4. የቤት እመቤት
 5. የቀን ሰራተኛ
 6. ሌላ (ይገለጽ) _____

ክፍል ሁለት፡ የአመጋገብ ልምድ እና እንክብካቤ			
201	ከተወለደ ጀምሮ ልጆች ጡት ጠብቷቸዋል?	1.አዎ 2. አልጠባም	አዎ ከሆነ ወደ 203
202	ለ ጥያቄ 201 መልስዎ አይደለም ከሆነ ምክንያቱ ምን ነበር?	1.የእናቱ ህመም 2. የእናቱ ፍላጎት 3. በሌላ ልጅ መወለድ ምክንያት 4. ሌላ(ይግለፁ)_____	
203	ለ ጥያቄ 201 መልስዎ አዎ ከሆነ ልጅ ተወልዶ በምን ያህል ጊዜ ነው ጡት መጥባት የጀመረው?	_____ ሰዓት	
204	ከወለዱ በኋላ በሶስት ቀናት ውስጥ ከጡት ውጪ ሌላ ምግብ ወይም መጠጥ ተሰጥቷል?	1 አዎ 2 አይደለም	አይደለም ከሆነ ወደ207
205	ለ ጥያቄ 204 መልስዎ አዎ ከሆነ ምን አይነት ምግብ ወይም መጠጥ ተሰጠው?	1.ወተት(ከእናት ወተት ወጪ) 2. ውሃ 3. የተበጠበጠ ስኮር 4. የፍረፍሬ ጨማቂ 5. የታሸጉ የልጆች ወተት 6. ማር 7. ቅቤ 8. አጥሚት 9. ሌላ(ይግለፁ)_____	
206	ለ ጥያቄ 204 መልስዎ አዎ ከሆነ ከጡት ውጪ ሌላ ምግብ ወይም መጠጥ መስጠቱ ምንድነው ጥቅሙ?	1.አንጅቱን ለማለስለስ 2. ህፃኑን ጤናማና ጠንከረ ለማድረግ 3. ሆድ ህመም ለመከላከል 4. በሕል ስለሆነ	
207	የመጀመርያ ወተት ወይም እንገር ምንድነው ያደርጉት?	1. ለህፃኑ ይሰጣል 2. ይጣለል	
208	ልጆች አሁን ጡት ይጠባል?	1.አዎ 2.አይደለም	አይደለም ከሆነ ወደ 210
209	ለ ጥያቄ 208 መልስዎ አዎ ከሆነ መቼ ነው ምያጠቡት?	1.ህፃኑ እንደፈለገ 2.ህፃኑ ስያለቅስ 3.እንደ እናቶ ስሜት 4.ሌላ(ይግለፁ)_____	
210	ልጆችን ለምን ያህል ጊዜ ጡት አጠባሽዉ.	ባወር_____ ወይም በአመት _____	
211	ልጆችን ለምን ያህል ጊዜ ነው ጡት ብቻ ያጠባሽዉ?	1.ከ 6 ወር በታች 2. ለ 6 ወር 3. ከ 6 ወር በላይ	
212	መቼ ነው ለልጆች ተጨማሪ ምግብ መስጠት የጀመርሽዉ ?	1. ከ 6 ወር በታች 2. ለ 6 ወር 3. ከ 6 ወር በላይ	
213	ለመጀመርያ ጊዜ ለልጆች ተጨማሪ ምግብ የሰጠሽዉ ምን ነበር ?	1.ወተት 2.አጥምት 3.ገንፎ	

		4.ሌላ(ይግለፁ)_____	
214	<p>ልጆችን እንዴት ነው የምመግቡት?</p> <p>1. በማንኪያ</p> <p>2. በጡጦ</p> <p>3. በስኒ</p> <p>4. በእጅ</p> <p>5. ሌላ(ይግለፁ)_____</p>	<p>0.አይደለም 1.አዎን</p> <p>0.አይደለም 1.አዎን</p> <p>0.አይደለም 1.አዎን</p> <p>0.አይደለም 1.አዎን</p>	
215	በቤተሰብ ውስጥ ልጆችን እንዴት ነው የሚመግቡት?	<p>1. ለብቻው.</p> <p>2. ህፃናት አንድ ላይ</p> <p>3. ሌላ(ይግለፁ)_____</p>	
216	<p>የምግብ ተዋጽኦ መጠይቅ</p> <p>ልጁ በለፉት 24 ሰዓታት የተመገበው የምግብ ተዋጽኦ ለተሳታፊዎች መመርያ</p> <p>እባክዎትን ጥቂት ጊዜ ይወሰዱና በለፉት 24 ሰዓታት ለልጆች የሰጡትን የምግብ አይነት ያስተውሉ ከዚያን ከተዘረዘሩት የምግብ አይነት ይንገሩኝ።</p> <p>ለመረጃ ሰብሳቢ መመርያ: እባክዎትን በቂ የማስታወሻ ጊዜ ለእናትቱ ወይም ለተንከበኩብዎ ይሰጡና እንድያስተዎሱ ይርድዎት። ጥያቄዎቹን ሳይጨኩ በጥልቀት በመጠየቅ ሁሉንም የምግብ እና የመጠጥ አይነት በቅደም ተከተል በለፉት 24 ሰዓታት ውስጥ ለልጁ የተሰጠውን ይዘርዝሩ።</p>		
	ጊዜ (ብዛት)	ለልጁ የተሰጠው የምግብ አይነት	የምግቡ ይዘት
	ጥረጥሬ፡ ስራስር		0. አዎ 1. አይደለም
	ባቁላ እና ለውዝ		0. አዎ 1. አይደለም
	የእንሰሳት ተዋፅኦ (ወተት, እርጎ, አይብ)		0. አዎ 1. አይደለም
	ስጋ ነክ (ስጋ, አሳ, ዶሮ, እና የሰውነት ክፍል ስጋ)		0. አዎ 1. አይደለም
	እንቁላል		0. አዎ 1. አይደለም
	በቫይታሚን የበለፀጉ አትክልትና ፍራፍሬ		0. አዎ 1. አይደለም
	ሌሎች አትክልትና ፍራፍሬ		0. አዎ 1. አይደለም

