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SCHOOL OF PUBLIC HEALTH

GRADUATING PROGRAMS COORDINATING OFFICE

**MINIMUM ACCEPTABLE DIET PRACTICE AND ITS ASSOCIATED
FACTORS AMONG CHILDREN AGED 6-23 MONTH IN ALLE SPECIAL
WOREDA**

**BY
KUSHETA KUSSIE**

ADDIS ABABA, ETHIOPIA

JULY, 2023



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**A THESIS SUBMITTED TO GRADUATE STUDIES COORDINATING
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REQUIREMENTS FOR THE DEGREE OF MASTER'S IN GENERAL
PUBLIC HEALTH**

**ADDIS ABABA, ETHIOPIA
JULY, 2023**

DECLARATION

I, the undersigned, declare that the thesis comprises my own work. In compliance with internationally accepted practices, I have acknowledged and refereed all materials used in this work. I understand that non-adherence to the principles of academic honesty, Misrepresentation of any source will constitute sufficient ground for disciplinary action by the University and can also evoke penal action from the sources which have not been properly cited or acknowledged.

Name of the student: Kusheta Kussie, Signature -----

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Place: Addis Ababa, Ethiopia

This thesis has been submitted for examination with my approval as a college advisor

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ABBREVIATIONS AND ACRONYMS

ACF	Appropriate complementary feeding
ANC	Antenatal Care
CF	Complementary Feeding
EDHS	Ethiopian Demography and Health Survey
EMDHS	Ethiopian Mini Demography and Health Survey
HAZ	Height for age Z score
HDA	Health Development Army
ISSSF	Introduction of solid and semi solid or soft foods
IYCF	Infant and Young Child Feeding
GDP	Gross domestic product
MAD	Minimum Acceptable Diet
MCH	Maternal and Child Health
MDD	Minimum Dietary Diversity
MMF	Minimum Meal Frequency
MMFF	Minimum Milk food Frequency
NCD	Non communicable disease
NNP	National nutrition program
PNC	Post Natal care
SSA	Sub Saharan Africa
UNICEF	United Nations Children's Fund

ABSTRACT

The global strategy of infant and young child feeding recommends exclusive breastfeeding for the first 6 months of life and continued breastfeeding with timely, adequate, and safe complementary feeding up to 2 years of age or beyond. A minimum acceptable diet is an indicator for evaluating child feeding practices that combines minimum dietary diversity, and minimum meal frequency to ensure appropriate growth and development of infant and young children. Otherwise, they are vulnerable to under-nutrition especially stunting and micronutrient deficiencies. Therefore objective of this study was to assess practice of minimum acceptable diet and its associated factors among Children Aged 6-23 month in Alle special woreda. Community based cross sectional study was employed using multi stage Stratified sampling technique among 323 study participants. Data was collected using structured questionnaire through face-to-face interview. The data was entered to Epi-info 7.1.14 and analyzed by SPSS version 20. The descriptive result was presented with a frequency table and graphs. Variables with a p-value less than 0.25 in bivariable analysis were selected for multivariable logistic regression. The P-value and 95% CI of OR were used to identify significant factors. As a result, the prevalence of minimum acceptable diet, minimum dietary diversity, and minimum feeding frequency were 25.8%, 28.6%, and 90%, respectively. Maternal knowledge (AOR = 2.02; 95% CI: 1.14–3.59; P = 0.016), household food security (AOR = 3.13; 95% CI: 1.75–5.59; P = 0.001), postnatal care visit (AOR = 4.73; 95% CI: 1.71–13.11; P = 0.003), child's age (AOR = 2.57; 95% CI: 1.29–5.11; P = 0.007), and marriage type (AOR=3.51; 95% CI: 1.83-6.73; P = 0.001) were significantly associated with minimum acceptable diet. This result indicates that practice of minimum acceptable diet in study area was low. Therefore, to promote a minimum acceptable diet, taking preventive action among food insecure households, mothers with poor knowledge, households where the father married with multiple women, mothers who do not attend post-natal care visits, and mothers of children aged 6–11 months is recommended. The most commonly used key words were minimum acceptable diet, children, practice, factors, indicators, Ethiopia, and WHO

CHAPTER ONE

INTRODUCTION

1.1 Back ground of the study

Global strategy of infant and young child feeding recommends exclusive breastfeeding for the first 6 months of life and continued breastfeeding with timely, adequate, and safe complementary feeding up to 2 years of age or beyond(1).World Health Organization defined Complementary feeding as the process that begins after exclusive breast feeding at a time when breast milk alone is no longer enough to meet the nutritional requirements of infants so that other meals and liquids are needed in addition to breast milk. Even though breastfeeding can go for more than two years, the indicated age is commonly taken to be 6 to 23 months of age. Common indicators to guide complementary feeding practice of infants and young children are: timely introduction of solid, semi-solid or soft foods, minimum dietary diversity, minimum meal frequency and minimum acceptable diet(2–4).

A minimum acceptable diet is an indicator for evaluating child feeding practices presented via World Health Organization. It is a combination of minimum dietary diversity, and minimum meal frequency, with the extra requirement that non-breastfed children should have received milk at least twice on the previous day. Infants and young children should have a minimum acceptable diet to ensure appropriate growth and development, otherwise, they are vulnerable to under-nutrition especially stunting and micronutrient deficiencies, and increased morbidity and mortality (5,6). WHO guiding principles on feeding the breastfed child and the non-breastfed child recommend that children aged 6–23 months be fed meals at an appropriate frequency and in a sufficient variety to ensure, respectively, that energy and nutrient needs are met (7,8). In 2021, the WHO and UNICEF published updated guidelines from the 2008 definitions of IYCF indicators to mitigate issues of ISSSF, MDD and MMF (1,6).

Undernutrition is mostly caused by a lack of proper breastfeeding and supplemental feeding practices. The complementary feeding period (6–23 months) is a window of opportunity for preventing stunting, wasting, overweight, micronutrient deficiency and its adverse consequences includes impaired cognitive and physical potential, poor academic achievement and low economic productivity (9).

1.2. Statement of the problem

Complementary feeding is needed to fill the gap between the total nutritional needs of the child and the amounts provided by breast milk to maintain the child's healthy growth and development. Supplementing breastfeeding with nutritious complementary foods can reduce stunting among children of this age by 20%. Therefore, as an effective intervention strategy for malnutrition, WHO and UNICEF recommended the introduction of adequate complementary foods at 6 months with continued breastfeeding for 2 years of age or beyond (7,10–12).

However, most of young children at global level suffering from consequences of inappropriate complementary feeding practice. Recent global data on supplementary feeding practice in low and middle-income countries shows that 50% of all children are not meeting the minimum meal frequency; more than 75% of children are not satisfying the minimum dietary diversity; and about 83% children are not receiving a minimum acceptable diet (4). Globally malnutrition has been directly or indirectly accountable for about 60% of the 10.9 million deaths among under -two year children each year, with two-thirds of these deaths frequently associated with inappropriate feeding practices. (13–15). Other evidences shows that from more than 3.4 million under-5 year children die each year due to inappropriate feeding Practices, 67% of these deaths are associated with inappropriate feeding practices during the first 2 years of life (16). About 178 million children were stunted and Africa has the highest rates (17) specially in SSA include Ethiopia, Malawi, Benin, and the Democratic Republic of Congo (18).

Children who are malnourished as infants are more prone to illness and death and have worse educational attainment; and adults who were malnourished during childhood have lower productivity and earning potential. Malnourished IYC have a higher risk of NCDs, respiratory illness, enteric infections. With these combined impacts, economists estimate that stunting can reduce a country's gross domestic product (GDP) by 3% per year and total annual economic loss due to poor child feeding was estimated to be between US\$257 billion and US\$341 billion (4). There are positive association between complementary feeding indicators and HAZ (stunting) which is contrary to association between exclusive breast feeding indicators and HAZ in Bangladesh, Ethiopia, India and Zambia (3,19).

In Ethiopia the status of minimum meal frequency, dietary diversity and acceptable diet were 45%, 14% and 7% respectively (20). Similarly EMDHS 2019 reported children age 6-23 months who meets the minimum standards of MF (55%),DD (14%) and AD (11%) (21).

Government of Ethiopia made efforts to address appropriate complementary feeding through strengthened the life-cycle approach, with particular emphasis on the crucial period of first 2 years of life. Ethiopia continued commitment to young child nutrition by developing the second phase of the National Nutrition Program (NNP II, 2016–2020), The Seqota Declaration under NNP II and implemented by the sectors aims to transform the lives of Ethiopian children through integrated community development in agriculture, health, nutrition, education, water, sanitation and hygiene, as well as social protection to end child under-nutrition by 2030. Even though different interventions were carried out to boost minimum acceptable diet practice in Ethiopia, the problem is still high and different from study setting to study setting (11,22).

According to recently reviewed analysis, Comprehensive evidences were insufficient and inconsistent regarding minimum acceptable diet among previously documented literature. This variations highly contributed by contextual factors and societal level of knowledge regarding an adequate diet for young children in addition to economic and health service factors (10). Likewise most studies conducted previously based on criteria of 2008 IYCF guideline which criticized and changed by WHO and UNICEF so that generating up-to-date evidences is necessary. Moreover, no documented data were accessible specifically in the study area regarding practice of minimum acceptable diet. Therefore, the objective of this study were to assess practice of minimum acceptable diet and its associated factors among children aged 6 - 23 months in Alle special woreda, South Ethiopia.

1.3. Significance of the study

To bring improvement in infant and young child feeding, designing effective programme that consider the understanding of the local condition and context for prioritizing child nutrition related problems is required (16). So this study can be significant in generating evidence based information to take appropriate action in order to reduce the issues related to poor child feeding like under malnutrition, childhood illness and others. It also could be helpful for the healthcare providers and stakeholders to be more focused and direct forward towards intervention of important factors. In more broaden way it can serve as important tool for planners, nutritionist and programme personnel to pay attention on main determinant factors of child nutrition. They could develop different strategies to prevent the morbidity and mortality associated with the inappropriate feeding practice of the children based on collective evidences. Furthermore, it can serve as base line for future researchers of related topics.

CHAPTER TWO

LITERATURE REVIEW

2.1. Prevalence of minimum acceptable diet

Various studies claimed that child nutrition problem has worldwide public health importance with a vast majority of life losses reported in Africa and Asia. Worldwide only one in six children are receiving a minimally acceptable diet While in East and South Africa one in ten children satisfy the criterion(15,17). Health survey conducted in some regions of east Africa reported prevalence of complementary feeding indicators. Accordingly Less than 40% of the children aged 6-24 month had met the minimum meal frequency as recommended levels in Uganda and Tanzania. Including Kenya proportion of adequate dietary diversity were between 30-40% (23). Masuke R. et al disagree with authors of above study in prevalence of adequate meal frequency (60%), and dietary diversity (26%) in which 91.2% of children were given soft, semi-solid, solid foods before six months of age (24) but Ekerette E.et al was in agreement with prevalence of adequate meal frequency(36.7%) , dietary diversity(31.5%) and rate of minimum acceptable diet 7.3% in which 85.4% of children were given soft/semi-solid/solid foods at 6–8 months of age (17).

According to study conducted in Lagos state (Nigeria), magnitude of adequate diet feeding was 47.0% (25). This practice was three times higher when compared with CF (15.7 %) from study done in northern Ghana where proportion of children age 6-24 month who met minimum meal frequency, minimum dietary diversity (≥ 4 food groups) and minimum acceptable diet were 58.2 %, 34.8 %and 27.8 % accordingly (26) but more or less similar with other study done in Ghana with timely initiation(72.6 %), minimum meal frequency (46%), dietary diversity (51.4 %) and minimum acceptable diet (29.9 %) (27). Furthermore both studies done in Ghana and Nigeria are slightly in line with study findings of minimum acceptable diet from Bangladesh (34.7%) (28) .

In Ethiopia, recent prevalence of appropriate complementary feeding practices was 22% (10) which is almost similar with Temesgen et al (23.25%) (16) but higher than Areja.A et,al 11.4% (29). Systemic review conducted in Ethiopia revealed that prevalence of minimum acceptable diet was about 25.69%(30) which is higher than study conducted in Lalibela (16.7%) (31) and Goncha district (12.6%) (5). But this finding slightly lower

than study conducted in Mareka district-dawro zone(35.5%) (32) and Debre berhan town(31.6%) (33).

