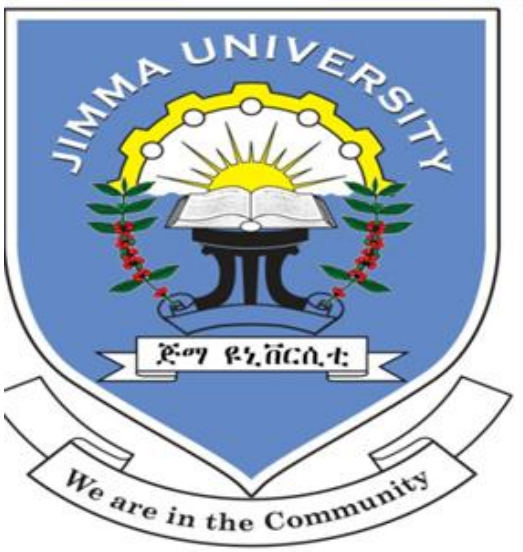
INFANT AND YOUNG CHILD COMPLEMENTARY FEEDING PRACTICES AND ASSOCIATED FACTORS IN DAMOT WEYDIE DISTRICT, WELAYTA ZONE, SOUTH ETHIOPIA



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A Thesis submitted to college of Public Health & Medical Sciences of Jimma University, Department of Health Education and Behavioral Sciences, in partial fulfillment for the requirement of the degree of Masters of Public Health in Health Education and Promotion specialty (MPH).

June, 2014

Jimma, Ethiopia

JIMMA UNIVERSITY COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES

DEPARTMENT OF HEALTH EDUCATION AND BEHAVIORAL SCIENCES

A THESIS ON INFANT AND YOUNG CHILD COMPLEMENTARY FEEDING PRACTICES AND ASSOCIATED FACTORS IN DAMOT WEYDIE DISTRICT, WELAYTA ZONE, SOUTH ETHIOPIA

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ABSTRACT

Background: From the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary feeding becomes necessary to fill the energy and nutrient gap. If complementary foods are not introduced at this age or if they are given inappropriately, an infant's growth may falter. Only 4% of youngest children 6-23 months living with their mothers are fed in accordance with acceptable Infant and Young child feeding (IYCF) practices in Ethiopia.

Objective: To assess infant and young child complementary feeding practices and associated factors in Damot Weydie district, Welayta Zone, South Ethiopia, 2014

Methods: A community-based cross sectional study design was conducted among four hundred one mothers who had children with 6-23 months of age in Damot Weydie district. Simple random sampling was used to select the required number of sample. Pretested structured questionnaire was used to collect data using a face-to-face interview. Data was entered with EpiData 3.1 and analysis was done by using SPSS version 20. Frequency distribution, binary logistic regressions were done. OR with 95% confidence interval was computed to measure the strength of association. Complementary feeding practices were identified using new and updated definitions by WHO in 2010.

Results: Of the four hundred four mothers/caregivers, four hundred one were included in the study making the response rate 99.2%. About 50.6% of children introduced complementary food at six months of age. Proportion of children aged 6–23 months who were with appropriate complementary feeding practice was 8.5%. Mothers with employed were 86% less likely to practice inappropriate complementary feeding than (AOR= 0.14 (0.04, 0.50) those of housewives. Mother's attended postnatal follow up were 81% less likely to practice inappropriate complementary feeding compared with mother's not attended (AOR= 0.19(0.05, 0.70). Children born preceding birth interval with less than 35 months were 2.67 times more likely to practicing inappropriate complementary feeding when compared to greater than 35 months (AOR= 2.67 (1.22, 5.83).

Conclusion and recommendation: mothers fed complementary foods appropriately to their children aged 6-23 months (8.5 percent), which was very low. Mothers who are housewives and children with birth interval less than 35 months need counseling on income generating activities & birth spacing respectively. All mothers must be encouraged to make postnatal care.

Key words: Complementary feeding practices, infant & young child, dietary diversity, meal frequency, Minimum Acceptable diet

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ACRONYMS/ABBREVIATIONS

AOR Adjusted Odds Ratio

ANC Antenatal Care

COR Crude Odds Ratio

EDHS Ethiopian Demographic and Health Survey

EOS Enhanced Outreach Strategy

IYCF Infant and Young Child feeding

MDGs Millennium Development Goals

PNC Postnatal Care

SNNPRS South Nations Nationalities and Peoples Regional State

SPSS Statistical software Package for Social Sciences

W.H.O World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Background

World Health Organization (WHO) recommended that Infants should be exclusively breastfed for the first six 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).

Breastfed children at 12–23 months of age receive 60% to 65% of total energy needs from complementary foods. the target range for complementary feeding is generally taken to be 6 to 23 months(1).

Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk(2).

Complementary foods can be subdivided into: Transitional (puréed, mashed, semi-solid) foods; which are foods specifically selected from the main food groups and adapted to meet the particular nutritional and physiological needs of the infant, and family foods; largely based on a normal well-balanced varied family diet, with some minor adaptations. Starting complementary feeding too soon and delaying for too long is also not advisable because; The early exposure of infants to microbial pathogens potentially contaminating complementary foods and fluids puts them at increased risk of diarrheal disease and consequently malnutrition & breast milk alone may not provide enough energy and nutrients and may lead to growth faltering and malnutrition respectively(3).

Complementary feeding should be timely, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be adequate, meaning that the complementary foods should be given in amounts, frequency, and consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding. Foods should be prepared and given in a safe manner, meaning that measures are taken to minimize the risk of contamination with pathogens. In addition, they should be given in a way that is appropriate, meaning that foods are of appropriate texture for the age of the child and applying responsive feeding following the principles of psychosocial care. The adequacy of complementary

feeding (adequacy in short for timely, adequate, safe and appropriate) not only depends on the availability of a variety of foods in the household, but also on the feeding practices of caregivers(4).

Encouraging and supporting appropriate complementary feeding practices for children under age two are critical elements of efforts to address malnutrition(5).

Appropriate complementary feeding promotes growth and prevents stunting among children between 6 and 23 months of age. Infants are particularly vulnerable to malnutrition and infection during the transition period when complementary feeding begins(6).

Optimal complementary feeding depends on accurate information and skilled support from the family, community, and health care system. Inadequate knowledge about appropriate foods and feeding practices is often a greater determinant of malnutrition than the lack of food. Moreover, diversified approaches are required to ensure access to foods that will adequately meet energy and nutrient needs of growing children, for example use of home- and community-based technologies to enhance nutrient density, bio- availability and the micronutrient content of local foods(7).

Improving complementary feeding requires a multi-dimensional approach focusing on improved feeding practices, control of childhood diseases and maternal nutrition. Thus, comprehensive approaches that address the full range of infant and young child feeding practices are needed. Disease prevention and control interventions need to be packaged with nutrition interventions to prevent infections(8).

1.2 Statement of the problem

Malnutrition has been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five. Over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. No more than 35% of infants worldwide are exclusively breastfed; complementary feeding frequently begins too early or too late, and foods are often nutritionally inadequate and unsafe (7).

About 178 million children around the world are stunted. Of this, 90 % live in 36 countries, one of which is Ethiopia. Ethiopia has witnessed encouraging progress in reducing malnutrition over the past decade. However, baseline levels of malnutrition remain so high that the country must continue to make significant investments in nutrition(9).

A common cause of inadequate child growth is poor feeding practices, particularly starting after six months of age, when children need food to complement breast milk. In many cases, families can feed their children adequately using locally available foods, but they often do not know how to prepare or feed these foods in a way that will meet the needs of their children. In many communities, there is also an urgent need to improve access to nutrient-rich, local foods for better complementary feeding(4).

Inappropriate complementary feeding practices are a major contributor to poor nutrition status among children under two in Ethiopia. The results from the 2011 EDHS showed that stunting, under-weight, and wasting persist as major public health problems. Rates of malnutrition are 44.4% stunting, 28.7% under-weight, and 9.7% wasting respectively(10).

Complementary foods are often of lesser nutritional quality than breast milk. In addition, they often given in insufficient amounts and, if given too early or too frequently, they displace breast milk. Repeated infections reduce appetite and increase the risk of inadequate intakes(8).

Each year more than two million children under five years old die due to under nutrition, and many of these deaths are associated with inappropriate feeding practices. The 6–23 month age range – a time of high nutritional needs and frequent childhood illnesses – presents a key window of opportunity to prevent under nutrition(11).