ክፍል 3: ቤት ተኮር መጠይቅ(የምግብ ዋስትና እና የ ሀብት መለኪያ መጠይቅ)			
301	በለፉት 4 ሳምንታት በቤቶች ውስጥ በቂ ምግብ የለም ብለው ስጋት ገብቶት የወቀል?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 302)
301ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1.በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
302	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰቦች አባል ከአቅም ማነስ የተነሳ የምትፈልጉትን ምግብ ያለመመገብ ሁኔታ አገጥሞችሁ የወቃሉ?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 303)
302ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ (በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
303	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰቦች አባል ከአቅም ማነስ የተነሳ የተወሰነ የምግብ አይነት የመመገብ ሁኔታ አገጥሞት የወቃሉ?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 304)
303ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
304	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰቦች አባል ከአቅም ማነስ የተነሳ የምትፈልጉትን የምግብ አይነት ተመግቦ የወቃሉ?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 305)
304ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	

305	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰቦች አባል በገጠሞት የምግብ ማነስ ምክንያት ጥቂት የምግብ መጠን ተመግቦ ወ. የወ.ቃሉ?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 306)
305ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
306	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰቦች አባል በገጠሞት የምግብ ማነስ ምክንያት ሙብላት የለበትን ቁርሶን/ሚሳዎን/መክሰሶን/አራቶትን ሳይመግቡ ወ.ለወ. የወ.ቃሉ?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 307)
306ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
307	በለፉት 4 ሳምንታት ከአቅም ማነስ የተነሳ በቤቶች ውስጥ ምንም አይነት የምግብ ምግብ ያለመኖር ሁኔታ አጋጥሞት የወ.ቃል?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 308)
307ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
308	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰቦች አባል በቤቶች ውስጥ በጋጠሞት የምግብ ማነስ ምክንያት ማታ እየተራቡ ወደ መኝታ ሂደወ. የወ.ቃሉ?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 309)
308ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ) 2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ) 3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	
309	በለፉት 4 ሳምንታት እርሶ ወይም የቤተሰቦች አባል በቤቶች ውስጥ በጋጠሞት የምግብ ማነስ ምክንያት ቀንና ሌሊት ምንም ሳይመግቡ ወ.ለወ. አድረወ. የወ.ቃሉ?	0. አዎ 1. አይደለም	(አይደለም ከሆነ ወደ 310)
309ሀ	ይህ ነገር ምን ያህል ጊዜ ተከሰተ?	1. በጥቂቱ(በለፉት 4 ሳምንታት አንዴ ወይም ሁለቱ)	

		2. አልፎ አልፎ(በለፉት 4 ሳምንታት ከ3 እስከ 10 ጊዜ)	
		3. በአብዛኛው ጊዜ(በለፉት 4 ሳምንታት ከ 10 ጊዜ በላይ)	

የቤተሰብ ምጣኔ ሀብት መለኪያ

በቤቶች ውስጥ ከዚህ በታች የተጠቀሱት ቁሳቁስ/ንብረት አሉ?

310	ኤሌክትሪክ	1. አይደለም 2. አዎ	
311	ተንቀሳቀሽ ስልክ	0. አይደለም 1. አዎ	
312	አልጋ እና እስፖንጅ/የጥጥ/የእስፕርንግ ፍራሽ	0. አይደለም 1. አዎ	
313	ወንበር	1. አይደለም 2. አዎ	
314	ቴሌቪዥን	1. አይደለም 2. አዎ	
315	ፊድዮ	1. አይደለም 2. አዎ	
316	ጠረጴዛ	1. አይደለም 2. አዎ	
317	የባንክ ወይም የአነስተኛ ብድር ተቋም የተቀማጭ ደብተር	1. አይደለም 2. አዎ	
318	በስሚንቶ የተሰራ ወለል	0. አይደለም 1. አዎ	
319	የቆርቆሮ ጣርያ	0. አይደለም 1. አዎ	
320	ፍርጅ/ማቀዝቀዣ	0. አይደለም 1. አዎ	
321	የኤሌክትሪክ ምድጃ/ የጋዝ ምድጃ/ ስሊንደር	0. አይደለም 1. አዎ	