Furthermore, proportion of adequate diet feeding from study done in shashemene town was three fold higher than those done in southern region. According to this study children aged 6–23 months who met the criteria for complementary food introduction, minimum meal frequency, minimum dietary diversity and minimum acceptable diet practices were 67.9%, 61.7% , 42.5% ,and 41.7% respectively (15) but this finding lower to study done in Addis Ababa that demonstrated prevalence of minimum acceptable diet (74.6%) , minimum meal frequency (90.6%), and minimum dietary diversity (80.2%) (14) .

2.2. Factors associated to minimum acceptable diet practice

Study conducted in some regions of east Africa (Uganda, Tanzania,and Kenya) reported Children's age, breastfeeding status, mother's education level and working status, household wealth index, prenatal care visits, receiving vitamin A supplements, using modern contraceptives, and meal as main predictors of minimum child feeding (23). Masuke R. et al disagree with authors of above study (24) but Ekerette E.et al was in agreement with it (17). Study done in Logos state similarly identified higher level of mothers' education and occupation (25).

Non- postnatal check-up, cultural beliefs and habits, household poverty, home delivery and non-Christian mothers were the most important risk factors for inadequate complementary feeding practices (27). From these factors, Owen N. et al only shared household poverty in addition to mother's education and exposure to mass media as significant risk factors in achieving a minimum acceptable diet (34). Study done in Rwanda identified the socioeconomic status of caregivers, mother's beliefs, knowledge of complementary feeding guidelines, the social network, and lack of decision-making power in the household as factors influencing child nutrition but that done in Lubao and Kenya identified Cultural beliefs, taboos i.e. food taboos or restriction, beliefs associated with certain foods and culture of polygamy (35,36).

According to systemic review and meta-analysis done in Ethiopia, Knowledge and age of mother, age of child, health education, house hold wealth index and health service factors such as postnatal ,ANC ,institutional delivery were influential predictors of

minimum complementary feeding (10). Work of Temesgen et al showed different factors (mothers decision making status, mothers media exposure status and being urban residence) except health service factors (16). Similarly there were factor inconsistency among studies done in western Ethiopia, Sidama zone (Bensa district) and Damot sore district. For instance: (Health education, birth for the first time and very young children) (9), (Mother's knowledge, postnatal care service utilization, and household food security) (37) and (Antenatal care and birth order) (29) respectively.

Independent predictors of minimum acceptable diet as mentioned by survey conducted in Mareka (32) and Goncha district (5) were child age, maternal education, media exposure, facility delivery and GMP service utilization. Likewise study conducted in Debre berhan (33) and Lalibela (31) found out mother education, ANC and GMP service utilization, sex of the child and maternal knowledge about child feeding but Study done in Lasta district identified Exposure to public media, occupation of mother, mothers decision making role, and postnatal care service as independent predictors (38). Similarly Bereket Y. et al identified levels of education and Postnatal Care visits (39) which agrees with study done in other part of southern Ethiopia except Government employed mothers and birth intervals (40).

Furthermore, survey conducted in some part of Oromia region differentiated influential factors associated with appropriate feeding practices such as Mothers with children aged 6–11 months, the number of antenatal care (ANC) visits, socioeconomic status, sources of information, mothers' knowledge, and positive attitude (15). Study done on composite indicator of complementary feeding in Addis Ababa mentioned the following influential predictors like Educational level of husband, being a housewife, having a history of more than three postnatal follow-ups, Having mothers age between 25 and 34 years, being male child and having children age between 18 and 23 months were factors significantly associated with a minimum acceptable diet (14). In contrary, study done in Benshagul gumuz region found out that urban settlement and postnatal checkup were significantly associated with timely initiation of complementary feeding (3).

2.3. Conceptual frame work

The following diagram illustrates the relationship between dependent (minimum acceptable diet) and independent variables; Sociodemographic, maternal health service, child and culture related factors. solid line shows direct influence of independent variables on dependent variable while broken line shows indirect influence of one factor on to other (9,18,40,41).

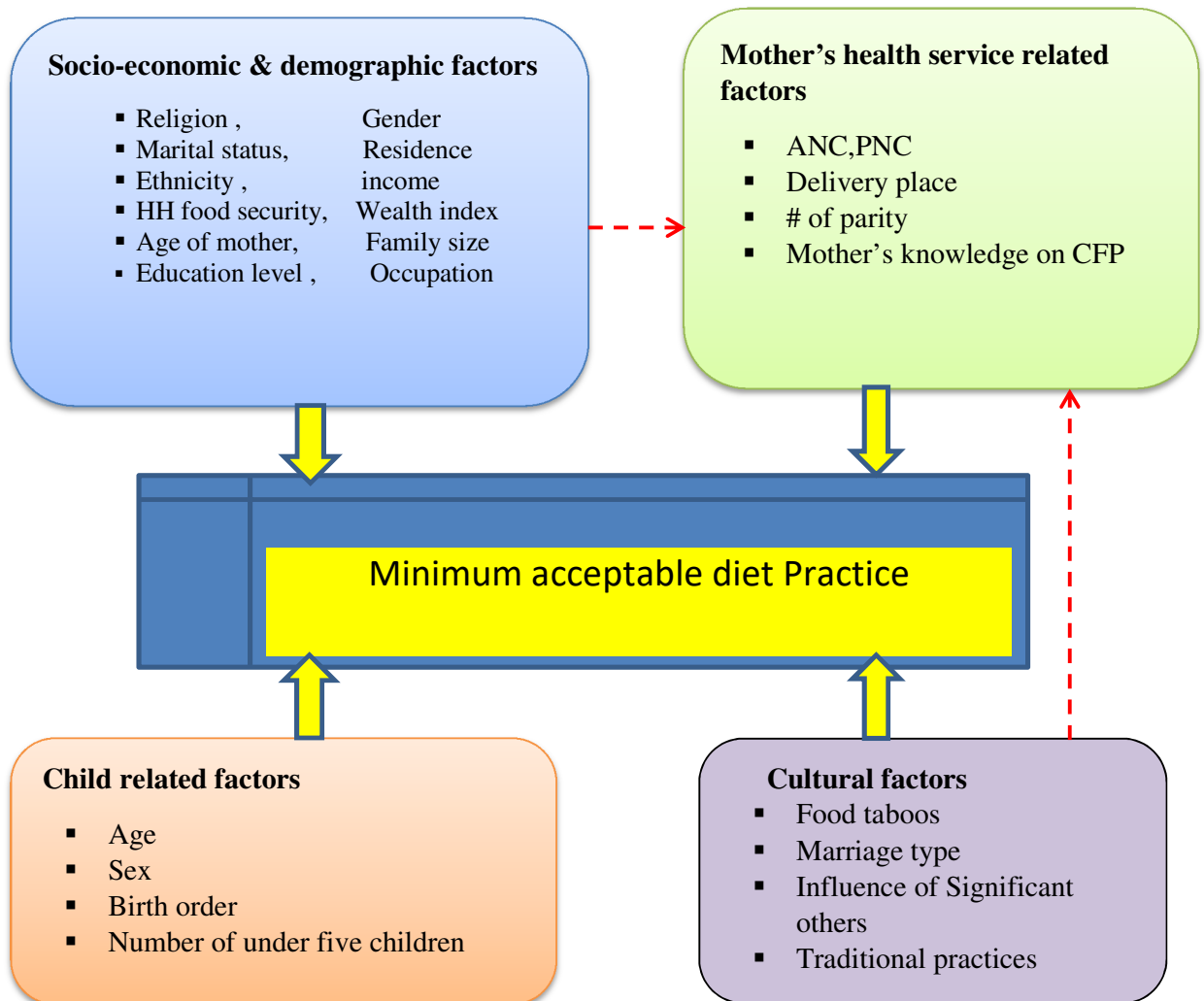


Figure 1.conceptual frame work of literature review adapted from other similar studies.

CHAPTER THREE

OBJECTIVES OF THE STUDY

3.1. General objective

To assess minimum acceptable diet practice and its associated factors among children aged 6-23 month in Alle special woreda, Southern Ethiopia

3.2. Specific objectives

- ✓ To determine magnitude of minimum acceptable diet practice among children aged 6-23 month in Alle special woreda, 2023
- ✓ To identify factors associated with minimum acceptable diet practice among children aged 6-23 month in Alle special woreda, 2023

CHAPTER FOUR

METHODS AND MATERIALS

4.1. Study setting and period

The study was carried out at Alle special woreda, SNNPR region, from March 1-30, 2023. Capital city of the Woreda is Kolango which located at 650km from Addis Ababa (Ethiopia's capital) and 422km from Hawassa (capital city of the region) at the south direction.. It is very remote and poorest in socio economy and infrastructure when compared with other special woreda's, and Zonal structures in the region. The Woreda's climate is 59% hot (kola) and 29% semi-hot (weyna dega), with the remaining 13% freezing (Dega). The livelihood of almost all population is based on cattle reproduction and farming system. The main crops grown in the area are wheat, maize, sorghum, soya been and teff. South of Gamo Zone, north of south Omo Zone, east of Derashe Special woreda, and western Konso Zone are all home to the special Woreda. There are 15 rural kebeles and 2 urban kebeles (the lowest administrative unit in Ethiopia) in the woreda. There are no hospital in the district, but about four health centers and eighteen health posts providing health service to the population. According to Alle special woreda population projection of 2014E.C based on 2007 census data, total population of the woreda is about 91,239 from which male population accounts 44,707. About 18,620 households are there in the woreda. Children aged 6–23 months and under five year constituted 3 % (2,662) & 15.6% (14,242) of the total population respectively.

4.2. Study Design

A community based cross-sectional study design was employed.

4.3. Source Population

Source population consisted of all children aged 6-23 month living in the Alle special woreda.

4.4. Study Population

The study population consisted of all children aged 6-23 months living in the selected kebele.

4.5. Eligibility Criteria

4.5.1. Inclusion Criteria:

All children aged 6-23 month whose women/care giver was permanent resident for at least 6 months.

4.5.2. Exclusion Criteria:

Child's mother or care giver who was severely ill, unable to hear and has mental problem during study period was excluded from the study. Severely ill child also excluded from the study.

4.6. Sample size determination and sampling technique

4.6.1. Sample size determination

For first objective: Sample size was calculated using a single proportion formula by considering prevalence of minimum acceptable diet (11.4%) (29) with confidence level of 95% and 5 % margin of error.

Having this information, Sample size determined as:-

$$n_o = (z_{\alpha/2})^2(pq)/d^2$$

$$n_o = (1.96)^2(0.114)(0.886)/(0.05)^2 = \underline{155}.$$

Since source population (**P**) are less than 10,000 and $\frac{n}{P} > 0.05$, it was appropriate to apply correction formula.

$$N = \frac{n_o}{1+(n_o/P)} = \frac{155}{1+155/2662} = \frac{155}{1+0.58} = \underline{147}$$

By taking design effect factor of 2 and non-response rate of 10%, maximum sample size determined for the first objective was about 323.

For second objective: The sample size calculated for factors associated with MADP that were significantly associated with outcome variables from previous studies and by considering two sided confidence level of 95%, and power of 80% using Epi Info 7 Stat Calc as illustrated below by table 1.

Table 1. Sample size determination for factors associated with minimum acceptable diet practices in Alle special woreda, southern Ethiopia, 2023.

Significant Factors	CI	Power	Ratio(un expose to exposed)	% outcome in un exposed	Odds ratio	% Out come in exposed	Sample size + 10% Response rate	Reference
PNC follow up	95%	80%	2.06	4.5	4.1	16.2	283	(37)
ANC follow up	95%	80%	0.26	16.15	3.4	39.6	226	(29).
Food security	95%	80%	6	20	2.92	42.2	318	(37)

As calculated above, sample size for first objective (323) was higher than that calculated for second objective. Therefore, it was taken as sample size for the study.

4.6.2. Sampling technique

Multi stage stratified sampling technique was used. First kebele was stratified as rural and urban and then by using simple random sampling, 1 kebele was selected from urban and 5 kebele from rural followed by proportional sample allocation (based on the population size of each kebele). By obtaining sampling frame from each kebele health post GMP & CHD registration, again simple random sampling method was applied to obtain 323 study participants from selected kebele. Finally randomly chosen households were visited and interviewed mothers/care givers of children aged 6-24 month.