One in every 17 Ethiopian children dies before the first birthday, and one in every 11 children dies before the fifth birthday. Results from the 2011 EDHS data showed Infant mortality is 59 deaths per 1,000 live births and under-five mortality is 88 deaths per 1,000 live births & the prevalence of childhood illness like, diarrheal disease, Acute respiratory infection & fever accounts, 13 %, 7 % & 17% respectively(10).

Infant and young child feeding practices directly affect the nutritional status of children under two years of age and, ultimately, impact child survival. Improving infant and young child feeding practices is critical to improved nutrition, health and development of children(12).

According to EDHS 2011, Breastfeeding is nearly universal in Ethiopia and half of children born in the three years breastfed for about 25 months. More than half (52%) of children less than 6 months old are exclusively breastfed. Complementary foods are not introduced in a timely fashion for all children. Only 4% of youngest children 6-23 months living with their mothers are fed in accordance with IYCF practices. 48% were fed at least the minimum number of times.

4% of children were fed according to minimum standards with respect to food diversity (four or more food groups) among them foods made from grains are consumed more often than foods from any other food group. Older children and children in urban areas are more likely to be fed according to the IYCF practices than younger children or rural children(10).

In fact, malnutrition is the underlying cause of 57% of child deaths in Ethiopia with some of the highest rates of stunting and underweight in the world. Contributing factors to under nutrition include widespread poverty, limited employment opportunities, poor infrastructure, high population pressure, low education levels, inadequate access to clean water and sanitation, high rates of migration and poor access to health services. Without increased efforts to improve the nutrition status of vulnerable groups such as mothers and children under two years old, Ethiopia risks falling short of reaching the MDGs of halving underweight and reducing child mortality by two-thirds by 2015(13).

However, there is no study conducted in Damot Weydie district to identify the complementary feeding practices & associated factors of infant & young child.

Therefore, this study would have a significant input to provide information about the gaps in the complementary feeding practices. Such information may be helpful in the promotion of appropriate infant & young child feeding and enhance the mothers' recommended practice about the complementary feeding in the study settings and the region at large.

CHAPTER TWO: LITERATURE REVIEW

2.1. Factors affecting Complementary feeding practices

From the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary feeding becomes necessary to fill the energy and nutrient gap. If complementary foods are not introduced at this age or if they are given inappropriately, an infant's growth may falter(14).

Most of the habitually used complementary foods in developing countries are unfortified cereal based gruels characterized by low energy and nutrient density and are often inadequate (15).

Findings from the study conducted at Jimma-Arjo showed that young maternal age (15-20 years) less likely early introduced complementary food before 6 months compared to mothers whose age above 20 years((16).

A secondary analysis of EDHS 2011 showed Children born from the richest household had 74 % less chance to have inadequate dietary diversity compared with children from poorest household. Mothers who had satisfactory exposure to media were 30% more likely to give the adequate meal frequency to their children(17). Recent Evidence of the Effectiveness of Educational Interventions for Improving Complementary Feeding Practices in developing Countries showed that, Interpersonal communication such as individual counseling, home visit and group training is an important method for disseminating educational knowledge and information(18).

Results from Tanzania DHS 2010 report indicated that the main risk factors for inappropriate complementary feeding practices include young child's age (6-11 months), lower level of paternal/maternal education, limited access to mass media, lack of post-natal check-ups, and poor economic status(19).

Study of complementary feeding practices among mothers of children 6-23 months from coastal south India showed that association of initiation of complementary feeding with socio-economic status, birth order, birth interval, place of delivery and maternal education was found to be statistically significant. However the practice of giving an adequate quantity of complementary feeds was significantly associated only with the place of delivery(20). Findings from demographic and health survey 2011 of Nepal showed that Children of older mothers (>35 years); educated mothers and fathers; and employed mothers from all the development regions except the Mid-

western region were more likely to have been provided with the recommended dietary diversity. Children of mothers who had attended ≥4 antenatal visits and who lived in the Eastern region were more likely to provide their child with the recommended meal frequency. Children of mothers, who attended ≥ antenatal visits, were educated and whose fathers had at least a secondary education were more likely to meet the recommended acceptable diet standards(21).

The study from North west of Tigray showed that variables were found to be significantly associated with appropriate complementary feeding practice were child's age 18-23 months, mothers who had postnatal care and secondary school or above educated mothers were more likely to give appropriate complementary feeding to their children(22).

Minimum acceptable diet among breastfed children was 9% in India, 32% in Nepal, 40% in Bangladesh and 68% in Sri Lanka. The most consistent determinants of inappropriate complementary feeding practices across all the above south Asian countries were the lack of maternal education and lower household wealth. Limited exposure to media, inadequate antenatal care and lack of post-natal contacts by health workers were among predictors of inappropriate feeding(23). Mothers from middle-level households, poorer households and poorest households of Pakistan were significantly more likely to delay introduction of complementary foods(24).

The factors that consistently emerged to be significantly associated with inappropriate feeding indicators in India were poverty, low level of maternal education, lower frequency of antenatal visits and no exposure to media(25).

2.2. Indicators of complementary feeding practices of infant and young child

According to EDHS 2011, about half of (48%) children ages 6-8 months consume solid, semi-solid, or soft foods(10).

Timely introduction of complementary food in Zambia was 90 % at the recommended age(26).

from indicators required in the WHO tool for the assessment of infant and young child feeding, Trends of complementary feeding practices in Pakistan showed introduction of complementary foods & bottle- feeding, stand in the poor category(27). The secondary data analysis of DHS 2006 of Nepal showed the rate of introduction of solid, semi-solid or soft foods to infants aged 6–8 months was 70% and Minimum meal frequency and minimum dietary diversity rates were 82% and 34%, respectively, and minimum acceptable diet for breastfed infants was 32%.(28).

A study on complementary feeding practices in Jammu, Kashmir and Ladakh regions stated that introduction of complementary feeding rate was 30.9%(29).

The majority of the infants 83.5% of Emirati Mothers in the United Arab Emirates received solid food before the age of 6 months. A variety of reasons was reported as perceived by mothers for terminating breastfeeding. The most common reasons were: new pregnancy (32.5%), insufficient milk supply (24.4%) and infant weaned itself (24,26).

A study from coastal south India indicated 77.5% mothers had started complementary feeding at the recommended time of six months(20).

Study was conducted in the block Doiwala, which is in the district Dehradun of Uttrakahnd state in India indicated that 87.3% were on complementary feeding at the time of study. And almost 35% were getting Complementary foods less than 3 times a day(31).

Study conducted at North West of Tigray revealed that 79.7% of mothers introduced complementary feeding as per recommended. 17.8% mothers offered four or more food groups to their child meeting the minimum dietary diversity criteria and 40.0% mothers fed their children more than two times the day preceding the study. Only 11.9% of mothers had practice the minimum acceptable diet(22).

About 42.9% of Jimma-Arjo mothers initiated complementary feeding before 6 months. The majority of mothers early initiated complementary feeding since they believed that breast milk was insufficient and influences from social beliefs(16).

The study from west Gojam Zone observed that the likelihood of being stunted was significantly higher for children who started complementary feeding beyond the age of 12 months & children whose mothers use bottle for feeding were 2.4 times more likely to be stunted compared to children whose mothers use spoon for feeding(32).

According to Tanzania Demographic and Health Survey 2010, the prevalence of the introduction of soft, semi-solid, or solid foods among infants aged 6-8 months was 92.3%. Of all the children aged 6-23 months, the prevalence of minimum dietary diversity, meal frequency and acceptable diet were 38.2%, 38.6% and 15.9%, respectively.(19).

When the appropriateness of complementary feeding practices for infant and young child (6-23 months) in Ethiopia and Zambia, only 5.2 children appropriately fed than Zambia (25.1%)(33).

Minimum dietary diversity is referred to as Proportion of children 6–23 months of age who receive foods from 4 or more food groups. Dietary diversity is a proxy for adequate micronutrient-density of foods. Dietary data from children 6–23 months of age in developing country sites have shown that consumption of foods from at least 4 food groups on the previous day would mean that in most populations, the child had a high likelihood of consuming at least one animal-source food and at least one fruit or vegetable, in addition to a staple food (grain, root or tuber). The sample universe for this indicator is last-born children 6–23 months of age living with their mothers.

The seven foods groups used for calculation of this indicator are - grains, roots and tubers — legumes and nuts — dairy products (milk, yogurt, cheese) — flesh foods (meat, fish, poultry and liver/organ meats) — eggs — vitamin-A rich fruits and vegetables — other fruits and vegetables. Consumption of any amount of food from each food group is sufficient to "count," i.e., there is no minimum quantity, except if an item is only used as a condiment. The cut-off of at least 4 of the above 7 food groups above was selected because it is associated with better quality diets for children(12, 29).