ክፍል 4: ከንፅህና ጋር ተያያዥነት ያላቸው መጠይቆች

401	በአብዛኛው ጊዜ እጆትን መቼ ነው ምተጠቡት? 1. ከመፀዳጃ መልስ 2. ምግብ ከማብሰል በፊት 3. ለምግብ ከማቅረብ በፊት እና በኋላ 4. ህፃኑን ምግብ ከመመገብ በፊት 5. ህፃኑን ካፀዳዱ በኋላ 6. ህፃኑን ጡት ከማጥባት በፊት 7. ከእርሻ መልስ	0. አዎ 0. አዎ 0. አዎ 0. አዎ 0. አዎ 0. አዎ 0. አዎ 0. አዎ	1. አይደለም 1. አይደለም 1. አይደለም 1. አይደለም 1. አይደለም 1. አይደለም 1. አይደለም
402	እጆትን እንዴት ነው የምተጠቡት?	1. በውሃ ብቻ 2. አንድ አንዴ በሰሙና 3. ሁሌም በሰሙና 4. አንድ አንዴ በአመድ	
403	ለቤተሰብ አባል ዋነኛ የመጠጥ ምንጭ ምንድነው?	1. የቧንቧ ውሃ 2. የቧንቧ ውሃ የልሆነ	
404	ደረቅ ቆሻሻ የት ነው ምትጥሉት?	1. ደረቅ ቆሻሻ መጣያ 2. በገላጣ ሜዳ 3. ማቀጠል 4. ሌላ(ይግለፁ)_____	

405	ፈሳሽ ቆሻሻ የት ነው ምትጥሉት?	1. የፈሳሽ ቆሻሻ መጣያ 2. በገላጣ ሜዳ 3. ሌላ(ይግለፁ) _____	
406	የቤተሰብ አባል በአብዛኛው ጊዜ የምገለገሉበት መፀዳጃ አሎት?	1. አዎ 2. አይደለም	

ክፍል 5: ከልኬት ከኪሊኒካል እና ከጤና ክብካቤ ጋር ተያያዥነት ያላቸው መጠይቅ

ተ.ቁ	ጥያቄዎች	ምላሽ	ማስታወሻ
501	የህፃኑ ክብደት	ልኬት1 _____ (ኪ.ግ) ልኬት2 _____ (ኪ.ግ)	
502	የህፃኑ ቁመት	ልኬት1 _____ (ሲ.ሜ) ልኬት2 _____ (ሲ.ሜ)	
503	MUAC	ልኬት1 _____ (ሚሜ) ልኬት2 _____ (ሚሜ)	
504	በአቅራቢያዎ ጤና ተቋም አለ?	0. አይደለም 1. አዎ	
505	ለ ጥያቄ 504 መልስዎ አዎ ከሆነ ርቀቱ ምን ያህል ነው?	_____ ኪ.ሜ ወይም _____ ደቂቃ	
506	በእርግዝናዎ ጊዜ በጤና ተቋም የእርግዝና ክትትል ያደርጉ ነበር?	0. አይደለም 1. አዎ	
507	ልጆችን የት ነበር የወለዱት?	1. በጤና ተቋም 2. በቤት	
508	ልጆች ክትባት ተከትረዋል?	0. አዎ 1. አይደለም	
509	ለ ጥያቄ 508 መልስዎ አዎ ከሆነ የክትባቱ ሁኔታ?	1. ጨርሰዋል 2. አልጨረሰም	
510	ልጆች ባለፉት 2 ሳምንታት በተቅማጥ ተይዞ ያወቃል?	1.አዎ 2. አይደለም	(አይደለም ከሆነ ወደ 512
511	ባለፈው 2 ሳምንታት ተቅማጥ ስንት ጊዜ ነው የመጠበት?	_____	
512	ልጅሽ ባለፈው 2 ሳምንታት በትኩሳት በወባ ተይዞ ያወቃል?	1.አዎ 2. አይደለም	
513	ልጅሽ ባለፈው 2 ሳምንታት በመተንፈሻ ህመም ተይዞ ያወቃል?	1.አዎ 2. አይደለም	
514	በህመሙ ጊዜ ልጅሽ በጤና ተቋም ታይተዋል?	1. አዎ 2. አይደለም	

ክፍል ስድስት:- በህጻናት አመጋገብ ላይ እናቶች ያላቸውን ግንዛቤ የሚመለከት መጠይቅ

601	የእናት ጡት ማጥባት ለህጻናት ከሌሎች ምግቦች የተሻለ ነው ብለው ያስባሉ?	0. አይደለም	1. አዎን
602	ህጻን በተወለደ በአንድ ሰዓት ውስጥ ጡት ማጥባት ለጨቅላውና ለእናቱ ጠቃሚ ነው	0. አይደለም	1. አዎን
603	ምግብ ወይንም ፈሳሽ ህጻኑ ጡት መጥባት ከመጀመሪያ በፊት ለህጻን መስጠት ጎጅ ነው?	0. አይደለም	1. አዎን
604	ለመጀመሪያዎቹ ስድስት ወራት የእናት ጡት ብቻ መስጠት ለህጻናት በቂ ነው?	0. አይደለም	1. አዎን
605	ጡትን ለ2ዓመት እና ከዚያም በላይ ማጥባት ለህጻኑ ዕድገት ጠቃሚ ነው?	0. አይደለም	1. አዎን
606	ህጻን ልጅ ስድስት ወር ከሞላው በኋላ ተጨማሪ ምግብ መስጠት ጠቃሚ ነው?	0. አይደለም	1. አዎን
607	ህጻን ልጅን በጡጦ ማጥባት ጎጂ ነው?	0. አይደለም	1. አዎን
608	የህጻንን ምግብ ከተለያዩ ምግብ ዓይነቶችን አቀላቅሎ ማዘጋጀት ጠቃሚ ነው ?	0. አይደለም	1. አዎን
609	የህጻን ልጅ ዕድሜ ሲጨምር በቀን የሚመገብበት የምግብ መጠን መጨመር አለበት?	0. አይደለም	1. አዎን
610	ለህጻናት በተለየ መመገቢያ ምግብ መስጠት ጠቃሚ ነው?	0. አይደለም	1. አዎን
611	ህጻን ልጅ በራሱ እንድትመገብ ማበረታታት ህጻናትን ለመመገብ ይረዳል ?	0. አይደለም	1. አዎን

አመሰግናለሁ!!!