4.6.3 Diagrammatic presentation of sampling scheme

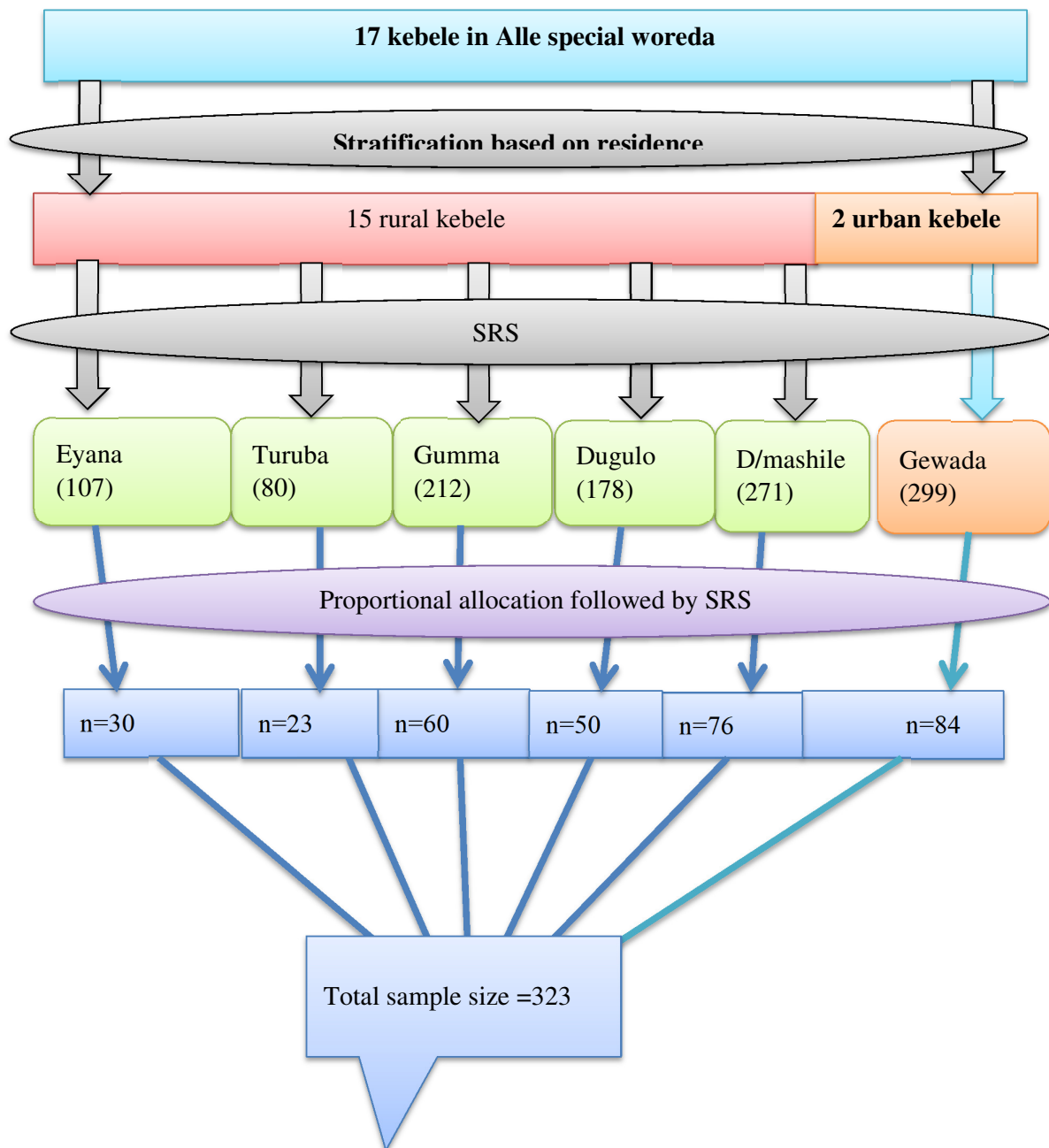


Figure 2. Diagrammatic presentation of sampling procedure of the mother-child pair of age 6–23 month in Alle special woreda, south Ethiopia, 2022 /2023.

4.7. Study Variables

4.7.1. Independent Variables

- **Socio-economic and demographic:** age, gender, marital status, family size, educational status, income, food security, wealth index, occupation, religion, ethnicity, residence,
- **Maternal Health service related:** ANC, PNC, place of delivery, parity and knowledge about CF.
- **Child related characteristics:** age, sex, birth order and Number of under-5 children in the HH
- **Cultural factors:** food taboos, marriage structure, cultural influence, influence of significant others

4.7.2. Dependent Variable

- Minimum acceptable diet practice

4.8. Data collection instrument and procedure

Data was collected using an interviewer-administered structured questionnaire that was adapted from different literature and the WHO 2021 IYCF guideline. It is organized into major sections such as socio-economic and demographic, maternal health service-related, child-related, and contextual factors. For dietary assessment and food security, a 24-hour dietary assessment and a household hunger scale were used, respectively. The data collection tool was prepared in English and then translated into Amharic by a health professional perfect in both languages, and again, it was translated back into English by another health professional to keep its consistency (2,6,9,15,29). The method of data collection was a face-to-face interview. It was done by interviewing mothers/care givers of children aged 6–23 months during a house-to-house visit. Absent households after three visits were considered non-respondents. Four diploma-holder nurses and two Health officers participated in the survey for data collection and supervision, respectively.

4.9. Operational Definition

Timely introduction of complementary feeding: The proportion of children 6–8 months who introduced to solid and semi-solid or soft foods on day preceding survey. All children consumed any solid, semi solid or soft food during survey was coded as 1 and otherwise coded as 0 (6).

Minimum dietary diversity: Proportion of 6-23 months children who received at least five food groups from total of eight food groups during previous 24 hours preceding survey(1,6). Children received at least five food groups were represented by 1 and all the rest represented by zero (0).

Minimum meal frequency: is the proportion of breastfed and non-breastfed children 6–23 months of age, who received solid, semi-solid, or soft foods by the minimum number of times or more during the previous day. Minimum is defined as 2 times for breastfed infants 6–8 months, 3 times for breastfed children 9–23 months, 4 times for non-breastfed children aged 6–23 months whereby at least one of the four feeds must be a solid, semi-solid or soft feed(6,37). Child who fulfilled minimum criteria was coded as 1 and otherwise coded as zero (0).

Minimum milk feeding frequency:- percentage of non-breastfed children 6–23 months of age who consumed at least two milk feeds during the previous day(6).

Minimum acceptable diet:-for breastfed children 6-23 month; receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day; for non-breastfed children 6-23 month; receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day as well as at least two milk feeds (6).

Knowledge about minimum diet feedings: was measured among respondents using 6 items. Each correct answer earned one point, and any wrong answer got zero. The calculated knowledge score ranged from 0 to 6 points. Those mothers scored mean or more were considered as having good knowledge, whereas those scored below mean value were characterized as poor knowledge (15).

Household wealth status: was measured by constructing wealth index from 22 questions through principal component analysis (PCA) and ranked as poorest, poorer, middle, rich and richest wealth index.

Household food security: was measured with the Household Hunger Scale (HHS) that has 9 items along with 9-frequency questions (9I 9 F). Response categories are never (0 times), rarely (1-2 times), sometimes (3–10 times), and often (more than 10 times). Therefore to define two groups: households reporting rarely to no hunger(never) in the past month classified as food secured households but those reporting moderate-to severe hunger in the past month classified as food-insecure households(37).

4.10. Data quality control and management

Data quality was ensured during instrument development, collection, coding, entry, and analysis. Adequate training was given to Data collectors and supervisors before the data collection period. The session of training included the objective of the study, significance of the study, confidentiality of information, respondent's rights, informed consent, pre-testing, interview techniques, how to record food items, and ways of communication during the data collection period. The pretest of the instrument was carried out in 32 households at Lalicho kebele, which is one of the unselected kebele. The result of the pretest was discussed with the data collectors, and important corrections and changes were made to the questionnaires accordingly. During the actual data collection, the Principal Investigator (PI) and the supervisors guide the whole process of data collection. The computed questionnaires were reviewed and checked for completeness by the supervisors and principal investigator, and the necessary feedback was offered to the data collectors.

4.11. Data process and analysis

The collected data was coded, cleaned, and entered using Epi-Info 7.1.1.14 and exported to the SPSS 20 statistical package for analysis. Descriptive statistics like graphs, frequency with percentage for qualitative data, and mean with standard deviation for quantitative data were used to describe the socio-economic and demographic characteristics as well as practice of MAD. To control the effect of potential confounders and identify the independent effect of the explanatory variable on the outcome variable, variables with a p-value less than 0.25 in bivariable logistic regression were considered candidates for multivariable logistic regression analysis. Before running multivariable logistic regression analysis, the assumptions of binary logistic regression were checked. Model fitness was checked with Hosmer and Lemeshow goodness of fit at p-value > 0.05. P-value and 95 % CI of OR were used to identify significant factors of the outcome variable. The strength of associations and statistical significances between independent variables and outcome variables were expressed using the OR and its 95 % confidence interval.

4.12. Ethical Consideration

A letter of ethical approval was obtained from the Institutional Review Board of Saint Paul's Hospital Millennium Medical College, and an official letter was obtained from the public health department for the concerned bodies. Similarly, permission letters were requested from the Alle special woreda health office to sub-administrative levels and health facilities. Before starting the interview, the data collector explained the purpose of the study to all the participants by confirming the confidentiality of their information and that it would never be used for purposes other than scientific research. They also informed that participation in the study was voluntary and autonomous. Participants were well informed about their right to stop responding at any time if they felt discomfort during the interview.

4.13. Dissemination of the Result

The final report of this study will be submitted and presented to SPHMMC societies in seminar, and efforts will be made to disseminate through publication and presentation in scientific conferences. Therefore information will be used for informed policy decisions, planning, monitoring, and evaluation of programs on health in general and child health in particular at both the national and regional level.

CHAPTER FIVE

RESULT

5.1. Socio-economic and demographic characteristics

Out of 323 sampled mothers, 318 mother-child pairs participated in the study, yielding a response rate of 98.5% and mean age of them were 29 year $\pm$ 4.8 standard deviations. Majority of mothers, 302 (95%) were married, 165 (51.9%) were followers of the protestant religion and 295(92.8%) were Alle in ethnicity.

In terms of educational attainment, about 194 (61%) mothers had no formal education (illiterate), 65(20.4%) had primary education and only 16 (5%) of them joined higher level of education. Similarly 145(45.6%) fathers had no formal education followed by secondary education. Occupations of vast majority, 279 (87.7%) mothers and 251 (78.9%) fathers were housewives and farmers, respectively.

Regarding households' food security, 154 (48.4%) study participants were from food secured households, while the rest were from food insecure households. Likewise wealth statuses of 63 (19.8%) households were in the poorest wealth status rank. The details of sociodemographic characteristics illustrated bellow by table ([see table 2](#)).

Table 2. Socio- demographic & economic characteristic of mothers of children 6–23 month in Alle special woreda, SNNPR, Ethiopia, 2023(n = 318).

Variables	Categories	Frequency	Percentage
Age of mother	<=24yr	55	17.3
	25-29yr	134	42.1
	30-34yr	84	26.4
	>=35yr	45	14.2
Marital status	Married	302	95.0
	Divorced	9	2.8
	Widowed	7	2.2
Religion	Orthodox	149	46.9
	Protestant	165	51.9
	Traditional	4	1.3
Ethnicity	Alle	295	92.8
	Others	23	7.2
Residence	Rural	234	73.6
	Urban	84	26.4
Mother education	Illiterate	194	61.0
	Primary education	65	20.4
	Secondary education	43	13.5
	Higher level education	16	5
Father education	Illiterate	145	45.6
	Primary education	67	21.1
	Secondary education	71	22.3
	Higher level education	35	11.0
Mother occupation	Gov,t employee	19	6.0
	House wife	279	87.7
	Others	20	1.9
Father occupation	Gov,t employee	35	11
	Farmer	251	78.9
	Others	32	5.7
Family size	<=3	46	14.5
	4-6	166	52.2
	>=7	106	33.3
HH wealth index	Poorest	63	19.8
	Poorer	64	20.1
	Middle	65	20.4
	Rich	64	20.1
	Richest	63	19.8
HH food security status	Food in-secured	164	51.6
	Food secured	154	48.4

5.2. Maternal health service and child related characteristics

According to this Study, 49(15.4%) mothers gave birth at home, 293 (92.1%) attended ANC, and 249 (78%) attended at least one PNC visit. Of 318 children enrolled in the study, 169 (53.1 %) were males, 106 (33.3%) were in age category of 12-17 months next to age category of 6-11 month and over all mean age of them were 12.94 ± 4.99 SD months (see table 3).