Minimum meal frequency is defined as Proportion of breastfed and non-breastfed children 6–23 months of age, who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more.

The number of meals that an infant or young child needs in a day depends on how much energy the child needs (and, if the child is breastfed, the amount of energy needs not met by breast milk), the amount that a child can eat at each meal, and the energy density of the food offered. When energy density of the meals is between 0.8–1 kcal/g, breastfed infants 6–8 months old need 2–3 meals per day, while breastfed children 9–23 months needs 3–4 meals per day, with 1–2 additional snacks as desired. Children who are not breastfed should be given 1–2 cups of milk and 1–2 extra meals per day. This indicator is intended as a proxy for energy intake from foods other than breast milk. Feeding frequency for breastfed children includes only non-liquid feeds and reflects the guiding Principles. Feeding frequency for non-breastfed children includes both milk feeds and solid/semi-solid feeds, and reflects the guiding Principles for these children. The sample universe for this indicator is last-born children 6–23 months of age living with their mothers. For breastfed children, minimum is defined as 2 times for infants 6–8 months and 3 times for children 9–23 months. For non-breastfed children, minimum is defined as 4 times for children 6–23 months(12, 29).

Minimum acceptable diet is defined as Proportion of children 6–23 months of age who receive a minimum acceptable diet (apart from breast milk). Because appropriate feeding of children 6-23 months is multidimensional, it is important to have a composite indicator that tracks the extent to which multiple dimensions of adequate child feeding are being met. The minimum acceptable diet indicator combines standards of dietary diversity and feeding frequency by breastfeeding status. The indicator thus provides a useful way to track progress at simultaneously improving the key quality and quantity dimensions of children's diets. The sample universe for this indicator is last born children 6–23 months of age living with their mothers(29,30).

After six months of age, any liquids given should be fed by cup rather than by bottle. Feeding bottles with artificial nipples and pacifiers (teats or dummies) may cause nipple confusion and infants may refuse to breastfeed after their use. Feeding bottles are more difficult to keep clean than cups, and the ingestion of pathogens can lead to illness and even death. Pacifiers can also easily become contaminated and cause illness(36).

The study conducted at Central, Eastern, Northwestern and Southern zones of Tigray showed, Family foods and cereal-based porridge were the main complementary foods after six months. Older children were more likely to be malnourished. Child age, inadequate complementary foods, and area of residence were the main contributing factors to child malnutrition(37).

A secondary analysis of EDHS Survey 2011 showed, Proportion of children aged 6–23 months who were with adequate dietary diversity and meal frequency were 10.8% and 44.7% respectively(19, 23). The study conducted at Children of Market Women in Ondo State, Nigeria indicated that the major complementary staple used by the women was sorghum 53.6% and 62% of the respondents admitted the use of soybean powder as the major protein source in the gruel(39).

2.3. Conceptual framework

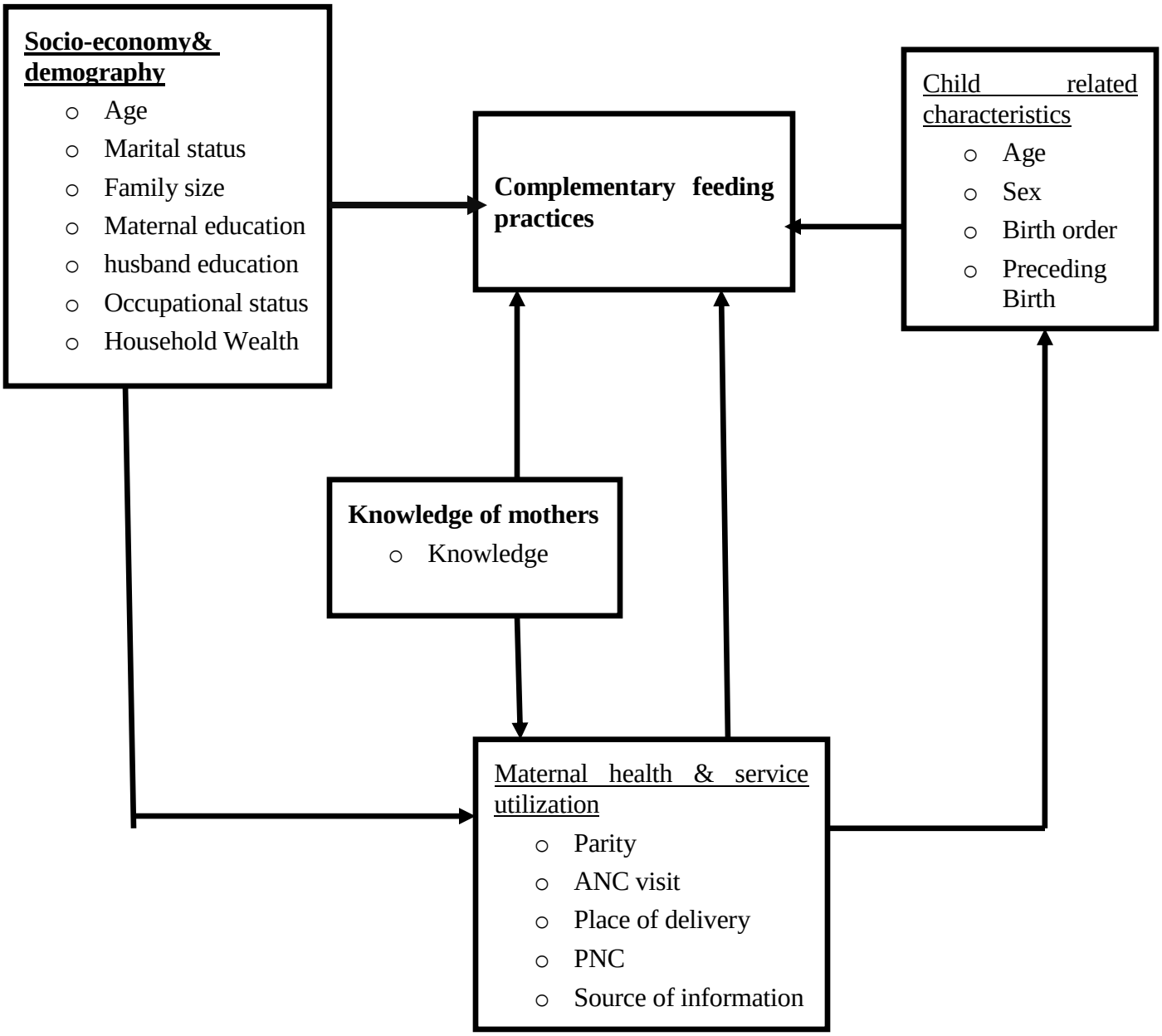


Figure 1*: conceptual framework for infant and young child complementary feeding practices*

2.4. Significance of the study

Studies which show the infant & young child feeding practice is critical for appropriate planning and intervention to address the problem of interest. In Ethiopia in general and the study area in particular, information regarding complementary feeding practice is limited or not available and Home based complementary foods for children are not well researched and promoted in the country yet and the existing studies lacks the associated factor of complementary feeding practices.

Appropriate complementary feeding promotes growth and prevents stunting among children between 6 and 23 months of age. Infants are particularly vulnerable to malnutrition and infection during the transition period when complementary feeding begins.

Therefore, this study aims to assess infant and young child complementary feeding practices and associated factors in Damot Weydie district, South Ethiopia.

The findings of this study serve as source of information for district health office to develop action plan and it benefit different stakeholders like, public health practitioners, program planners, and decision makers for further utilization.

Interested researchers in the area can use the information generated from the study as a baseline.

CHAPTER THREE: OBJECTIVES

3.1. Objective

3.1.1. General objective

- To assess infant and young child complementary feeding practices and associated factors in Damot Weydie district, Welayta Zone, SNNPRS, 2014

3.2.1. Specific objectives

- To determine the proportion of timely initiation of complementary feeding practices of infant and young child (6-23) months
- To determine appropriate complementary feeding practices of infant and young child (6-23 months)
- To identify factors associated with complementary feeding practices among care giver's having infant and young child (6-23 months)

CHAPTER FOUR: METHODS & MATERIALS

4.1. Study area and period

The study conducted in Damot Weydie district, which were located 26 Km to the East of Zonal capital of Welayta Sodo, 156 Km from regional capital Awassa and 368 Km from Addis Ababa. Damot Weydie is one of rural districts in Welayta Zone of SNNPRS. The district has 25 kebeles (the lowest administrative level). All the kebeles are accessible in dry and rainy season. There is one main road which connects the district with zonal and regional towns. Based on projection from 2007 population & Housing census report, the total population in 2013/14 is estimated to be 112,065, among these 55,696 are males & 56,369 are females (40). Most of the people depend on traditional subsistence agriculture for living. The main crops produced in the area are maize & sorghum. Concerning health facility distribution, there are 4 Governmental Health centers, 25 Health posts, 8 private clinics, 6 rural drug vendors and 1 drug store(41).