YUNIVARSIITI JIMMAA

MUMEE HAWASAA FI FAYYAA MAATI

GUCA ODEEFFANOO ITTIN FUNAANATAN

Galimma

Gaaffiin kun kan qophaa'e waa'ee qorannoo hanqina nyaataa cimaa fi giddu-galeessaa yeroo gabaabaa fi wantoota isaa wajjin walqabatan ijoollee umuriin isaanii ji'a 6-59 jiranii dhaabbata fayyaa mootummaa magaalaa Jimmaatti sakkata'amaniif ta'a, Jimmaa, kibba lixa Oromiyaa.

Qajeelfama: Gaafannoon kun kan qophaa'e fulaa fulatti haadha ykn kunuunsituu daa'ima qorannoo kana irratti hirmaatan ittiin gaafachuuf. Gaafannoon kun kutaalee shan of keessaa qabaate yoo ta'u daqiiqaa 30 hanga 45tti kan fudhatudha.

Hub. Gaafannoon kun kan guutamu danda'u gaafataa gaaffichaan qofa ta'ee hirmaattota fedha qabanii fi waliigaltee gutan irraa dha. Lakkoofsa deebii sirrii qabate guuti ykn itti mari.

Lakkoofsa addaa hirmaattotaa /koodii hirmaattotaa _____

Maqaa dhabbata fayyaa _____

Guyyaa gaaffii fi deebii ____/____/____

Maqaa gaafataa _____ Mallattoo _____

Maqaa To'ataa _____ Mallattoo _____

KUTAA I. GAAFANNOO RAGAALEE EENYUMMAA HAWAASUMMAA FI DINAGDEE

106. Saala Daa'ima _____ 1. Dhiira 2. Dhalaa

107. Guyyaa dhaloota Daa'ima: ____/____/____

108. Umurii Daa'ima? _____ (Ji'aan)

109. Tariiba dhalootaa _____ ffaa

110. Baayina Daa'imman waggaa 5 gadii maatii keessa jiran _____

Lakk.		Umurii	Amantaa	Sabummaa	Sadarkaa barumsaa	Haala Ogummaa	Bakka Jireenyaa	Haala Fudhaa fi Heerumaa	Baayina Maatii
106 to 119	Haadha								
	Abbaa								

Amantaa:

1. Musliima
2. Orthodox
3. Protestant
4. Kan biro

Lammummaa:

1. Oromoo
2. Kafaa
3. Yemi
4. Dawuro
5. Amhara
6. Kan biroo

Haala Barumsaa:

1. Barumsa idilee kan hin baranne
2. Sad. Jalqabaa
3. Sad. 2ffaa
4. Sad 2ffaa oli

Bakka jireenyaa

1. Magaalaa
2. Badiyyaa

Haala Fudhaa fi

Herumaa:

1. Kan hin herumne/hin fuune
2. Kan heerumte/fuudhe
3. Kan adda bahan
4. Kan jalaa du'e/te

Haala Ogummaa:

1. Hojjetaa Mootummaa
2. Qotee bulaa
3. Daldaalaa
4. Haadha warraa
5. Hojjetaa guyyaa
6. Kan biroo

KUTAA 2: GAAFANNOO SHAAKALA NYAATAA FI KUNUUNSA DAA'IMAA

201	Daa'iminkee harma hodhee/tee beekti ?	1.Eeyyee 2. Miti	<i>Yoo eeyyee jette gara 203</i>
202	Gaaffii 201 lakkii yoo jette sababiin harma dhiisteef ykn dhiiseef maali?	1.Dhukkuba haadhaaf 2. Fedhii haadhaaf 3. Mucaan dabalataa waan dhalatteef 4. Kan biroo	
203	Gaaffiin 201 yoo eeyyee ta'e, dhalatee sa'a hammam keessatti harma hodhuu eegalte?	_____sa'a	
204	Daa'imni dhalatee guyyaa 3 keessatti harma hadhaa malee waan biro kennameefii turee?	1.Eeyyee 2. Miti	<i>Yoo lakkii jette gara 207</i>
205	Gaaffii 204 yoo eeyyee ta'e, maalfaa kennateef?	1.Annan (aannan haadhaa malee) 3. Bishaan 4. Sukkaara ykn Bishaan soogiddaa 5. Cuunfaa kuduraa fi muduraa 6. Nyaata ijoollee 7. Damma 8. Dhadhaa hinbaffamne 9. Irshoo 10. Kan biroo	
206	Gaaffii 204 yoo eeyyee ta'e fayidaan harma haadhaarratti dabalani kennuu maalii?	1.Marrummaan daa'imaa Laafisuuf 2. Daa'imni Fayyaa fi cimaa akka taatu gochuuf 3. Dhukkubbii garaa dhabamsiisuuf 4. Aadaa waan ta'eef.	
207	Aannan jalqabaa (Silga) akkam goote?	1.Mucaafan kenne 2. Nan dhangalaase	
208	Daa'iminkee amma harma hodhaa jirtii/raa?	1.Eeyyee 2. Lakkii	<i>yoo lakkii jette gara 210</i>
209	Gaaffii 208 eeyyee yoo jette yoom yoom yoom kennitaaf ?	1.Yeroo daa'imni fedhu 2. Yeroo daa'imni boossu 3. Yeroo haadhatti dhaga'amu 4. Kan biroo _____	
210	Daa'iminkee yeroo hammamiif harma haadhaa hoosista/te ?	Ji'aan_____ ykn Waggaan _____	
211	Daa'iminkee yeroo hagamiif harma haadhaa	1.Ji'a Ja'aa gadiif	