Table 3. Maternal health service and child related characteristics of children 6–23 month in Alle woreda, SNNPR, Ethiopia, 2023(n = 318).

Variables	Categories	Frequency	Percentage
ANC follow up	No	25	7.9
	Yes	293	92.1
Frequency of ANC	One time	24	7.5
	Two time	74	23.3
	>=three	195	61.3
Place of delivery	Home	49	15.4
	Health facility	269	84.6
PNC visit	No	69	21.7
	One visit	99	31.1
	Two visit	121	38.1
	Three and above	29	9.1
Sex of child	Male	169	53.1
	Female	149	46.9
Age of child (in month)	6-11	118	37.1
	12-17	106	33.3
	18-23	94	29.6
Birth order of index child	First	60	18.9
	Second	87	27.4
	Third	67	21.1
	Fourth	104	32.7

5.3. Culture and context related factors

Of the total respondents, 289 (90.9%) mothers have had decision on what child should eat, 118(37.1%) husbands were married with two and more wives (polygamy). About 222(69.8%) mothers had got information about child feeding practices from health extension workers/other health workers followed by from grandparents(44 or 13.8%) (See table 4).

Table 4.culture and context related characteristics on child feeding in Alle special woreda, SNNPR, Ethiopia, 2023(n = 318).

Variables	Categories	Frequency	Percentage
Who decide what child eat	Mother	289	90.9
	Father	7	2.2
	Grand parents	19	6.0
	Others	3	.9
Source of information	Health professional	222	69.8
	Grand parents	44	13.8
	Partner	24	7.5
	Social media	8	2.5
	Social gathering	20	6.3
Child care responsibility	Mother	140	44.0
	Father	7	2.2
	Grand parents	8	2.5
	Older children	17	5.3
	Jointly	146	45.9
Cultural practice influence	No	302	95.0
	Yes	16	5.0
Food taboos	No	315	99.1
	Yes	3	.9
Marriage type	Monogamy	200	62.9
	Polygamy	118	37.1

5.4. Minimum acceptable diet status

5.4.1. Prevalence of food groups

From Eight food groups assessed during survey; Cereals (302 or 95%), breast feeding (276 or 86.8%), and other fruit and vegetable (170 or 53.5%) were the most commonly consumed food groups in 24 hours preceding the survey while lowest prevalence reported for flesh foods (26 or 8.2%)(See fig.3).

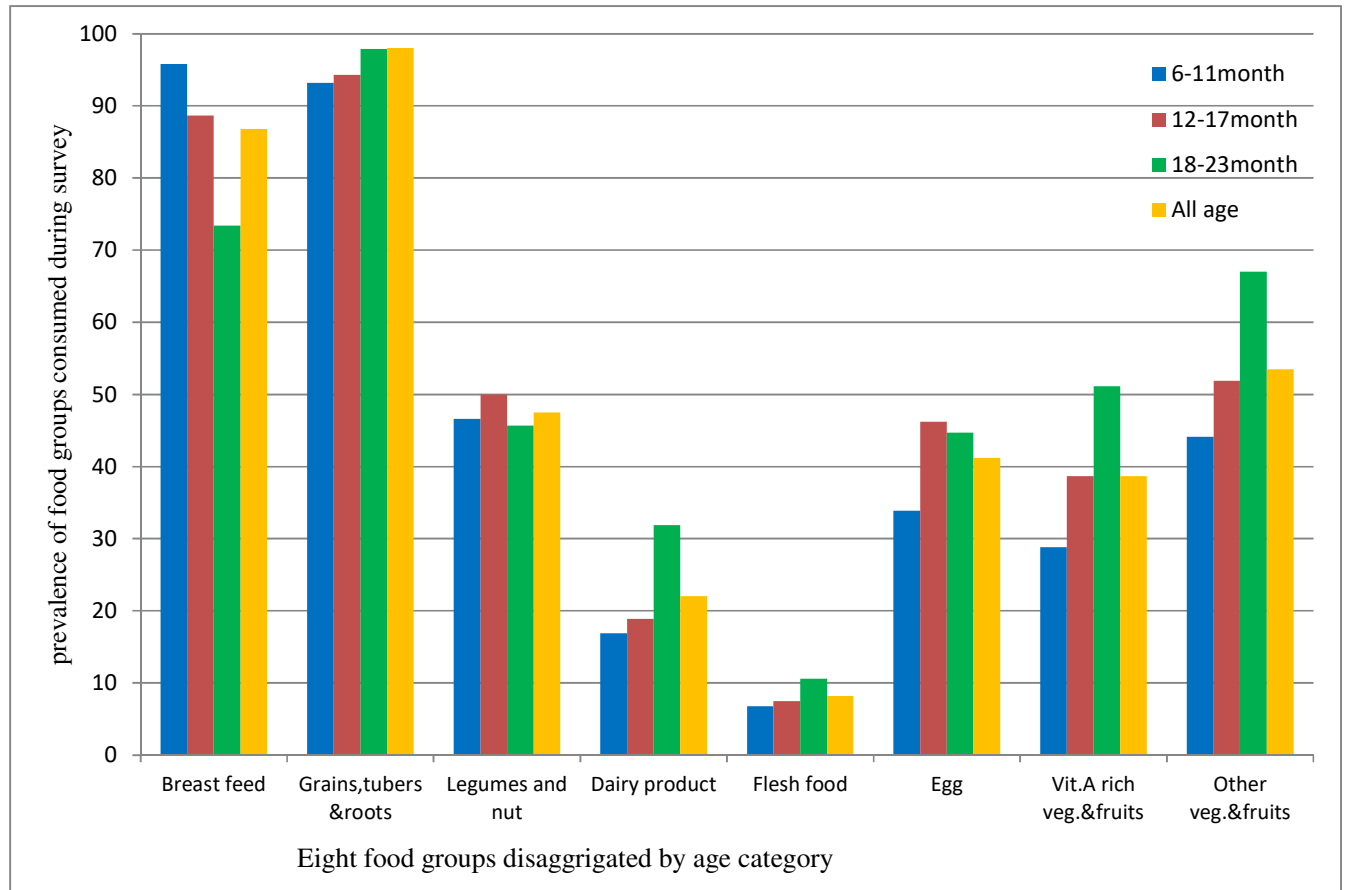


Figure 3. Types of food groups given to children aged 6–23 months during survey in Alle special woreda, SNNPR, Ethiopia, 2023 (n = 318).

5.4.2. Prevalence of minimum acceptable diet practice

Out of 318 respondents, 170 (53.5%) mothers had good knowledge about minimum acceptable diet feeding practice. About 91 (28.6%) mothers offered five or more food groups (the minimum recommended diversity) to their child during day preceding the survey. Most (286 or 90%) of children satisfied minimum criterion of meal frequency based on their respective age category as recommended and only 15 (36%) children satisfied minimum milk food frequency out of 42(13.2%) non-breast feeding. Percentage of children 6–23 months of age who consumed a minimum acceptable diet during the previous day of survey were 25.8% (82) (see fig 4).

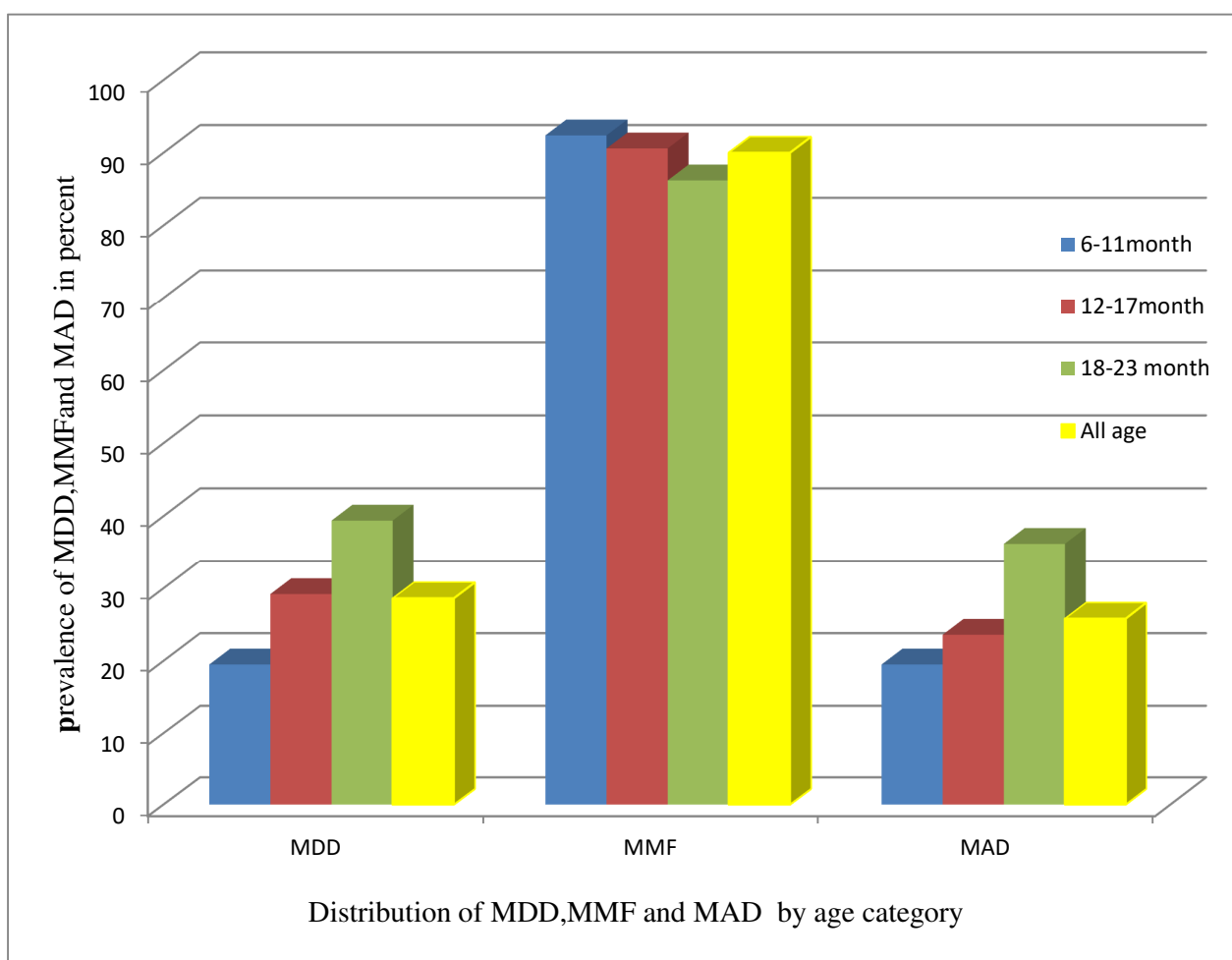


Figure 4 prevalence of minimum acceptable diet practice among children aged 6–23 months in Alle special woreda, SNNPR, Ethiopia, 2023(n = 318)

5.5. Factors associated with minimum acceptable diet practice

To determine the association between minimum acceptable diet practice and its determinants; independent Variables with p-value <0.25 during bivariate logistic regression analysis were considered as candidate variable for multivariable logistic regression analysis to account for potential confounders.

Based on the bivariable logistic regression analysis results (P-values <0.25) the variables selected for inclusion in the multivariable regression model were Maternal knowledge, maternal age, mothers occupation, residence, post-natal visit, child age, birth order of index child, marriage type, wealth index, and food security status were the selected candidate variables based on predefined cut point for multivariable logistic regression analysis.