The study conducted from March – April 2014.

4.2. Study design

Community based cross sectional study design employed.

4.3. Populations

4.3.1. Source population

All children aged 6-23 months with caregiver residing in Damot Weydie district.

4.3.2. Study population

Randomly selected children aged 6-23 months with their caregiver living in the district.

4.4. Inclusion & Exclusion Criteria

4.4.1. Inclusion criteria

Children aged 6-23 months who were living with caregiver.

4.4.2. Exclusion criteria

Those who do not fulfill the inclusion criteria and mothers who are unable to respond due to some reasons e.g. critically ill or/and born from HIV positive mothers (replacement feeding/ non-breast feeding).

4.5. Sample size and Sampling technique

4.5.1. Sample size determination

The sample size was determined by using single population proportion formula considering the following parameters(42);

According to EDHS 2011 result on infant and young child feeding practice of SNNPRS showed(10):

P= the established prevalence based on the EDHS 2011, the SNNPRS prevalence of minimum meal frequency of infant and young child (6-23 months) = (48.9%)

= Z-score at 95% confidence interval = 1.96

d= Acceptable margin of error (precision of measurement) = 5%

The Non-response rate=5%

The formula for calculating the sample size (n) is:

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

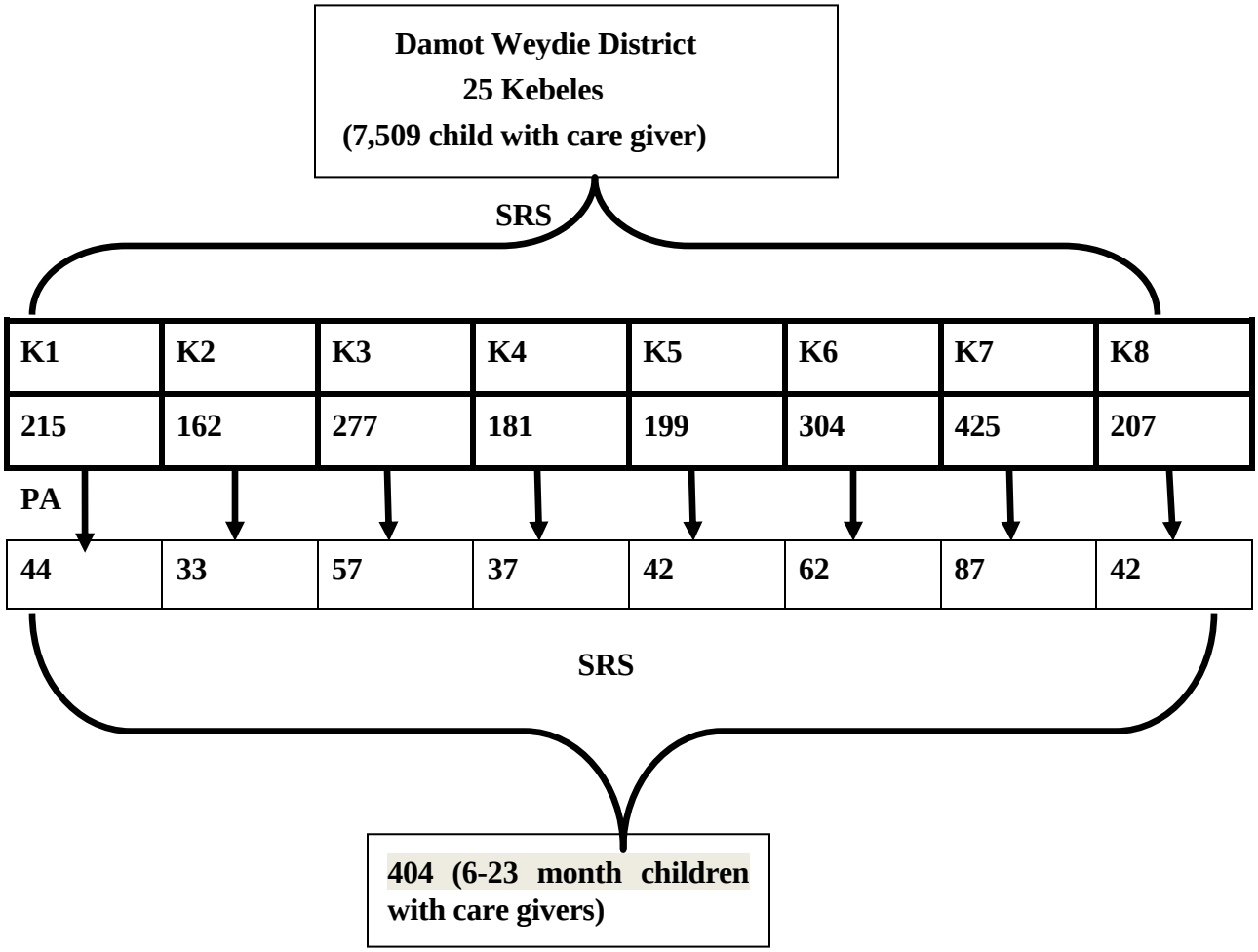
$$n = \frac{(1.96)^2 .0.498(1-0.489)}{(0.05)^2}$$

$$n = 384$$

The final sample size considering the Non-response rate (5%) was 404.

4.5.2. Sampling technique/procedure

Eight kebeles randomly selected from the list of 25 kebeles. The sample is then distributed in the selected kebeles by proportion to population size and then selected by simple random sampling using lists of children with care giver from family folder of the kebele health post as sampling frame. The total number of children in each selected kebeles (K1-Badessa=215, K2-Ambe=162, K3-Bilibo=277, K4-Tora sadebo=181, K5-Mayo offore=199, K6-Wulisho=304, K7-mayo kote=425 and K8-sura koyo=207, Total=1,970).



SRS: Simple Random Sampling PA: Proportional Allocation K: Rural kebeles

Figure 2: Schematic representation of sampling procedure on infant and young child complementary feeding practices of Damot Weydie district.

4.6. Data collection tool and measurement

4.6.1. Variables

Dependent variable

- **Complementary feeding practices**

Independent variable

- **Socio-economic and demographic characteristics**

  Age, marital status, family size, educational status, husband educational status, occupational status, family wealth,

- **Maternal health service and related characteristics**

  Parity, ANC visit, place of delivery, PNC visit, knowledge of mothers, water supply, source/access to information

- **Child related characteristics**

  Age, sex, birth order, preceding birth interval,

4.6.2. Data collection process and Instrument

The Structured questionnaire adapted from infant and young child feeding practice questionnaire module(43).

The questionnaire developed first in English and then it translated to Wolaita doonaa (local language) and back translated to English to check its conceptual equivalence by the person who can speak both languages.

24-hour recall method, which is the most widely used time period for collecting dietary information, was used to collect dietary information(44).

Methods used to collect and analyze information about feeding practices in children are based on WHO 2010 manuals: Indicators for assessing infant and young child feeding practices.

Experienced data collectors who completed secondary Education and who know the culture or language of the community collected the data. The 10 data collectors and two supervisors (B.Sc. Nurses) were trained on data collection tool & its procedures for 2 days by principal investigator.

4.7. Standard and Operational definitions

Timely introduction of complementary feeding: proportion of children 6-23 months of age who started complementary foods at 6th month

Minimum dietary diversity: Proportion of children 6–23 months of age who receive foods from four or more food groups from seven.

The seven food groups used for tabulation of this indicator were grains, roots and tubers; legumes and nuts; dairy products (milk, yogurt, cheese); flesh foods (meat, chicken and liver/organ meats); eggs; vitamin 'A' rich fruits and vegetables; and other fruits and vegetables.

Construct the 7-food group scores as follows: Begin with a score of zero.