	qofa hodhe/te ?	2. Hanga ji'a ja'aatti 3. Ji'a ja'aa oliif	
212	Daa'iminkee umurii hagamiitti nyaata dabalataa jalqabsiistee ?	1. Ji'a ja'aa gaditti 2. Ji'a ja'a tti 3. Ji'a ja'a booda	
213	Daa'iminkee yeroo nyaata dabalataa jalqabsiiste maaliin jalqabsiiste ?	1. Aannan 2. Mooqa 3. Marqaa 4. Kan biroo(ibsi)_____	
214	Daa'iminkee yeroo soortu maalitti fayyadamta? 1. Fal'aana 2. Xuuxoo 3. Kubbaayaa 4. Harka 5. Kan biroo(ibsi)_____	0. Miti 1. Eeyye 0. Miti 1. Eeyye 0. Miti 1. Eeyye 0. Miti 1. Eeyye	
215	Daa'iminkee maatii jiran keessaa haala kamiin soorata ?	1. Qodaa qofaatti adda baasuun 2. Daa'ima hundumaa waliin 3. Kan biroo(ibsi)_____	
216	<p>Gaaffilee Akaaku/gosa nyaata Gosa nyaata sa'aati 24 darban keessatti da'imni soorate</p> <p>Ajaja Hirmaattotaaf Maalo nyaata ykn dhugaatii sa'aati 24 darbe keessatti daa'ima keetif kennete hundaa yeroo furdhuuti yaade. Isa boodde gosa nyaata siifan caqasaa ati isa nyaate natti himetta.</p> <p>Ajaja odefannoo kan funaanuuf Haadhaaf ykn kunuunisituuf akka yaadatuuf yeroo gahaa kenuun akka yaadattuuf gargaariin. Gafii gadi fageenya otoo hin dirqisiisine gaafachuun gosa nyaata fi dhugaati sa'ati 24 darban keessatti da'imni soorte ykn dhuge addaan baase gosa nyaata guca armaan gaditti guute.</p>		
	Yeroo	Nyaata da'imaaf kenname	Qabiyeen nyaatichaa

	Gosa Midhaan fi hidda	1. Miti 2. Eeyyee
	Gosa Baaqela fi lawuzii	1. Miti 2. Eeyyee
	Waan horii (aanan, itittu, ittoo)	1. Miti 2. Eeyyee
	Gosa Foonii (foon, qurxumee, lukkuu, tiruu fi foon qaama gara garii)	1. Miti 2. Eeyyee
	Hanqaaqu	1. Miti 2. Eeyyee
	Kuduraa fi fuduraa vatamina A dhaan gabbatan	1. Miti 2. Eeyyee
	Kuduraa fi fuduraa kan biroo	1. Miti 2. Eeyyee
KUTAA 3: GAAFANNOO WABII NYAATA FI SAFARTUU QABIYEE		
301	Torban arfun darban keessatti mana keessa nyaati gahaa hin jiru jettan yaaddofitanii beekitu?	0. Eeyyee 1. Miti
301a	Wanti kun hangam uumame/ta'e?	1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
302	Torban arfun darban keessatti isin ykn miseensa maatikessan dhabuu irra kan ka'e dhiyaana keessan/nyaata otoo hin nyaatin irra ciwuun sin muudattee beeka?	0. Eeyyee 1. Miti
302a	Wanti kun hangam uumame/ta'e?	1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama)