Findings of multivariable logistic analysis revealed that household food security (AOR = 3.13; 95% CI: 1.75, 5.59; P <0.001), maternal knowledge (AOR = 2.02; 95% CI: 1.14, 3.59; P = 0.016), marriage type (father married with more than one woman) (AOR = 3.51; 95% CI: 1.83, 6.73; P<.001), post-natal visit three and above (AOR=4.73; 95% CI: 1.71, 13.11; P =.003), and child age between 18 and 23 months (AOR = 2.57; 95% CI: 1.29, 5.11; P =.007) were statistically significant factors associated with the dependent variable. This finding presented below by Table 5 that illustrated candidate and significant factors associated with minimum acceptable diet feeding practice among mothers with children aged 6–23 months ([see table 5](#)).

Table 5 Candidate and significant Factors associated with minimum acceptable diet practice, among children aged 6-23 month in Alle special woreda, South Ethiopia 2023

Variables	Categories	Minimum acceptable diet practice		COR(95%CI)	AOR(95%CI)
		Met (%)	Not met (%)		
Knowledge about MAD	Poor knowledge	30(20.3)	118(79.7)	1	1
	Good knowledge	52(30.6)	118(69.4)	1.73(1.03, 2.91)*	2.02(1.14, 3.59)*
Residence	Rural	55(23.5)	179(76.5)	1	1
	Urban	27(32.1)	57(67.9)	1.54(.89, 2.66)	1.22(.63, 2.40)
Frequency of PNC visit	No	15(21.7)	54(78.3)	1	1
	One visit	21(21.2)	78(78.8)	.97(.46, 2.05)	1.12(.49, 2.52)
	Two visit	30(24.8)	91(75.2)	1.19(.59, 2.40)	1.38(.64, 2.98)
	Three & above visit	16(55.2)	13(44.8)	4.43(1.75, 11.22) *	4.73(1.71, 13.11)**
Wealth index	Poorest	18(28.6)	45(71.4)	1	1
	Poorer	15(23.4)	49(76.6)	.77(.35, 1.69)	.79(.32, 1.94)
	Middle	12(18.5)	53(81.5)	.57(.25, 1.30)	.50(.20, 1.26)
	Rich	16(25.4)	47(74.6)	.85(.39, 1.87)	1.03(.43,2.51)
Birth order	Richest	21(33.3)	42(66.7)	1.25(.59, 2.67)	1.36(.58, 3.18)
	First	17(28.3)	43(71.7)	1	1
	Second	21(24.1)	66(75.9)	.81(.32, 1.69)	1.16(.46, 2.95)
	Third	11(16.4)	56(83.6)	.49(.21, 1.17)	.69(.24, 1.99)
	Fourth	33(31.7)	71(68.3)	1.18(.59, 2.36)	1.49(.54, 4.14)
Food security	Food insecure	26(15.9)	138(84.1)	1	1
	Food secured	56(36.4)	98(63.6)	3.03(1.78, 5.17) *	3.13(1.75, 5.59) **
Mother occupation	House wife	69(24.7)	210(75.3)	1	1
	Gov,t employee	7(36.8)	12(63.2)	1.78(.67, 4.69)	1.80(.53, 6.18)
	Other	6(30)	14(70)	1.30(.48, 3.53)	.80(.26, 2.44)
Age of child	6-11 month	23(19.5)	95(80.5)	1	1
	12-17 month	25(23.6)	81(76.4)	1.28(.67, 2.42)	1.11(.55, 2.22)
	18-23 month	34(36.2)	60(63.8)	2.34(1.26, 4.35) *	2.57(1.29, 5.11)**
Age of mother	<=24yr	17(30.9)	38(69.1)	1	1
	25-29yr	32(23.9)	102(76.1)	.70(.35, 1.41)	.65(.29, 1.44)
	30-34yr	18(21.4)	66(78.6)	.61(.28, 1.32)	.48(.20,1.16)
	>=35yr	15(33.3)	30(66.7)	1.12(.48, 2.60)	.92(.35, 2.42)
Marriage type	Polygamy	16(13.6)	102(86.4)	1	1
	Monogamy	66(33)	134(67)	3.14(1.72, 5.74)**	3.51(1.83,6.73) **

Double star (**) indicates significance at $p < 0.01$, single star (*) indicates significance at $p < 0.05$, 1- Indicates contrasted reference category, COR- Crude odd ratio, AOR- Adjusted odd ratio.

CHAPTER SIX

DISCUSSION

6.1. Minimum acceptable diet practice

To reduce malnutrition in a developing country like Ethiopia, adequate and safe infant and young child feeding practice is crucial. According to the current study, magnitude of minimum acceptable diet was about 25.8%. This finding was in line with findings from systemic review done in Ethiopia (25.69%) (30), Ghana(29.9%) (27) and North Ghana (27.8%) (26). However, it was lower to other similar studies conducted in Debreberhan town (31.6%) (33), Dawro zone (35.5%) (32), Shashemene (41.7%) (15), Addis Ababa (74.6%)(14) and other countries like Northern Tanzania(60%) (24), Nigeria(47.0%) (25) and Bangladesh (34.7%) (28). The variation might be because of different study settings and study periods; this study was conducted in the rural communities whereas the above study was conducted in urban communities. Moreover the differences might be contributed by study design, sample size and difference in socio-cultural/demographic characteristics.

In contrary, the result was higher compared with the national prevalence (7 %) report of EDHS 2016(20), MEDHS(11%) (21) , rural community of Damot sore (11.4%) (29) Lalibela(16.7) (31), rural community of Goncha District (12.6%) (5) and Nigeria (7.3%) (17). The difference might be due to that EDHS was conducted on a culturally different population, which may under estimate child feeding practices. Besides this, the DHS covers both rural and urban areas, which reduces the figure while this study was conducted on an almost culturally homogeneous population with similar feeding practices. Furthermore, the reason for a high percentage of feeding practice compared to other countries might be due to variations in study design, data collection period and guideline change since indicators of this study computed based on 2021 WHO IYCF guideline.

6.2. Factors associated with minimum acceptable diet

Findings of this study revealed that household food security, maternal knowledge, marriage type, post-natal visit three and above, and child age between 18 and 23 months were statistically significant factors associated with minimum acceptable diet feeding practice among children aged 6-23 month.

Accordingly mothers who had good knowledge about child feeding were two times more likely to feed their children with minimum acceptable diet when compared to those who had poor knowledge. This finding highly supported by study conducted in Sidama zone (37) Labella (31), Debreberhan (33), Shashemene (15) and systematic review done in Ethiopia (10). This indicate that knowing feeding frequency based on child age and variety of foods leads the mother/ care givers to give acceptable diet timely throughout all seasons. This implies that improving mothers/caregivers' knowledge of general nutrition had a positive impact on IYCF and child health.

The study also revealed that Odds of providing minimum acceptable diet feeding to their children among mothers from food secured families were three times higher when compared to those from food unsecured families. This was similar with findings from Sidama zone (37), Malawi (34) and Ghana (27). This might indicate that poor accessibility and affordability of food in the household could hamper minimum acceptable diet feeding practices. Likewise odds of satisfying criteria of minimum acceptable diet feeding among children aged 6-11 month were approximately three times lower when compared to those whose age 18-23 month. Study done in western Ethiopia (9), Dawro zone (32), Goncha district (5), Shashemene (15) and Addis Ababa (14) were strong evidences supporting the current study. A possible reason for this finding may be that as the age of the child increases, the ability to digest and absorb different types of food increases, and mothers/caregivers are therefore diversifying their meals accordingly. Perhaps mothers/caregivers believe that providing different types of food and increasing the feeding frequency for older children is positive, while in younger children they are afraid that they could harm the child or cause an illness by feeding them a variety of foods.

Number of post-natal care visit more than two times was also identified as independent factor of minimum acceptable diet feeding practice. So that child whose mother attended three post-natal care visits was five times more likely to achieve requirements of minimum acceptable diet than those whose mother not attended PNC visit. This finding was in line with similar study from Sidama zone (37) Lasta district (38), rural sore district (39), Damote weydie (40) and Benishangul gumuz (3). Possible reason could be that one of the packages of postnatal care is infant feeding and healthcare professionals may usually advise them to feed their babies appropriately which can also help them in avoiding traditional beliefs that might inhibit child feeding practices. This highlights that postnatal care is crucial not only in treating maternal and neonatal health illnesses, but also it improves infant's nutrition.

Furthermore this study revealed that children from monogamy family (father married with one women) were four times more likely to achieve minimum acceptable diet feeding than those from polygamy family (father married with more than one women).specifically this finding only supported by study conducted in Lubao and Kenya (35,36). The possible explanation could be that being married with multiple women may results in house hold resources reduction and poor support for mothers/care givers especially during difficult seasons. It also may be brings disagreement that leads to child ignorance in terms of proper care and diet feeding practice.

7. STRENGTH AND LIMITATION OF THE STUDY

Even though this study addressed minimum acceptable diet practice and associated factors in Alle special Woreda, it should be interpreted with the following strength & limitations.

Strength of the study

This study was conducted in rural setting where there was no clear evidence of similar studies conducted so far. Primary data that collected from the respondents at community level was one of the strength of the study. Other side that considered as strength of this study was using new WHO IYCF guideline, as it is recent and validated.

Limitation of the study

Because of cross-sectional nature of the study design that collects point-in-time data, it does not show a cause-and-effect relationship. The figure of this study may have been overestimated or underestimated due to recall and social desirability biases that may have been introduced at the time of initiation, diversity, and frequency of food. Another limitation of this study was that the 24-hour dietary diversity recall may only show the most recent feeding and requires repeated measurements. Seasonal variations might affect the food groups consumed by the infants and young children during the time of the interview

8. CONCLUSION AND RECOMMENDATION

8.1. Conclusion

Minimum acceptable diet practice among children aged 6–23 months in the study area was low, almost one from four children meet the recommended minimum criteria. So, child feeding practices in the study area were not achieved the national infant and young child feeding recommendation. Determinant Factors that significantly affects minimum acceptable diet practice were maternal knowledge about child feeding, house hold food security status, post-natal visit, age of the child and marriage type. This implies that the problems are range from individual to household level, community level and even may go through at large in the country level. Therefore, it is essential to raise the awareness of the community regarding the minimum acceptable diet feeding practices, with special attention on diversity of food considering significantly associated factors.

8.2. Recommendations

Previous studies reported that inappropriate complementary feeding was responsible for two thirds of child deaths; however, MAD is low in this study. So, to scale up this to meaningful levels, the following concerned bodies should pay special attention towards IYC nutrition.

For Regional and woreda administrative;

- ✓ Promoting the socioeconomic status of the community, particularly poor households with low food guaranty through multidisciplinary/inter-sectoral collaboration engagement to improve child feeding practice.
- ✓ Special attention should be given to cultural practices and norms that directly or indirectly impacts health of infant and young children for instance culture of polygamy.

For health system;

- ✓ Educational/counseling intervention on nutrition for mothers or caregivers is essential for improving infant and young child feeding practices, particularly for mothers with younger children about, time, variety, quantity, and frequency of food
- ✓ Health professionals should carefully follow up mothers in PNC service with in 24 hour as first PNC visit and link to health extension after proper counseling to maintain regular visit which can have positive outcome in later times of child feeding.
- ✓ Home to home visit is proposed for health extension workers, site supervisors/supporter and HDA to trace non-PNC users in the community.
- ✓ Health development army trainings should be promoted for mothers especially those with poor knowledge about proper child feeding practice as knowledgeable mothers were more likely to feed their child properly.