For each of the 7 food groups, add a point if any food in the group was consumed* (*from question No. 308)

Food group 1. Add 1 point if: Q308, 8=1 or 9=1

Food group 2. Add 1 point if: Q308, 10=1

Food group 3. Add 1 point if: Q308, 6=1 or 7=1

Food group 4. Add 1 point if: Q308, 11=1

Food group 5. Add 1 point if: Q308, 12=1

Food group 6. Add 1 point if: Q308, 13=1 or 14=1

Food group 7. Add 1 point if: Q308, 15=1 or 16=1

Minimum meal frequency: Proportion of breastfed and non-breastfed children 6–23 months of age who receive solid, semi-solid, or soft foods the minimum number of times or more.

For breastfed children, the minimum number of times varies with age (2 times if 6–8 months and 3 times if 9–23 months).

Minimum acceptable diet: proportion of breastfed children 6–23 months of age who had at least the minimum dietary diversity and the minimum meal frequency during the previous day..

Complementary Feeding Practices

• **Appropriate–** If the mother/care giver responds correctly, timely introduction of complementary feeding, dietary diversity, meal frequency, and minimum acceptable diet as recommended.

• **Inappropriate –** Among the four indicators if at least, one indicator not fulfilled.

Knowledge of mother's: The knowledge consisted of 10 item questions that focused mainly on complementary feeding practices. The level of knowledge measured with the sum of correct answers of the respondents for the given questions.

Wealth index: a proxy measure of the household's economic status of the respondents calculated from the information on household possessions and the score created by factor analysis (principal component analysis).

4.8. Data processing and analysis

The data entered in to EpiData 3.1 statistical software and then exported to SPSS version -20 for further analysis. Descriptive analysis such as frequencies, proportions, and means done. Binary logistic regressions like, Chi square test(X^2) of proportion used to determine or measure the strength of association between independent and dependent variables using odds ratios and 95% of confidence intervals. Multivariate logistic regression analysis like, both crude and adjusted odds ratio was conducted to identify the predictors of appropriate complementary feeding practices and P value ≤ 0.05 was considered as significant. Then output presented using tables and graphs. Finally, the results from the finding compared with available findings in different literatures.

4.9. Data quality management

The quality of the data assured through pre-test with similar setting (Sodo zuria) that helped for the consistency and flow of the questionnaire, training for data collectors and supervisors, crosschecking of completed questionnaires on daily basis among data collectors and supervisors.

Participants involved in the pre- test were not being part of the main study.

4.10. Ethical considerations

Ethical clearance obtained from Jimma University College of public Health & Medical Sciences and Permission letter also obtained from district Health office. Informed consent obtained from each respondent after explanation of the study objective. Confidentiality maintained by omitting their personal identifications. So that the instrument and procedures will not cause any harm to the respondents.

4.11. Dissemination and communication of the findings

The results of this study will be presented and submitted to department of Health Education and Promotion of Jimma University. After having approval from the Department, it will be communicated to concerned bodies through reports. The findings will be also be disseminated to different organizations like Regional health bureau and stakeholders or partners that will have a contribution to infant & young child feeding practices, especially on complementary feeding. The findings also will be presented in various workshops and conferences and attempts made to publish the research article in scientific journals.

CHAPTER FIVE: RESULTS

Socio demographic characteristics

Most of the selected caregivers of children participated in the study (401 out of 404) making a response rate of 99.2%. Majority of participants 392 (97.8%) were married, seven (1.7%) were single and two (0.5%) were widowed. The mean (±SD) age of the mothers was 30.26 (±4.98) years with minimum of 21 and maximum 40 years of age. By their ethnicity, the majority of mothers were Welayta 396(98.8%), Amahara 4 (1%), and Guraghe 1(0.2%) respectively. A greater proportion of the participants were protestant 319(79.6%), followed by Orthodox 73(18.2%) and catholic 9(2.2%) by religion. The study revealed that 221(55.1%) mothers had no education.

Two-third, 268(66.8%) of the mothers were housewives at the time of data collection.

Of the total households, 87(21.7%) were found in the poorest wealth quintile. The present study also showed only 120(29.9%) attended Antenatal care four or more times during pregnancy.

Caregiver of the child gives birth at home accounts about 180(44.9%).

About 297(74.1%) attended postnatal care. Sources of information on complementary feeding practices for mothers were health extension workers 371(92.5%), Health workers 124(30.9%) and Radio/Television 170(42.4%) respectively.

Table 1*: Socio demographic and maternal health service characteristics of caregivers of children aged 6–23 months, Damot Weydie district, Welayta zone, SNNPRS, Ethiopia, March-April, 2014*

Variables	*Category*	*Frequency (N)=401*	*Percentage*
Ethnicity	*Welayta*	*396*	*98.8*
	Amahara	*4*	*1*
	Guraghe	*1*	*0.2*
Religion	*Protestant*	*319*	*79.6*
	Orthodox	*73*	*18.2*
	Catholic	*9*	*2.2*
Husband education	*No education*	*179*	*44.6*
	Primary	*124*	*30.9*
	Secondary +	*98*	*24.4*
Age of mother	*20-24 years*	*59*	*14.7*
	25-29 years	*115*	*28.7*
	30-34 years	*121*	*30.2*
	35-40 years	*106*	*26.4*
Marital status	*Single*	*7*	*1.7*
	Married	*392*	*97.8*
	Widowed	*2*	*0.5*
Family size	*Below 5*	*186*	*46.4*
	Above 5	*215*	*53.6*
	309	*77.1*	*77.1*
parity	*<5*	*309*	*77.1*
	>5	*92*	*22.9*
Mother education	*No education*	*221*	*55.1*
	Primary education	*106*	*26.4*
	Secondary+	*74*	*18.5*
Mother occupation	*House wife*	*268*	*66.8*
	Gov't employee	*15*	*3.7*
	farmer	*118*	*29.4*
House hold wealth index	*Poorest*	*87*	*21.7*
	Poorer	*73*	*18.2*
	Middle	*82*	*20.4*
	Richer	*79*	*19.7*
	Richest	*80*	*20*
No of ANC visit	*No*	*52*	*13*
	1-3 times	*229*	*57.1*
	4 and above	*120*	*29.9*
Place delivery	*Home*	*180*	*44.9*
	*Health institution***	*221*	*55.1*
Postnatal care	*Yes*	*297*	*74.1*
	No	*104*	*25.9*
Source of information on Complementary Feeding practices	*HEWs*	*371*	*92.5*
	Health worker	*124*	*30.9*
	Immunization session	*311*	*77.6*
	Radio/TV	*170*	*42.4*

***Health institution (hospital, health center, health post), secondary+ (above 9th grade)*

401 children were included in the analysis among which 129(32.3%) were in the age group 6 -11 months, 176(43.9%) in the age group 12-17 months and the rest 96(23.9) were found in the age group 18-23 months. The mean age of children was 1.16(±0.38 years). Of whom 207(51.6%) were males and 194(48.4) were females.

Table 2: *children characteristics (6-23 months) of Damot Weydie district, Welayta zone, SNNPRS, March- April, 20014*

Variables	*Category*	*Frequency (N)=401*	*Percentage*
Age of child	6-11 months	129	32.3
	12-17 months	176	43.9
	18-23 months	96	23.9
Sex of child	Male	207	51.6
	Female	*194*	*48.4*
Birth order	*First*	*52*	*13*
	2nd - 3rd	*126*	*31.4*
	4th - 5th	*130*	*32.4*
	6th and above	*93*	*23.2*
Preceding birth interval	*First birth – 34 months*	*310*	*77.3*
	35 months and above	*91*	*22.7*

Complementary feeding practices of infant and young child (6-23 months)

The finding showed that majority 389(97%) of mothers heard about complementary feeding practices and only 165 (41.15%) mothers know feeding anything from a bottle is not good.

The mean knowledge score was found to be 7.95 (SD= 1.327)

Table 3: *caregivers of children knowledge on complementary feeding practices of Damot Weydie district, Welayta zone, SNNPRS, March-April, 2014*

No.	Knowledge items	Frequency(401)	%
1.	Heard about complementary feeding practices	389	97
2.	Heard starting foods in addition to breast milk at 6 months	388	96.8
3.	Know types of foods to feed young children in addition breast milk	384	95.8
4.	Know how to feed young children e.g. frequency	376	93.8
5.	Know Starting to give other foods in addition to breast milk to her child at 6 months, e.g. thickness	280	69.8
6.	Know a baby of 6-23 months should eat in addition to breast milk 2 or 3 times and more	304	75.8
7.	Know feeding anything from a bottle not good	165	41.1
8.	Know thicker porridge do not chock the child	328	81.8
9.	Know before food preparation, hand washing with soap/ash is good	387	96.5
10.	Know after visiting toilet, hand washing with soap/ash is good	369	92

Among children aged 6-23 months, foods made from dairy products and grains consumed more often than foods from any other food group. 126 (31.4%), ate foods made from grains and 177 (44.1%) of consumed cheese, yogurt, or other dairy products. 63 (15.7%), ate foods from legumes or nuts during the day or night. 38(9.5%), consumed fruits and vegetables rich in vitamin 'A'. Introduction of these foods in the diet is late, and few children consume them. For instance, at age 6-23 months, only 38 (9.5%), of children consume meat, fish, or poultry, and 58 (14.5%) consume eggs. Overall, half of children age 6-23 months 203 (50.6%) consumed some solid or semi- solid food during the day or night. In addition, about ate foods made from flesh foods 10 (2.5%) and other fruits and vegetables 33 (8.2%).