		<ul style="list-style-type: none"> 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
303	Torban arfun darban keessatti isin ykn miseensa maatikessan dhabuu irra kan ka'e nyaata akaaku/gosa murtaa'e qofa soorachuu isin muudateera?	<ul style="list-style-type: none"> 0. Eeyyee 1. Miti
303a	Wanti kun hangam uumame/ta'e?	<ul style="list-style-type: none"> 1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
304	Torban arfun darban keessatti isin ykn miseensa maatikessan dhabuu irra kan ka'e nyaata ati jaalattu (feetu) soorachu dhabuun si qunamee beeka?	<ul style="list-style-type: none"> 0. Eeyyee 1. Miti
304a	Wanti kun hangam uumame/ta'e?	<ul style="list-style-type: none"> 1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
305	Torban arfun darban keessatti isin ykn miseensa maatikessan mana keessatti dhabuu nyaata irra kan ka'e dhiyaanaratti nyaata baay'inni isa xiqaa kan ta'e soorachuun isin muudateera?	<ul style="list-style-type: none"> 0. Eeyyee 1. Miti
305a	Wanti kun hangam uumame/ta'e?	<ul style="list-style-type: none"> 1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
306	Torban arfun darban keessatti isin ykn miseensa maatikessan mana keessatti dhabumma nyaata irra kan ka'e dhiyaana oto hin nyaatin irra darbuun isin muudateera?	<ul style="list-style-type: none"> 0. Eeyyee 1. Miti
306a	Wanti kun hangam uumame/ta'e?	<ul style="list-style-type: none"> 1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
307	Torban arfun darban keessatti dhaburraa kan ka'e nyaati cirumaa/sirumaa mana keessa dhibuun isin muudateera?	<ul style="list-style-type: none"> 0. Eeyyee 1. Miti
307a	Wanti kun hangam uumame/ta'e?	<ul style="list-style-type: none"> 1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban

		keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
308	Torban arfun darban keessatti isin ykn miseensa maatikaessan dhabumma nyaata irra kan ka'e oto hin nyaatin rafuun ni jira?	0. Eeyyee 1. Miti
308a	Wanti kun hangam uumame/ta'e?	1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
309	Torban arfun darban keessatti isin ykn miseensa maatikaessan dhabumma nyaata irra kan ka'e oto hin nyaatin oolani buluun ni jira?	0. Eeyyee 1. Miti
309a	Wanti kun hangam uumame/ta'e?	1. Baayye xiqoo (torban arfun darban keessa yeroo tokko ykn lama) 2. Darbe darbee (torban arfun darban keessa yeroo 3 hanga 10 3. Yeroo baay'ee (torban arfun darban keessa yeroo 10 oli
Gaafilee qabeenya mana ilaalatu Qabiyeen armaan gadi mana keessan keessa jira?		
310	Ibsaa/elekitiriiki	0. Hin jiru 1. Eeyyee
311	Bilibila mobaayelii	0. Hin jiru 1. Eeyyee
312	Siree fi cisicha isipoonjii/jirbii/spiriingii	0. Hin jiru 1. Eeyyee
313	Ta'umsa mana qabdu?	0. Hin jiru 1. Eeyyee
314	Televijiin mana qabdu?	0. Hin jiru 1. Eeyyee
315	Raadiyoo mana qabdu?	0. Hin jiru 1. Eeyyee
316	Xarapheeza mana qabdu?	0. Hin jiru 1. Eeyyee
317	Herreega mana baankii ykn dhaabbata qusanoo	0. Hin jiru 1. Eeyyee
318	Lafitti mana keessan siminitoodhaan hojetame	0. Hin jiru 1. Eeyyee
319	Mana keessan qorqorroon ejarame	0. Hin jiru 1. Eeyyee
320	Firijii/qabaneessituu	0. Hin jiru 1. Eeyyee
321	Stovii elektirikii/stovii gaasi/siliindarii	0. Hin jiru 1. Eeyyee
KUTAA 4: GAAFANNOO QULQULLINA WALIIN WALQABATE		
401	Yeroo akkam akkamii harka keessan dhiqattu? 1. Mana fincaanii fayyadamuun booda 2. Nyaata qopheessun dura 3. Nyaata dhiyeessuun dura 4. Daa'ima nyaachisuun dura 5. Bobbaan daa'imaa qulqullessuun booda 6. Harma hoosisuun dura 7. Hojii qonnaa booda	0. Miti. 1. Eeyyee 0. Miti. 1. Eeyyee 0. Miti. 1. Eeyyee 0. Miti. 1. Eeyyee 0. Miti. 1. Eeyyee 0. Miti. 1. Eeyyee 0. Miti. 1. Eeyyee

402	Harka keessan dhiqachuuf maalitti fayyadamtu?	1. Bishaan qofaa fayyadamuun 2. Yeroo tokko tokko samuunaa fayyadamuun 3. Yeroo hundaa samuunaa fayyadamuun 4. Yeroo tokko tokko daaraa fayyadamuun	
403	Maddi bishaan dhugaati keessanii maalin?	1. Bishaan boombaa 2. Bishaan boombaatin ala	
404	Kosii jajjaboo eessatti dhabamsiftuu?	1. Boolla kosii jajjaboo 2. Bakkeetti 3. Iddoo gubachuu danda'utti 4. Iddoo birootti	
405	Kosii dhangala'oo eessatti dhabamsiftuu?	1. Boolla kosii dhangala'oo 2. Bakkeetti 3. Iddoo birootti	
406	Boolla fincaanii qabiddu?	0. Eeyyee 1. Hin qabu	