For Researchers

- ✓ A large-scale longitudinal study will be proposed to the researcher in order to arrive at the true figure.
- ✓ promoting qualitative research to explore sociocultural and behavioral related factors toward complementary feeding

9. REFERENCE

1. Nurokhmah S, Middleton L, Hendarto A. Prevalence and predictors of complementary feeding practices among children aged 6-23 months in Indonesia. *J Prev Med Public Heal*. 2022;549–58.
2. Hailu D, Tilahun A, Dagnew Y. Complementary feeding practice and its determinants among mothers with children 6 to 23 months of age in finote selam, Ethiopia. *Pan Afr Med J*. 2021;40.
3. Ayana D, Tariku A, Feleke A, Woldie H. Complementary feeding practices among children in Benishangul Gumuz Region, Ethiopia. *BMC Res Notes*. 2017;10(1):1–8.
4. UNICEF. Improving Young Children’s Diets During The Complementary Feeding Period. *UNICEF Program Guid*. 2020;76.
5. Birie B, Kassa A, Kebede E, Terefe B. Minimum acceptable diet practice and its associated factors among children aged 6–23 months in rural communities of Goncha district, north West Ethiopia. *BMC Nutr*. 2021;7(1):1–9.
6. Indicators for assessing infant and young child feeding practices.
7. Fewtrell M, Bronsky J, Campoy C, Domellöf M, Embleton N, Mis NF, et al. Complementary feeding: A position paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) committee on nutrition. *J Pediatr Gastroenterol Nutr*. 2017;64(1):119–32.
8. World Health Organization. Complementary Feeding: Family foods for breastfed children. *Dep Nutr Heal Dev*. 2000;1–56.
9. Fanta M, Cherie HA. Magnitude and determinants of appropriate complementary feeding practice among mothers of children age 6–23 months in Western Ethiopia. *PLoS One* [Internet]. 2020;15(12 December):1–11. Available from: <http://dx.doi.org/10.1371/journal.pone.0244277>
10. Dagne AH, Zewude SB, Semahegn AM. Appropriate Complementary Feeding Practice and Its Associated Factors among Mothers Who Have Children Aged between 6 and 24 Months in Ethiopia: Systematic Review and Meta-Analysis. *J Nutr Metab*. 2022;2022.
11. Mokori A, Schonfeldt H, Hendriks SL. Child factors associated with complementary feeding practices in Uganda. *South African J Clin Nutr*. 2017;30(1):24–31.

12. Kassa T, Meshesha B, Haji Y, Ebrahim J. Appropriate complementary feeding practices and associated factors among mothers of children age 6-23 months in Southern Ethiopia, 2015. *BMC Pediatr* [Internet]. 2016;16(1):1–10. Available from: <http://dx.doi.org/10.1186/s12887-016-0675-x>
13. Berhanu Z, Alemu T, Argaw D. Predictors of inappropriate complementary feeding practice among children aged 6 to 23 months in Wonago District, South Ethiopia, 2017; Case control study. *BMC Pediatr*. 2019;19(1):1–13.
14. Abebe H, Gashu M, Kebede A, Abata H, Yeshaneh A, Workye H, et al. Minimum acceptable diet and associated factors among children aged 6–23 months in Ethiopia. *Ital J Pediatr*. 2021;47(1):1–10.
15. Ahmed JA, Sadeta KK, Lenbo KH. Magnitude and factors associated with appropriate complementary feeding practice among mothers of children 6–23 months age in Shashemene town, Oromia- Ethiopia: Community based cross sectional study. *PLoS One* [Internet]. 2022;17(3 March):1–23. Available from: <http://dx.doi.org/10.1371/journal.pone.0265716>
16. Temesgen H, Negesse A, Woyraw W, Mekonnen N. Dietary diversity feeding practice and its associated factors among children age 6-23 months in Ethiopia from 2011 up to 2018: A systematic review and meta-analysis 11 Medical and Health Sciences 1117 Public Health and Health Services. *Ital J Pediatr*. 2018;44(1):1–10.
17. Udoh EE, Amodu OK. Complementary feeding practices among mothers and nutritional status of infants in Akpabuyo Area, Cross River State Nigeria. *Springerplus*. 2016;5(1).
18. Gudeta AN, Andrén Aronsson C, Balcha TT, Agardh D. Complementary Feeding Habits in Children Under the Age of 2 Years Living in the City of Adama in the Oromia Region in Central Ethiopia: Traditional Ethiopian Food Study. *Front Nutr*. 2021;8(October):1–7.
19. Jones AD, Ickes SB, Smith LE, Mbuya MNN, Chasekwa B, Heidkamp RA, et al. World Health Organization infant and young child feeding indicators and their associations with child anthropometry: A synthesis of recent findings. *Matern Child Nutr*. 2014;10(1):1–17.
20. Farag RS, Abdel Latif MS, Abd El-Gawad AE, Dogheim SM. Monitoring of pesticide residues in some Egyptian herbs, fruits and vegetables. Vol. 18, *International Food Research Journal*. 2011. 659–665 p.

21. Ethiopian Public Health Institute (EPHI), ICF. Ethiopia Mini Demographic and Health Survey 2019: Final Report [Internet]. 2021. 1–207 p. Available from: <https://dhsprogram.com/pubs/pdf/FR363/FR363.pdf>
22. The federal Democratic republic of Ethiopia. Government of Ethiopia National Nutrition Program, 2016-2020. 2015;(July 2016):1–83.
23. Gewa CA, Leslie TF. Distribution and determinants of young child feeding practices in the East African region: Demographic health survey data analysis from 2008-2011. *J Heal Popul Nutr* [Internet]. 2015;34(1):1–14. Available from: ???
24. Masuke R, Msuya SE, Mahande JM, Diarz EJ, Stray-Pedersen B, Jahanpour O, et al. Effect of inappropriate complementary feeding practices on the nutritional status of children aged 6-24 months in urban Moshi, Northern Tanzania: Cohort study. *PLoS One* [Internet]. 2021;16(5 May):1–16. Available from: <http://dx.doi.org/10.1371/journal.pone.0250562>
25. Olatona, MBBS, MPH, FMCPH FA, Adenihun, MBBS JO, Aderibigbe, MBBS, MPH, FWACP SA, Adeniyi, MBBS, FMCPaed OF. Complementary Feeding Knowledge, Practices, and Dietary Diversity among Mothers of Under-Five Children in an Urban Community in Lagos State, Nigeria. *Int J Matern Child Heal AIDS*. 2017;6(1):46–59.
26. Saaka M, Wemakor A, Abizari AR, Aryee P. How well do WHO complementary feeding indicators relate to nutritional status of children aged 6-23 months in rural Northern Ghana? *BMC Public Health* [Internet]. 2015;15(1):1–12. Available from: <http://dx.doi.org/10.1186/s12889-015-2494-7>
27. Issaka AI, Agho KE, Burns P, Page A, Dibley MJ. Determinants of inadequate complementary feeding practices among children aged 6-23 months in Ghana. *Public Health Nutr*. 2015;18(4):669–78.
28. Alam M, Rahman W, Munny S. Heliyon Determinants of meeting the minimum acceptable diet among children aged 6 to 23 months in Bangladesh : Evidence from a national representative cross-sectional study. *Heliyon* [Internet]. 2023;9(6):e17560. Available from: <https://doi.org/10.1016/j.heliyon.2023.e17560>
29. Areja A, Yohannes D, Yohannis M. Determinants of appropriate complementary feeding practice among mothers having children 6-23 months of age in rural Damot sore district, Southern Ethiopia; A community based cross sectional study. *BMC Nutr*. 2017;3(1):1–8.
30. Ambaw G, Id K, Gebrekidan AY, Enaro EY. Minimum acceptable dietary intake among

- children aged 6 – 23 months in Ethiopia: A systematic review and meta-analysis. 2023;1–13. Available from: <http://dx.doi.org/10.1371/journal.pone.0287247>
31. Of J, Science N. Journal of nutritional science. 2023;1–8.
 32. Feleke FW, Mulaw GF. Minimum Acceptable Diet and its Predictors among Children Aged 6-23 Months in Mareka District , Southern Ethiopia : Community Based Cross-Sectional Study. 2020;202–11.
 33. Molla A, Egata G, Getacher L, Kebede B, Sayih A, Arega M, et al. Minimum acceptable diet and associated factors among infants and young children aged 6 – 23 months in Amhara region , Central Ethiopia : community- - based cross- - sectional study. 2021;1–10.
 34. Nkoka O, Mhone TG, Ntenda PAM. Factors associated with complementary feeding practices among children aged 6-23 mo in Malawi: An analysis of the Demographic and Health Survey 2015-2016. *Int Health*. 2018;10(6):466–79.
 35. Karigi LN, Mutuli LA. Socio-cultural practices and beliefs influencing infant and young child feeding in lubao sub-location Kakamega Country. 2016;5(1):568–71.
 36. Kimiywe J, Chege P. Teel 2.Pdf. *J Appl Biosci* [Internet]. 2015;85(1):7881. Available from:<http://dx.doi.org/10.4314/jab.v85i1.10%0Ahttp://www.ajol.info/index.php/jab/article/view/113599>
 37. Birhanu M, Abegaz T, Fikre R. Magnitude and Factors Associated with Optimal Complementary Feeding Practices among Children Aged 6-23 Months in Bensa District, Sidama Zone, South Ethiopia. *Ethiop J Health Sci*. 2019;29(2):153–64.
 38. WW B, KK A. Complementary Feeding Practice and Associated Factors among Mothers of Children 6-23 Months of Age in Dejene District, Northwest, Ethiopia 2015. *J Community Med Health Educ*. 2017;07(02).
 39. Yohannes B, Ejamo E, Thangavel T, Yohannis M. Timely initiation of complementary feeding to children aged 6-23 months in rural Soro district of Southwest Ethiopia: A cross-sectional study. *BMC Pediatr*. 2018;18(1):1–7.
 40. Epheson B, Birhanu Z, Tamiru D, Feyissa GT. Complementary feeding practices and associated factors in Damot Weydie District, Welayta zone, South Ethiopia. *BMC Public Health*. 2018;18(1):1–7.
 41. Ahmed JA, Sadeta KK, Lembo KH. Complementary Feeding Practices and Household Food Insecurity Status of Children Aged 6-23 Months in Shashemene City West Arsi Zone, Oromia, Ethiopia. *Nurs Res Pract*. 2022;2022.

APPENDIX

A. Information sheet

Date: -----

Hello, how are you? My name is _____. I provide the information about the researcher Kusheta Kussie who is Masters Student at St, Paul's Hospital Millennium Medical College. You are invited to participate in this study that involves research in Prevalence and associated factors of minimum acceptable diet feeding among children aged 6-23 month in Alle special woreda, South Region, Ethiopia.

The aim and purpose of this research is to assess minimum acceptable diet practice among children age 6-23 month and to generate evidence. The study is expected to enroll 323 participants. We will conduct this study in Alle special woreda. It will involve the following procedures. I am going to ask you the structured questionnaire and you will be answer. All answer that you will answer is accepted as correct .If you are willing enough to participate in the study; you will spend only 30 minutes.

The study may have discomforting information that makes you minimum discomfort to disclose your experience but it is opportunity for you because information you provide may save the life of many children. This study has been ethically reviewed and approved by the Saint Paul's millennium medical College research Ethics Committee (approval number: [PM23\2\2023](#)).

In the event of any problems or concerns/questions you may contact the researcher Kusheta Kussie, GMPH students. I kindly let you know that all of the answers you provide me will be kept secret. The record of your name or address will not be kept by the researcher. Any information from the participants like raw data will be stored securely and kept confidential. The publications that will arise from this study will exclude any information that will make it possible to identify the participants' name or identity.

B: Ascent form

I selected participant that can read/listen and understood the information written on the study information sheet and understood the purpose, benefit and what is required from them if they take part in the study. They should understood that all the information regarding them like name and all answers given by them must not be available on the questionnaire and not transferred to a third party. Participants also understood that they can decide whether or not to take part in the study or even withdraw from the study at any time.