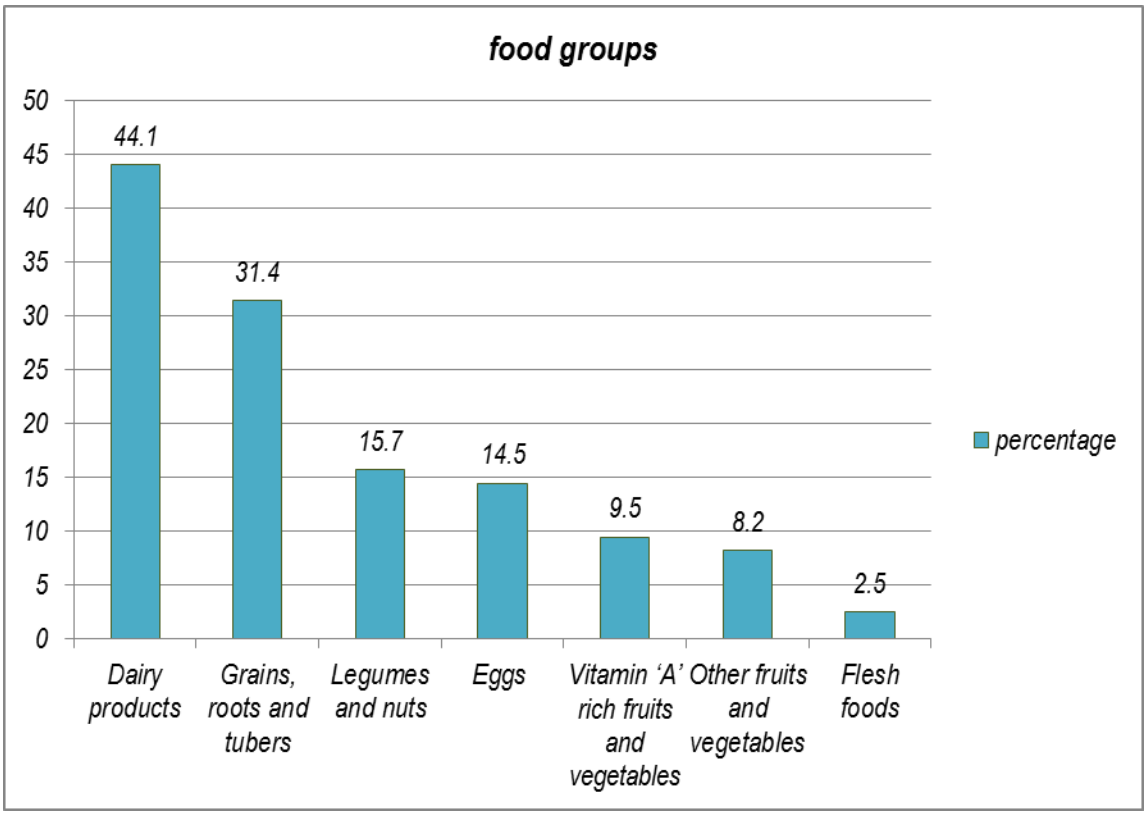


Figure 3: *Types of foods given to children aged (6–23 months), Damot Weydie district, Welayta zone, SNNPRS, March-April 2014*

Appropriate infant and young child feeding (IYCF) practices include timely initiation of feeding of solid and semi-solid foods from age 6 months and improving the quality of foods consumed as the child gets older, while maintaining breastfeeding.

Result revealed that only 8.5 percent of youngest children 6-23 months living with their mothers met appropriate complementary feeding practices.

About 203 (50.6%) of mothers introduced complementary feeding at 6 months age as per recommended.

More than nine children of every ten 396(98.8 percent) received breast milk during the 24-hour and 189(47.1 percent) were fed at least the minimum number of times. About 39(9.7 percent) of children were fed according to minimum standards with respect to food diversity (four or more food groups).

About 35(8.7%) mothers meet the minimum acceptable diet.

In total, 34 (8.5 percent) of children are given appropriate complementary feeding practice.

From this, children get appropriate by age group were identified that 6-11 (7.8%), 12-17 months were (9.1%), and 18-23 months were (8.3%) respectively.

Male child get appropriate complementary feeding of (10.1%) when compared with female child (6.7%).

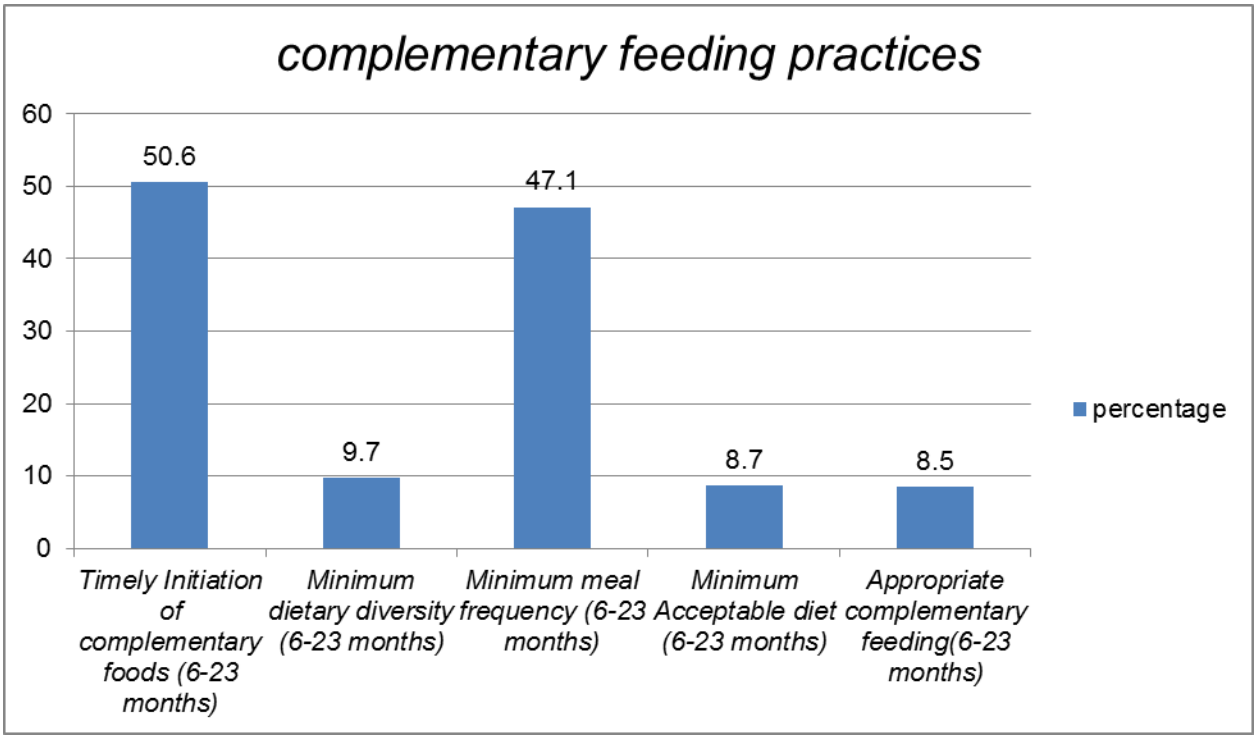


Figure 4: *proportion of complementary feeding practices of infant and young child (6-23 months), Damot Weydie district, Welayta zone, SNNPRS, March-April 2014*

Factors associated with complementary feeding practices

Bivariate and multivariate logistic regression analysis performed to calculate odds ratios and corresponding 95% confidence intervals for the predictors of complementary feeding practices.

In the first setup, bivariate analysis done to select candidate variable for multivariable analysis at $P \leq 0.25$ then the candidate variable analyzed in multivariable analysis at $P \leq 0.05$ considered as significant.