KUATAA 5: GAAFANNOO KUNUUNSA ,YAALII FAYYAA FI ANTROPOMETRIIN WALQABATE

Lakk.	Gaaffii	Filannoowan deebii ta'an	GARA/YAADA
501	Ulfaatina Daa'imaa	S1 _____ Kg S1 _____ Kg	
502	Dheerina Daa'imaa	S1 _____ cm S2 _____ cm	
503	MUAC	S1 _____ mm S2 _____ mm	
504	Dhabbanni fayyaa sitti dhiyoo ta'e jiraa?	0. Miti 1. Eeyyee	Miti yoo ta'e gara 506
505	Yoo gaaffii 504 eeyyee jette, Hammam sirraa fagaata?	_____ Sa'a/daqiiqaa ykn _____ km	
506	Sakatta'iinsa da'umsa duraaf gara dhaabbata fayyaa deemtee beektaa?	0. Miti 1. Eeyyee	
507	Bakka da'umsaa keessan eessa?	1. Dhaabbata Fayyaa 2. Manatti	
508	Daa'imni kee Talaallii Fudhatteetti/ra?	0. Miti 1. Eeyyee	Miti yoo ta'e gara 510
509	Gaaffii 508 eeyyee yoo jette haala maaliirra jira	1. Xumurteetti/ra 2. Hinxumurre	
510	Daa'imni kee torban lamaan darbe keessatti garaa kaasaan qabee turee?	1. Eeyyee 2. Miti	<i>Yoo lakkii jette gara 212</i>
511	Gaaffiin 210 eeyyee yoo jette yeroo		

	hammamiif irra ture	_____guyyaa	
512	Torban lamman darban keessatti daa'imni kee dhibee gubaa qaamaa fi busaan qabamee turee/tee?	1.Eeyyee 2. Miti	
514	Torban lamman darbe keessatti daa'imakee dhukkuba ujummoo afuura mudatee turee?	1. 2.Miti	
KUTAA 6: GAAFILEE HUBANNOO HAADHOLII			
601	Harmi haadha nyaata kamiyyuu caala daa'imaaf baribaachisaa dha	0. Miti	1. Eeyyee
602	Daa'iminni dhalatee/tte sa'a tokko giduutti harma haadha hoosisuun haadha fi daa'imaaf baribaachisa dha.	0. Miti	1. Eeyyee
603	Da'iminni dhalatee harma oto hin hodhiine dura nyaata fi dhangala'a kenuun miidha qaba	0. Miti	1. Eeyyee
604	Daa'iminni dhalatee hanga ji'a jahaatti harmi haadha qofa gahaa dha.	0. Miti	1. Eeyyee
605	Harma haadha hanga waggaa lama fi isa olitti da'maaf laachun guddinaaf baribaachisa dha.	0. Miti	1. Eeyyee
606	Da'iminni yeroo ji'a jaha gahu/geese nyaata dabalataa kenuufin guddina da'imaaf baayye baribaachisaa dha.	0. Miti	1. Eeyyee
607	Xuuxoodhaan da'ima soruun da'ima ni miidha.	0. Miti	1. Eeyyee
608	Soorata/nyaata da'ima akaaku adda addaa gochuun baribaachisaa dha.	0. Miti	1. Eeyyee
609	Da'iminni umuriin yeroo dabaluu baay'inni dhiyaana sooratu/ttu dabaluu baribaachisaa dha.	0. Miti	1. Eeyyee
610	Daa'iminni soorata/nyaata qophaatti lachuun baribaachisaa dha.	0. Miti	1. Eeyyee
611	Daa'ima haasofsiisa nyaachisuun faayida qabeessa.	0. Miti	1. Eeyyee

Galatooma!!!

9.4. Annex IV: Weight-for-height/length tables (Sample)

Table 67 Weight-for-height for girls (continued)

Height (cm)	Z-scores (weight in kg)									
	L	M	S	-3SD	-2SD	-1SD	Median	1SD	2SD	3SD
65.0	-0.3833	7.2402	0.09113	5.6	6.1	6.6	7.2	7.9	8.7	9.7
65.5	-0.3833	7.3523	0.09109	5.7	6.2	6.7	7.4	8.1	8.9	9.8
66.0	-0.3833	7.4630	0.09104	5.8	6.3	6.8	7.5	8.2	9.0	10.0
66.5	-0.3833	7.5734	0.09099	5.8	6.4	6.9	7.6	8.3	9.1	10.1
67.0	-0.3833	7.6806	0.09094	5.9	6.4	7.0	7.7	8.4	9.3	10.2
67.5	-0.3833	7.7874	0.09088	6.0	6.5	7.1	7.8	8.5	9.4	10.4
68.0	-0.3833	7.8930	0.09083	6.1	6.6	7.2	7.9	8.7	9.5	10.5
68.5	-0.3833	7.9976	0.09077	6.2	6.7	7.3	8.0	8.8	9.7	10.7
69.0	-0.3833	8.1012	0.09071	6.3	6.8	7.4	8.1	8.9	9.8	10.8
69.5	-0.3833	8.2039	0.09065	6.3	6.9	7.5	8.2	9.0	9.9	10.9
70.0	-0.3833	8.3058	0.09059	6.4	7.0	7.6	8.3	9.1	10.0	11.1
70.5	-0.3833	8.4071	0.09053	6.5	7.1	7.7	8.4	9.2	10.1	11.2
71.0	-0.3833	8.5078	0.09047	6.6	7.1	7.8	8.5	9.3	10.3	11.3
71.5	-0.3833	8.6078	0.09041	6.7	7.2	7.9	8.6	9.4	10.4	11.5
72.0	-0.3833	8.7070	0.09035	6.7	7.3	8.0	8.7	9.5	10.5	11.6
72.5	-0.3833	8.8053	0.09028	6.8	7.4	8.1	8.8	9.7	10.6	11.7
73.0	-0.3833	8.9025	0.09022	6.9	7.5	8.1	8.9	9.8	10.7	11.8
73.5	-0.3833	8.9983	0.09016	7.0	7.6	8.2	9.0	9.9	10.8	12.0
74.0	-0.3833	9.0928	0.09009	7.0	7.6	8.3	9.1	10.0	11.0	12.1
74.5	-0.3833	9.1862	0.09003	7.1	7.7	8.4	9.2	10.1	11.1	12.2
75.0	-0.3833	9.2786	0.08996	7.2	7.8	8.5	9.3	10.2	11.2	12.3
75.5	-0.3833	9.3703	0.08989	7.2	7.9	8.6	9.4	10.3	11.3	12.5
76.0	-0.3833	9.4617	0.08983	7.3	8.0	8.7	9.5	10.4	11.4	12.6
76.5	-0.3833	9.5533	0.08976	7.4	8.0	8.7	9.6	10.5	11.5	12.7
77.0	-0.3833	9.6456	0.08969	7.5	8.1	8.8	9.6	10.6	11.6	12.8
77.5	-0.3833	9.7390	0.08963	7.5	8.2	8.9	9.7	10.7	11.7	12.9
78.0	-0.3833	9.8338	0.08956	7.6	8.3	9.0	9.8	10.8	11.8	13.1
78.5	-0.3833	9.9303	0.08950	7.7	8.4	9.1	9.9	10.9	12.0	13.2
79.0	-0.3833	10.0289	0.08943	7.8	8.4	9.2	10.0	11.0	12.1	13.3
79.5	-0.3833	10.1298	0.08937	7.8	8.5	9.3	10.1	11.1	12.2	13.4