Signature of the participant-----Date-----

Facilitator Name-----sign-----Date-----

In case you need to contact, Contact Address of the Investigator,

Name: Kusheta Kussie

Phone: 0941620274/0929707121

Email address: kushetakusse@gmail.com

C. Data collection tool (English format)

Saint Paul's millennium medical College School of public health

Questionnaire to assess the Prevalence and associated factors of complementary feeding practice among children aged 6-24 month at Alle special woreda,

PART- 1: Information on socio-economic & demographic characteristic			
No	Questions	Alternative responses(coding category)	Skip Code
1	What is Age of the mother?	_____	
2	What is your current Marital status?	1. married 2.divorce 3.widowed 4.other (specify)_____	
3	What is your Religion?	1. Orthodox 2. Protestant 3.Traditional religion 5.Other (Specify)_____	
4	What is your Educational level?	1. Illiterate 2. Read and write only 3. Elementary 4. Secondary and preparatory school 5. College or university graduate	
5	What is father's educational level?	1. Illiterate 2. Read and write only 3. Elementary 4. Secondary and preparatory school 5. College or university graduate	
6	Where is your Place of residence?	1. Urban 2. Rural	
7	What is your Ethnicity?	1. Alle 2.konso 3. Derashe 4. Gamo 5. Others (Specify)_____	
8	What is size of your family?	_____	
9	What is Mothers/caretakers occupation?	1. Housewife 2. Daily Labor 3. Gov't employee 4. Private employee 5. Students 6. Merchant	
10	What is Occupation of the father?	1. Gov't employee 2. Farmer 3.Merchant 4.Daily laborer 5. Private employee	
11	What is your major source of food?	1.Farming 2.Market purchase 3.other(specify)_____	
12	How much are your average monthly income in ETB?	1/≤999 2/1000–2999 3/ 3000–3999 4/ ≥4000	
PART 2- MATERNAL HEALTH SERVICE RELATED			
13	Did you Attend ANC services?	1. Yes 2. No	
14	If yes for Q13, how many?	1. One time 2. Two times 3. Three and above	
15	Did you Attend Post-natal care?	1.Yes 2.No	
16	If yes for Q15, how many times?	1.0-2days 2. 3-6days 3. 7days & above	
17	Where was your Place of delivery?	1. Home 2.Health institution 3.other (.....)	
18	What is parity status of the mother?	1. Prim parous 2.Multiparous (2–4) 3. Grand multipara (5+)	
PART 3: CHILD RELATED INFORMATION			
19	What is Age of the child in month?	_____	

			Animal milk		
			Liquid Yogurt		
			Cheese, butter--		
			Hard Yogurt		
		Flesh foods	(any meat, fish, poultry and liver/organ meats)		
		Eggs	Egg		
		vitamin-A rich fruits and vegetables	pumpkin, carrots, ripe mangoes, cantaloupe, apricots, ripe papaya, dried peaches		
		other fruits and vegetable	other vegetables (tomato, onion, eggplant), including wild vegetables, other fruits, including wild fruits		

35: KNOWLEDGE OF MOTHERS ABOUT INFANT AND YOUNG CHILD FEEDING

35.1	Young children should feed the same kind of meals per day.	1. Yes 2. No	
35.2	Do you know how to feed young children?	1. Yes 2. No	
35.3	When to start complementary foods?	1. Before 6 month 2. At 6 month 3. After 6 month	
35.4	Non breast feeding baby of 6–23 months should eat four additional meals per day including night time?	1.Yes 2.No	
35.5	Breast milk is sufficient for infant until 6 month of life	1.Yes 2.No	
35.6	Child feeding equipment must be clean	1.Yes 2.No	

41 INFORMATION ON FOOD SECURITY

36.1	In the past 4 wks, did you worry that your household would not have enough food?	1. No (skip to ---) 2. Yes	36.2
36.1a	How often did this happen?	1 .Rarely (once or twice) 2 .Sometimes (3 to 10 times) 3. Often (> 10 times)	
36.2	In the past 4 wks, was any household member not able to eat the kinds of foods preferred because of a lack of resources?	1. No (skip to---) 2. Yes	36.3
36.2a	How often did this happen?	1. Rarely (once or twice) 2 .Sometimes (3 to 10 times) 3. Often (> 10 times)	
36.3	In the past 4 wks, did you or any household member have to eat a limited variety of foods due to a lack of	1.No (skip to ---) 2. Yes	36.4

	resources?		
36.3a	How often did this happen?	1 .Rarely (once or twice) 2 .Sometimes (3 to 10 times) 3. Often (> 10 times)	
36.4	In the past four weeks, did 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?	1. No (skip to ---) 2. Yes	36.5
36.4a	How often did this happen?	1 .Rarely (once or twice) 2 .Sometimes (3 to 10 times) 3 .Often (> 10 times)	
36.5	In the past four weeks, did you or any household member have to eat smaller meals than you felt you needed because there was not enough food?	1. No (skip to ---) 2. Yes	36.6
36.5a	How often did this happen?	1. Rarely (once or twice) 2.Sometimes (3 to 10 times) 3. Often (> 10 times)	
36.6	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	1. No (skip to ----) 2. Yes	36.7
36.6a	How often did this happen?	1.Rarely (once or twice) 2 .Sometimes (3 to 10 times) 3. Often (> 10 times)	
36.7	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?	1. No (skip to ---) 2. Yes	36.8
36.7a	How often did this happen?	1 .Rarely (once or twice) 2. Sometimes (3 to 10 times) 3 .Often (>10times)	
36.8	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	1. No (skip to --) 2. Yes	36.9
36.8a	How often did this happen?	1 .Rarely (once or twice) 2 .Sometimes (3 to 10 times) 3. Often (> 10 times)	
36.9	In the past four weeks, did any HH member go a whole day and night without eating anything because there was not enough food?	1. No 2. Yes	
36.9a	How often did this happen?	1 .Rarely 2. Sometimes 3 .Often	

42. Information on House hold wealth status				
37.1	What is the Material of floor?	1-earth 2-wood 3-cement 4-other		
37.2	What is the Material of roof?	1-thatched 2-metal sheet 3-other		
37.3	How many People live per room?	1-less than three 2-three and above		
37.4	What Type of fuel used for cooking?	1-wood 2-animal dug 3-charcol 4-electricity 5-other		
37.5	49.does HH have-----?(passible to circle more than one or skip if none)	1-TV 2-Radio 3-Bed with mattress 4-Table,chair-- 5-Electtricity 6-Ye ehil wofcho 7-motor cycle 8-mobile phone		
37.6	Does HH have-----?		No	yes
		Cow, ox calf----		
		Donkey, horse, camel...		
		Goat		
		Sheep		
		Heen		
		Beehive		
		Agricultural land		
37.7	Any member of HH who have Bank/Omo microfinance account	1. No 2. Yes		
37.8	What main source of water your HH use?	1-river 2-pipe 3-protected well 4-unprotected well 5-other		
37.9	What Type of latrine your HH have?	1-shared latrine 2-pit without cover 3-pit with cover 4-bush/field 5-other		

አባሪ B Amharic version: የመረጃ ቅጽ

በቅዱስ ጳውሎስ ሆስፒታል ሚሊኒየም መድኃል ኮለጅ የህብረተሰብ ጤና ት/ት ክፍል

ይህ መጠይቅ በእሌ ልዩ ወረዳ የሚገኙትን ከስድስት ወር እስከ ሁለት አመት ህፃናት ያላቸውን እናቶች ከጡት ተጨማሪ ምግብ አመጋገብ ሁኔታ በተመለከተ መረጃ ለማሰባሰብ የተዘጋጀ መጠይቅ ነው።

የተሳታፊዎች ፈቃደኝነት መጠየቂያ ቅጽ

ጤና ይስጥልን፡-ስሜ -----እባላለሁ።እዚህ የመጣሁት ይህንን ጥናት ከሚያካሂደው ቡድን መረጃ ከምስበስቡ አባል ሆኜ ነው። አቶ ኩሼታ ኩሴ የድህረ-ምረቃ ትምህርታቸውን በህብረተሰብ ጤና የማስትፊት ዲግሪያቸውን በ2015 ዓ.ም. ከአድስ አበባ ቅ/ጳ/ሆ/ሚ/መ/ኮ ለመመረቅ ከ6 ወር እስከ 2 ዓመት ህፃናት ያላቸውን እናቶች ከጡት ተጨማሪ ምግብ አመጋገብ ሁኔታ በተመለከተ እና ተያያዥነት ስላላቸው ጉዳዮች እየሰሩ ባሉት ጥናታዊ ጽሑፍ መረጃ ለመሰብሰብ መጠይቅ እየጠየቅሁ ነኝ። ከእርስዎ የሚገኘው መረጃ የሕፃናትን ጤና ለማሻሻልና ሞት እና ህመም ለመቀነስ ከፍተኛ ዕገዛ ይኖረዋል።

ከእርስዎ የሚገኘውን ማንኛውንም መረጃ በሚስጥር እንጠብቃለን። ከዚህ ጥናት ጋር በተያያዘ በማንኛውም ቦታና ጊዜ ስምዎን እንደማይመዘገብና እንደማይጠቀስም ልገልፅልዎት እወዳለሁ። ለጥናቱ የምናሳትፈዎ የዕርስዎን ሙሉ ፈቃደኝነት ስናገኝ ብቻ ነው። በመጠይቁ ላለመሳተፍ ወይም በመጠይቁ ሂደት ሊመልሱት የማይፈልጉትን ጥያቄዎችን ያለመመለስ መብትዎ የተጠበቀ ነው። ነገር ግን እርስዎ የሚሰጡት መረጃ የሕፃናትን ጤና ለማሻሻል ከፍተኛ ጠቀሜታ አለው። በመጠይቁ ለመሳተፍ ፍቃደኛ ነዎት?

1. ፈቃደኛ ነኝ 2. ፈቃደኛ አይደለሁም —————> ወደ ሌላ ተሳታፊ ሰው መሸጋገር

አባሪ C Amharic version: መረጃ መሰብሰቢያ መጠይቅ በአማረኛ

ክፍል- 1: ማህበራዊ-ኢኮኖሚያዊና የሰነድ ህዝብ መረጃ			
ተ.ቁ	ጥያቄዎች	የአማራጮች ዝርዝር	ክፍል
1	የእናት እድሜ ስንት ነው?	_____	
2	የጋብቻ ሁኔታ ምንድነው?	1. ያገባች 2. የተፋታች 3. ባለ የሞተባት 4. ሌላ _____	
3	ሀይማኖትዎ ምንድነው?	1. ኦርቶዶክስ 2. ፕሮቴስታንት 3. ባህላዊ 4. ሌላ (ይጥቀስ) _____	
4	የእናት የት/ት ደረጃ ምንድነው?	1. ያልተማረች 2. 1-4 የተማረች 3. 5-12 የተማረች 4. ኮልጅ ወይም ዩኒቨርሲቲና ከዛ በላይ	
5	የአባት የት/ት ደረጃ ምንድነው?	1. ያልተማረች 2. 1-4 የተማረች 3. 5-12 የተማረች 4. ኮልጅ ወይም ዩኒቨርሲቲና ከዛ በላይ	
6	ነዋሪነታዎ የት ነው?	1. ከተማ 2. ገጠር	
7	ብሔርዎ ምንድነው?	1. አሌ 2. ኮንሶ 3. ዲራጅ 4. ጋሞ 5. ሌላ _____	
8	የቤተሰባችሁ መጠን ስንት ነው?	_____	
9	የእናት/የተንከባካቢ ስራ ምንድነው?	1. የቤት እመቤት 2. የቀን ሰራተኛ 3. የመንግስት ሰራተኛ 4. የግል ሰራተኛ 5. ነጋዴ 6. ሌላ _____	
10	የአባት ስራ ምንድን ነው?	1. የመንግስት ሰራተኛ 2. አርሶ አደር 3. ነጋዴ 4. የቀን ሰራተኛ 5. የግል ሰራተኛ 6. ሌላ _____	
11	ዋና የምግብ ምንጮችሁ ምንድነው?	1. ከእርሻ 2. ከገበያ ግዥ 3. ሌላ _____	
12	ወራሃዊ ገቢያችሁ በአማካይ ምን ያህል ነው (በኢት.ብር)?	1/ ≤999 2/ 1000—2999 3/ 3000—3999 4/ ≥4000	
ክፍል- ሁለት: ከእናትየው የጤና አገልግሎት ጋር የተያያዘ መረጃ			
13	ቅድመ ወሊድ ክትትል አድርገው ነበር?	1. አዎ 2. አይ	
14	ለጥያቄ 13 አዎ ከሆነ ምን ያህል ጊዜ?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት እና በላይ	
15	ድህረ ወሊድ ክትትል አድርገው ነበር?	1. አዎ 2. አይ	
16	ለጥያቄ 15 አዎ ከሆነ ምን ያህል ጊዜ?	1. 1-2 ቀናት 2. 3-4 ቀናት 3. 5 ቀናት እና በላይ	
17	የወለዱበት ቦታ የት ነበር?	1. ቤት 2. ጤና ተቋም 3. ሌላ _____	
18	የእናት የእርግዝና ሁኔታ ምንድን	1. የመጀመሪያ 2. ተደጋጋሚ (2—4) 3. ብዙ ጊዜ (5+)	