In the bivariate analysis postnatal follow up (p=0.024), occupation of mother (p=0.002), heard about complementary feeding practice from health workers (p=0.014), from Radio (p=0.046) and

childbirth interval (p=0.027) were found to be associated with complementary feeding practices. Then output table presented as follows

Table 4: *factors associated with complementary feeding practices, Damot Weydie district, Welayta zone, SNNPRS, March- April 2014*

characteristics		Complementary feeding practices		Crude Odds ratio (95% C.I)	Adjusted Odds ratio (95% C.I)
		Appropriate	Inappropriate		
		N (%)	N (%)		
Mother's occupation	House wife	20(7.5)	248(92.5)	1	**1**
	Gov. employee	5(33.3)	10(66.7)	0.16(0.05, 0.52)	**0.14(0.04, 0.50)***
	farmers	9(7.6)	109(92.4)	0.97(0.43, 2.21)	0.72(0.31, 1.70)
Preceding Birth interval	<35 months	21(6.8)	289(93.2)	2.29(1.09, 4.78)	**2.67(1.22, 5.83)***
	35^{+} months	13(14.3)	78(85.7)	1	**1**
Postnatal care	yes	31(10.4)	266(89.6)	0.25(0.07, 0.85)	**0.19(0.05, 0.70)***
	No	3(2.9)	101(97.1)	1	**1**
Child sex	male	21(10.1)	186(89.9)	0.63(0.30, 1.30)	0.50(0.23, 1.07)
	female	13(6.7)	181(93.3)	1	**1**

P<0.05, COR (Crude odds ratio), AOR (Adjusted odds ratio), CI (Confidence interval)

In multivariate logistic regression analysis after adjusted for potential confounders by using **step-wise backward LR method** in the final model, mother's occupation, preceding birth interval of the child, postnatal follow up were found to be the predictors of appropriate complementary feeding practices.

Mothers with Government employee were 86% less likely to practice inappropriate complementary feeding when compared to those of housewives (AOR= 0.14 (0.04, 0.50).

Children born preceding birth interval with less than 35 months(<3 years) were 2.67 times more likely to practicing inappropriate complementary feeding when compared with children born greater than 35 months (>3 years) preceding birth interval (AOR= 2.67 (1.22, 5.83).

Mother's attended postnatal follow up were 81% less likely to practice inappropriate complementary feeding compared with mother's not attended (AOR= 0.19(0.05, 0.70).

CHAPTER SIX: DISCUSSION

The result of this study revealed that the proportion of timely introduction of complementary feeding was 50.6%. This is consistence with the results of national EDHS-2011 (48%) And lower than other African and Asian countries like, Tanzania (92.3%), Zambia (90%), United Arab Emirates (83.5%), coastal south India (77.5%) and Nepal (70%) respectively (19, 20)23) 26).

The lower proportion is may be due to mothers' assumption of; an infant's need for nutrients provided by breast milk is enough. In addition, infant is developmentally not ready for solid foods.

Among children aged 6-23 months, 9.7 % received foods from at least four food groups or more (minimum dietary diversity). It was higher than the findings from both south regional (2.5%) and national level (4 %) of EDHS-2011(10). And this relatively higher proportion might be due to practices change with time, and the contribution of community based nutrition under health extension packages. And but less than the findings from north western part of Tigray (17.8%), Nepal (34%) and Tanzania (38.2%) respectively(19) 22) 25).

This might be due to knowledge of mothers related to production and consumption of variety of foods at household level and might be the economy to afford minimum types of foods to meet the requirement/ the current price inflation.

About 47.1 % of infant and young child (6-23 months) were fed the minimum number of times or more or (minimum meal frequency). Prevalence of meal frequency in this study was similar when compared with the national (48%) and south region (48.9%) of EDHS-2011.

But less than the findings from Nepal (82%) (21).This might be attributed by low maternal educational status, and lower economy.

Minimum acceptable diet (either four or more food groups and minimum meal frequency) was 8.7%. This was higher than EDHS 2011 south region (2.3%)(10).

This might be due to intersectoral collaboration of nutrition programs. But was lower than the findings from north western Tigray (11.9%), Tanzania (15.9%), Nepal (32%) (19, 22, 28).

This low proportion might be due lack of counseling about complementary feeding practices during every contact with health workers and low exposure to mass media.

Only 8.5% of mothers were practicing appropriate complementary feeding which was lower than finding from Zambia (25.1%) (33). this might be due to poor socioeconomic status, lower maternal literacy and Health workers were usually not concerned on dietary diversity and frequency of meal.

Mothers who have Government employed were 86% less likely to practice inappropriate complementary feeding when compared to those of housewives. This is consistence with finding from Nepal. This is might be due to Women's employment increases household income, with consequent benefit to household nutrition in general and child feeding practice in particular. Employment may increase women's status and power, and may strengthen a woman's preference to spend her earnings on dietary diversity.

Though employed, women control over their income and decision making authority within the household and able to take actions that will benefit their own family(28, 45).

Children born preceding birth interval with less than 35 months(<3 years) were 2.67 times more likely to practicing inappropriate complementary feeding when compared with children born greater than 35 months (>3 years) preceding birth interval. This is in congruent with the findings from Nepal. This might be Low birth intervals are often associated with the mother having little time to care their infants & higher birth interval is also likely to improve child feeding, since the mother gets enough time for proper childcare and feeding. Studies in developing countries showed that children born after a short birth interval have higher levels of inappropriate feeding (21, 45).

Mother's attended postnatal follow up were 81% less likely to practice inappropriate complementary feeding compared with mother has not attended.

This result was in congruent with the findings from northwestern Tigray, Tanzania, India, Nepal, Bangladesh, and Sri-linka (19, 22, 23).

Where not attending post-natal follow up was a significant factor of inappropriate complementary feeding practice. This might be due to the result of counseling that the mothers received from health professionals during their postnatal visits.

On the other hand, this study indicated that there was no association between maternal education and appropriate complementary feeding practice and it disagrees with the study in Nepal and India (21, 23). This might be majority of mothers have no education were not informed about importance of appropriate feeding.

In this study, there was no association between household wealth and appropriate complementary feeding practice. This result disagreed with the study of secondary analysis of Ethiopia and Pakistan (17, 24). This might be the richest wealth quintal having not guaranteed for appropriate complementary feeding practices.

There was also no association between the knowledge of mothers about appropriate complementary feeding practices. This might indicate the presence of some cultural practice that could affect complementary feeding practices.

Mothers who employed, preceding birth interval of child and mothers followed postnatal care were factors that can increase appropriate complementary feeding practice.

6.1. Strength and limitation of the study

Strengths

- ✓ Measuring complex child feeding practices within narrow age-specific ranges
- ✓ Once the study addresses complementary feeding practices like, timely introduction of complementary feeding and minimum Acceptable diet)

Limitations

- ✓ Child feeding practices are also age-specific with narrow age ranges and typically assessed by caregivers report or recall; this may lead to recall bias.
- ✓ Seasonal variation may affect the food groups, which consumed by infant & young child during the time of interview.
- ✓ The cross-sectional nature of the study itself is difficult to predict variables in order to detect cause effect relationship. That is, as a result of the cross sectional design, no causal conclusions can be drawn about whether factors associated with complementary feeding practices.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

A significant proportion of children not appropriately fed as recommended. The proportion of timely introduction of complementary feeding was 50.6%.

Overall, 8.5 percent mothers fed complementary foods appropriately to their children aged 6-23 months, which was very low. About 91.5% mothers were not feeding complementary foods appropriately considering, timely introduction, minimum dietary diversity, minimum meal frequency and minimum acceptable diet as measured by the WHO guidelines.

Factors that consistently affect appropriate complementary feeding were mothers occupation especially housewife, low birth interval of children and not attending postnatal follow up.

7.2. Recommendations

It is important to monitor and evaluate the effectiveness, of programs and strategies of infant and young child feeding practices interventions being implemented

Regional/ Zonal or district Health office

- Raising community awareness and knowledge of the critical importance of the timely introduction of complementary foods
- Maternal health service activities; like, family planning/birth spacing/ and
- Post Natal Care should be strengthen
- More intensive counseling of mothers through peers, community facilitators and health care providers would be necessary targeting the groups with inappropriate practices, while continuing with programmes that cover the entire population
- Community based nutrition programs should be strengthen; especially diversification of food types, minimum acceptable diet
- Strengthening inter-sectoral collaboration may be urgent and needed to think of the possibilities to increase the variety of food groups, income generating activities

For Researchers

- Undertake analytical study to understand effect of complementary feeding practices interventions for further understanding of the problem.
- undertake Socio cultural factors affecting (misconceptions) complementary feeding practices
- Although current data are useful for an immediate local child feeding intervention, or for further complementary feeding research, they need to be complemented by long term nutrition programs.