Table 67 Weight-for-height for girls (continued)

Height (cm)	Z-scores (weight in kg)									
	L	M	S	-3SD	-2SD	-1SD	Median	1SD	2SD	3SD
80.0	-0.3833	10.2332	0.08932	7.9	8.6	9.4	10.2	11.2	12.3	13.6
80.5	-0.3833	10.3393	0.08926	8.0	8.7	9.5	10.3	11.3	12.4	13.7
81.0	-0.3833	10.4477	0.08921	8.1	8.8	9.6	10.4	11.4	12.6	13.9
81.5	-0.3833	10.5586	0.08916	8.2	8.9	9.7	10.6	11.6	12.7	14.0
82.0	-0.3833	10.6719	0.08912	8.3	9.0	9.8	10.7	11.7	12.8	14.1
82.5	-0.3833	10.7874	0.08908	8.4	9.1	9.9	10.8	11.8	13.0	14.3
83.0	-0.3833	10.9051	0.08905	8.5	9.2	10.0	10.9	11.9	13.1	14.5
83.5	-0.3833	11.0248	0.08902	8.5	9.3	10.1	11.0	12.1	13.3	14.6
84.0	-0.3833	11.1462	0.08899	8.6	9.4	10.2	11.1	12.2	13.4	14.8
84.5	-0.3833	11.2691	0.08897	8.7	9.5	10.3	11.3	12.3	13.5	14.9
85.0	-0.3833	11.3934	0.08896	8.8	9.6	10.4	11.4	12.5	13.7	15.1
85.5	-0.3833	11.5186	0.08895	8.9	9.7	10.6	11.5	12.6	13.8	15.3
86.0	-0.3833	11.6444	0.08895	9.0	9.8	10.7	11.6	12.7	14.0	15.4
86.5	-0.3833	11.7705	0.08895	9.1	9.9	10.8	11.8	12.9	14.2	15.6
87.0	-0.3833	11.8965	0.08896	9.2	10.0	10.9	11.9	13.0	14.3	15.8
87.5	-0.3833	12.0223	0.08897	9.3	10.1	11.0	12.0	13.2	14.5	15.9
88.0	-0.3833	12.1478	0.08899	9.4	10.2	11.1	12.1	13.3	14.6	16.1
88.5	-0.3833	12.2729	0.08901	9.5	10.3	11.2	12.3	13.4	14.8	16.3
89.0	-0.3833	12.3976	0.08904	9.6	10.4	11.4	12.4	13.6	14.9	16.4
89.5	-0.3833	12.5220	0.08907	9.7	10.5	11.5	12.5	13.7	15.1	16.6
90.0	-0.3833	12.6461	0.08911	9.8	10.6	11.6	12.6	13.8	15.2	16.8
90.5	-0.3833	12.7700	0.08915	9.9	10.7	11.7	12.8	14.0	15.4	16.9
91.0	-0.3833	12.8939	0.08920	10.0	10.9	11.8	12.9	14.1	15.5	17.1
91.5	-0.3833	13.0177	0.08925	10.1	11.0	11.9	13.0	14.3	15.7	17.3
92.0	-0.3833	13.1415	0.08931	10.2	11.1	12.0	13.1	14.4	15.8	17.4
92.5	-0.3833	13.2654	0.08937	10.3	11.2	12.1	13.3	14.5	16.0	17.6
93.0	-0.3833	13.3896	0.08944	10.4	11.3	12.3	13.4	14.7	16.1	17.8
93.5	-0.3833	13.5142	0.08951	10.5	11.4	12.4	13.5	14.8	16.3	17.9
94.0	-0.3833	13.6393	0.08959	10.6	11.5	12.5	13.6	14.9	16.4	18.1
94.5	-0.3833	13.7650	0.08967	10.7	11.6	12.6	13.8	15.1	16.6	18.3