	ነው?		
ክፍል- ሶስት፡ከህጻኑ ጋር የተያያዘ መረጃ			
19	የህጻኑ እድሜ ስንት ነው(በወር)?		
20	የህጻኑ ጾታ ምንድን ነው?	1.ወንድ 2. ሴት	
21	በቤተሰቡ ውስጥ ከ 5 አመት በታች ያሉ ህጻናት ስንት ናቸው?		
22	ልጁ ስንተኛ የተወለደ ነው?	1.1ኛ 2. 2ኛ 3. 3ኛ 4. 4ኛና ከዚያ በላይ	
ክፍል-አራት፡ከባህልና ልማድ ጋር የተያያዘ መረጃ			
23	ህጻኑ የሚበላውን የሚወስነው ማን ነው?	1.እናት 2.አባት 3.አያት 4. ሌላ _____	
24	ስለ ልጅ አመጋገብ መረጃ የምታገኙት ከየት ነው?	1. ከጤና ባለሙያ 2. ከአያቶች 3. ከጓደኞች 4. ከመገናኛ ብዙሃን 5. ከማህበራዊ ስብሰባ	
25	ህጻን ማንከባከብ የማን ሃላፊነት ነው?	1.የእናት 2.የአባት 3.የታላላቅ ልጆች 4.የጋራ	
26	በልጅ አመጋገብ ላይ ተጽእኖ የሚያሳድሩ ባህላዊ ልምዶች አሉ?	1. አዎ 2. አይ አዎ ከሆነ፤ይጠቀስ-----	
27	በእናንተ ማህበረሰብ ውስጥ ከህጻናት የምክለክሉ ምግቦች አሉ?	1. አዎ 2. አይ አዎ ከሆነ፤ የጠቀስ-----	
28	የህጻኑ አባት ሌላ ምስት አለው እንዴ?	1.አዎ 2.አይ አዎ ከሆነ ስንት?-----	
ክፍል-አምስት፡ ከተጨማሪ ሪ ምግብ አመጋገብ ጋር የተያያዘ መረጃ			
29	ለጅዎ አሁን ላይ ጡት ይጠባል?	1. አዎ 2. አይ	
30	ለጅዎ ተጨማሪ ምግብ ጀምሯል?	1. አዎ 2. አይ	
31	አዎ ከሆነ ተጨማሪ ምግብ መቼ ነው የጀምረው (በወር)?	_____	
32	አይ ከሆነ ለምን?	ምክንያቱን ይጥቀሱ; _____	
33	ህፃንዎ ትላንትና ቀን ወይም ማታ ከዚህ በታች ከተጠቀሱ ምግቦች ዉስጥ የተኞችን በልቶ ነበር?	የምግብ መደብ	የምግብ አይነት
		የእናት ጡት ወተት	የጡት ወተት
			1 =አዎ 2=አይ 3=አላውቅም

		ከእህል እና ስራስር ዘሮች የተዘጋጁ እና ክብ ስር ካላቸው የተዘጋጁ ምግቦች	በቆሎ፣ፋዝ፣ስንዴ፣ማሽላ ፣ገብስ ፣አጃ፣ ፓስታ፣ መኮረኒ ፣ዳቦ ፣አጥሚት ወዘተ ወይም ድንች፣የስር ተክል፣ካዛ፣ቆጮ ወይም ከሌላ ስራ ስሮች		
		ጥራጥሬዎች እና ቅባት እህሎች	ባቄላ፣አተር፣ምስር፣ለውዝ፣አኩሪ አተር፣ ሽምብራ ፣ወይም ከነዚህ የተሰሩ ምግቦች፣		
		የወተት ውጤቶች	ፎርመላ ወተት	ስንት ጊዜ	
			የእንስሳት ወተት	ስንት ጊዜ	
			ፈሳሽ እርጎ	ስንት ጊዜ	
			ጠጣር እርጎ	ስንት ጊዜ	
		የስጋ ውጤቶች	ቀይ ስጋ፣አሳ፣የዶሮ ስጋ እና አካል ስጋ (ጉበት፣ልብ፣ኩላልት ወዘተ---)		
		እንቁላል	እንቁላል		
		በቫይታሚን ኤ የበለጸጉ ፍራፍሬዎች እና አትክልቶች	ዱባ፣ካሮት፣ማንጎ፣ ሙዝ፣ጥቅል ጎመን፣ ፓፓያ፣ሎሚና ለሎች		
		ሌሎች ፍራፍሬዎችና ደማቅ አረንጓዴ ቅጠል ያላቸዉ አትክልቶች	ሐበሻ ጎመን ፣ቆስጣ፣ሠላ ጣ፣ቲማቲም፣ሸንኩርት፣የዱር አትክልቶች እና ፍራፍሬዎች		
34	ትላንት በ24 ሰዓት ውስጥ ልጅዎ ስንት ጊዜ ጠጣር ወይም ክፍል ጠጣር፣ለስላሳ ምግብቦችን ተመግቧል?				
35. እናት ስለተጨማሪ ምግብ ያላት እውቀት					
35.1	ህጻን ልጆች በቀን ተምሳሳይ አይነት ምግብ መመገብ አለባቸው	1. አዎ 2. አይ			
35.2	ህጻናት እንዴት መመገብ እንዳለባቸው ያውቃሉ?	1. አዎ 2. አይ			
35.3	ተጨማሪ ምግብ መቼ ይጀመራል?	1. ከ6ወር በፊት 2. በ6ወር 3. ከ6ወር በኋላ			
35.4	ከ6-23 ወር እድሜ ያሉ ጡት የማይጠቡ ህጻናት	1. አዎ 2. አይ			

	ሌሊትን ጨምሮ ቢያንስ አራት ጊዜ ተጨማሪ ምግብ መመገብ አለባቸው፡፡		
35.5	የህጻናት መመገቢያ እቃዎች በንጽህና መያዝ ግደታ ነው?	1. አዎ 2. አይ	
35.6	ከ6 ወር በታች ያሉ ህጻናት በእናት ጡት ብቻ መኖር ይችላሉ?	1. አዎ 2. አይ	
36. ምግብ ዋስትና የምወሰድ መረጃ ቅጽ			
36.1	ባለፉት 4 ሳምንታት የቤተሰባችሁ ፍጆታ በቂ አይሆንም በምልስ ስጋት ነበር?	1. አይ 2. አዎ	36.2
36.1 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2.አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3.ብዙ ጊዜ (> 10 ጊዜ)	
36.2	ባለፉት 4 ሳምንታት ከቤተሰባችሁ ውስጥ በሀብት እጥረት መክንያት የሚፈልገውን መብላት ሳይችል የቀረ ሰው ነበር?	1. አይ 2. አዎ	36.3
36.2 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2.አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3.ብዙ ጊዜ (> 10 ጊዜ)	
36.3	ባለፉት 4 ሳምንታት ከቤተሰባችሁ ውስጥ በሀብት እጥረት መክንያት የተወሰነ አይነት ምግብ የበላ ነበር?	1.አይ 2. አዎ	36.4
36.3 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1. በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2 .አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (> 10 ጊዜ)	
36.4	ባለፉት 4 ሳምንታት ማንኛውም የቤተሰባችሁ አባል ምግቡን ለማግኘት ሀብት በማጠሩ ምክንያት መብላት የማይፈልገውን አይነት ምግብ የበላ ነበር?	1. አይ 2. አዎ	36.5
36.4 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2.አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3.ብዙ ጊዜ (> 10 ጊዜ)	
36.5	ባለፉት 4 ሳምንታት ማንኛውም የቤተሰባችሁ አባል በቂ ምግብ ባለመኖሩ ምክንያት ከሚበቃ ያነሰ ምግብ የበላ ነበር?	1. አይ 2. አዎ	36.6
36.5 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2.አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (> 10 ጊዜ)	

36.6	ባለፉት 4 ሳምንታት ማንኛውም የቤተሰባችሁ አባል በቂ ምግብ ባለመኖሩ ምክንያት ያነሰ ጊዜ ምግብ የበላ ነበር?	1. አይ 2. አዎ	36.7
41.6 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2 .አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (> 10 ጊዜ)	
36.7	ባለፉት 4 ሳምንታት በቤተሰባችሁ ውስጥ ምግብ ለማግኘት ሀብት በማጠሩ የተነሳ ማንኛውም አይነት የሚበላ ምግብ ጠፍቶ ነበር?	1. አይ 2. አዎ	36.8
36.7 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2 .አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (> 10 ጊዜ)	
36.8	ባለፉት 4 ሳምንታት ማንኛውም የቤተሰባችሁ አባል በቂ ምግብ ባለመኖሩ ምክንያት ምግብ ሳይበላ ወደ መኝታ የሄደ ነበር?	1. አይ 2. አዎ	36.9
36.8 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2 .አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (> 10 ጊዜ)	
36.9	ባለፉት 4 ሳምንታት ማንኛውም የቤተሰባችሁ አባል በቂ ምግብ ባለመኖሩ ምክንያት ምንም ምግብ ሳይበላ ቀን ሙሉ እና ሌሊት የቆየ ነበር?	1. አይ 2. አዎ	
36.9 a	ይህ ምን ያህል ጊዜ ተከስቶ ነበር?	1.በጣም አልፎ አልፎ (አንድ ጊዜ ወይም ሁለት ጊዜ) 2 .አንዳንድ ጊዜ (3 እስከ 10 ጊዜ) 3. ብዙ ጊዜ (> 10 ጊዜ)	

37. በቤተሰብ ደረጃ የሀብት ሁኔታን በተመለከተ የምስበሰብ መረጃ			
37.1	የቤቱ ወለል የተሠራው ከምንድነው?	1.መሬት/አሸዋ 2.እንጨት 3.ሲሚንት 4. ሌላ _____	
37.2	የቤቱ ጣራ የተሠራው ከምንድነው?	1.ከሳር 2.ከቆርቆሮ 3.ሌላ (ይጥቀሱ)_____	
37.3	በ1 ክፍል ውስጥ ስንት ሰው ያድራል?	1.ከሶስት ሰው በታች 2.ሶስት ና ከዛ በላይ	
37.4	በመኖርያ ቤትዎ የምግብ ማብሊያ አማራጭ የቱ ነው?	1.እንጨት 2. የእንስሳት ፍግ 3.ኬሰል 4.የኤሌክትሪክ መብራት 5.ሌላ (ይጥቀሱ)_____	
37.5	በቴሰቦዎ እነዚህ የተዘረዘሩ እቃዎች/ንብረት አላቸው?	ቴሌቪዥን?	1. አይ 2. አዎ
		ሬድዮ?	1. አይ 2. አዎ
		ሞባይል?	1. አይ 2. አዎ
		አልጋ ና ፍራሽ?	1. አይ 2. አዎ
		አድሚኒስትሬሽን(ወንበር፣ጤርጳሳ፣ሶፋ፣----)?	1. አይ 2. አዎ
		ኤሌክትሪክ?	1. አይ 2. አዎ
		ተሽከርካሪ ሞቴር/ሳይክል?	1. አይ 2. አዎ
37.6	በቴሰቦዎ የእርሻ መሬት አላቸው?	የእህል ወፍጮ?	1. አይ 2. አዎ
37.7	በቴሰቦዎ ከዚህ በታች የተዘረዘሩ እንስሳት አላቸው?	1. አይ 2. አዎ (ስንት ጥማድ _____)	
		የቀንድ ከብት? አይ አዎ (ስንት _____)	
		የጋማ ከብት? አይ አዎ (ስንት _____)	
		ፍጹል ? አይ አዎ (ስንት _____)	
		በግ ? አይ አዎ (ስንት _____)	
		ዶሮ? አይ አዎ (ስንት _____)	
37.8	በቴሰቦዎ የባንክ/አዋ ማይክሮፋናንስ አካላት ያለው ሰው አለ?	የንብ ቀፎ ? አይ አዎ (ስንት _____)	
		1.አይ 2. አዎ	
37.9	በቴሰቦዎ ወሃ የምያገኙት ከየትነው?	1.ከወራጅ ወንዝ 2.ከቧንቧ 3.የከታጣረ ምንጭ 4.ካልታጠረ ምንጭ 5.ሌላ ከሆነ ይገለፅ _____	
37.10	በቴሰቦዎ የተኛውን የመፀዳጃ አይነት ይጠቀማሉ?	1.የጋራ ሽንትቤት 2.ክዳን የሌለው ሽንት ቤት 3.ክዳን ያለው ሽንት ቤት 4.መዳ/ጫካ 5.ሌላ _____	

የመርጃ ሰብሳቢዉ ስም----- ፊርማ -----

የተቆጣጣሪዉ ስም----- ፊርማ-----

---አመሰግናለሁ ---