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Appendix

1. Verbal consent form

JIMMA UNIVERSITY

COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES

DEPARTMENT OF HEATH EDUCATION AND BEHAVIORAL SCIENCES

A QUESTIONNAIRE TO ASSESS INFANT AND YOUNG CHILD COMPLEMENTARY FEEDING PRACTICES AND ASSOCIATED FACTORS IN DAMOT WEYDIE DISTRICT, WELAYTA ZONE, SOUTH ETHIOPIA, 2014

Consent form

You are among those who are selected to participate in this study. Here below I will mention you the important points that briefs you about the general nature of the study and your role in the study.

1. **Purpose of the study**

The purpose of the study is to assess infant and young child complementary feeding practices and associated factors among mothers in your district

2. **Your role**

You were asked some questions about your socio-demographic and socio-economic characteristics, maternal health, and related factors and infant and young child feeding practices for complementary feeding.

3. **Benefit you will get**

The result of the study was important to infant and young child in that, depending on the result of the study the government or other concerned body will act in a way to correct the sub-optimal complementary feeding practices, if there is any and you was one of those who will get the benefit.

4. **Risk or discomfort of participating in the study**

There is no risk or discomfort you should fear as a result of participating in this study.

5. **Confidentiality**

The information that you will give be available only for those who are engaged in this study and was kept confidential. And also coding was used in place of your name.

6. **Time you may spend with us**

Around 30 minutes was enough to complete the process

7. **Participation**

It is your wish to participate or not participate in this study. You will lose nothing for not participating in the study and you have full right to discontinue providing information any time of data collection and still you will not have any harm for discontinuing the process.

8. You can ask anything that is not clear to you

1) Is all the information given above is clear to you? Yes___ No____

If No, re-explain the above information.

If yes, proceed to the next question.

2) Are you willing to participate in the study? Yes_➔__ No____

Interviewer:

If yes, go to the questionnaire and start data collection. If no, skip to the next eligible.

Whom to contact

If you have any questions & concerns about the study you should contact:

Bereket Epheson

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2. English Version Questionnaire

QUESTIONNAIRE FOR USE WITH MOTHERS WITH CHILDREN FROM 6-23.9 MONTHS			
Code of Household(ID) _____ Name of Kebele _____ Name of Interviewer _____ Signature _____ Date ___/___/__			
SECTION 1: SOCIO-DEMOGRAPHIC INFORMATION			
No.	**QUESTIONS AND FILTERS**	**CODING CATEGORY**	**SKIP**
101	How old were you on your last birthday?	Age in years(completed)_____	
102	How many household members are there/ at your household?	_____	
103	Are you able to read or write a simple sentence? Probe it…	Yes…….1 No…….2	
104	Did you ever attend formal school?	Yes…….1 No…….2	Skip to 106
105	If yes, what is the highest grade you completed?	Grade _____	
106	What is your current marital status?	Single - 1 Married- 2 Divorced- 3 Widowed - 4	
107	What is your Religion?	1. Orthodox 3. Muslim 2. Protestant 4. Catholic 5. Others(specify)	
108	What is your Ethnicity?	1. Welayta 3. Tigre 2. Amahara 4. Guraghe	

		5. Others(specify)	
109	Did your husband able to read or write a simple sentence?	Yes…….1 No……. 2	
110	Did he ever attend formal school?	Yes…….1 No…….2	Skip to 112
111	If yes, what is the highest grade he completed?	Grade _____	
112	What is your occupation/employment?	1. House wife 2. Gov't employee 3. Farmer 4. Other(specify)	
113	Who is/are the head/s of the house?	1. Mother 3. Both 2. Father 4. Other	
114	Who decides women's cash earnings?	1. Woman & husband 2. Husband alone 3. Women 4. others	
115	Does your household have?	1=yes 2=No Kitchen Electricity Radio Television Mobile Telephone Non-Mobile Telephone Refrigerator	
116	Does any member of this household own?	Yes No Watch 1 2 Bicycle 1 2 Motorcycle/scooter 1 2 Animal-drawn cart 1 2	

		Car/truck 1 2 Boat with motor 1 2	
117	Does any member of this household own any agricultural land?	1. Yes 2. No	
118	Does this household own any livestock, herds, other farm animals, or poultry?	1. Yes 2. No	
119	How many of the following animals do this household own?	1=yes 2=No Cattle Milk cows or bulls Horses donkeys or mules Goats Sheep Chickens	
120	Does any member of this household have a bank account?	1.Yes 2. No	
SECTION 2: MATERNAL HEALTH RELATED INFORMATION			
201	How many live births do you have?	_____	
203	Have you ever attended Antenatal care?	1.yes 2.No	➔ Skip to 205
204	How many times did you receive Antenatal Care during your pregnancy with [NAME]?	Number _____	
205	Where did you give birth to (NAME)?	1.Your Home 2. Government Hospital 3.Government Health Center 4.Government Health Post	

		5. Private Health facility 6.Other (specify)	
206	Who assisted with the delivery of (NAME)?	1.Health Professional 2.Health Extension Worker 3.Relative/Friend/Neighbor 4.Other(specify)	
207	Within the first week after delivery, did a Health Worker see you?	1. Yes 2. No 8. Don't Know	Skip to 209
208	At the time, were you given advice on how to feed your baby?	1. Yes 2.No	
209	What is the main source of drinking water for members of your household?	1.Piped distribution 2.Protected Spring/Well/ 3.River/pond/ 4.Rainwater 5.Others(specify)	
210	Have you heard anything on complementary feeding?	1.Yes 2.No	➔ Skip to 213
211	What did you hear?	1=yes 2=No A)start foods in addition to breast milk at 6 months B)types of foods to feed young children in addition breast milk C)how to feed young children e.g. frequency, amount, density	
212	At what age should a women start to	1)at 6 months	

	give other foods in addition to breast milk to her child? Like consistency	2)less than 6 months	
213	How many times a day should a baby of 6-23 months eat in addition to breast milk.	1)2 or 3 times and more 2)less than 2-3 times	
214	Does feeding anything from a bottle good?	1.yes 2.No	
215	Does thicker porridge chock the child?	1.Yes 2.No	
216	The last time you prepared food for (NAME), did you wash your hands with soap/ash?	1.Yes 2.No	
217	The last time you had to clean (NAME) after he/she defecated, did you wash your hands with soap/ash immediately afterwards?	1.Yes 2.No	
218	From whom did you get complementary feeding message?	1.Health Worker 1.Yes 2.No 2.TV/Radio 1.Yes 2.No 3.Family/Friend 1.Yes 2.No 4.Hews 1.Yes 2.No	
219	When or how did you hear these messages? During:	1. Pregnancy 2. Delivery 3. Post natal/family planning 4. Sick child contacts 5. Well child contacts/GMP/ 6. Immunizations	
220	Where did you hear these messages?	1. Health facility 2.Community event 3. Home	

SECTION 3: INFANT AND YOUNG CHILD FEEDING PRACTICES			
301	What is the Sex of Child?	1. Male 2.female	
302	What is the age of your child?		
	Verify child's date of birth by asking to see the Family Health card or vaccination card, or local calendar of events	_____ Months	
303	What is the birth order of the child?	_____	
304	What is the preceding birth interval of the child?	_____	
305	Did [NAME] received breast milk yesterday/past 24 hrs?	1. Yes 2. No	
306	Did [NAME] have had solid, semi-solid, or soft food yesterday?	1. Yes 2. No.	
307	Did [NAME] received breast milk yesterday and had solid, semi-solid, or soft food yesterday/last night?	1. Yes 2. No	

308	*I would like to ask you about the types of foods [NAME] have fed over the past 24 hours, from sunrise yesterday to sunrise today.* *Did [NAME] have:* *read out the list* *circle "1" for mentioned and "2" for not mentioned*	1=yes 2=No 1. Breast milk 2. Plain Water 3.Other liquids (sugar water, coffee, tea, broth, soft drinks) 4.Fruit Juice 5. Infant Formula 6. Animal milk (e.g. cow milk) 7.Cheese or yoghurt 8. Any food made from grains (millet/ sorghum, maize, rice, wheat, teff) 9. Any other food made from roots or Tubers(white potatoes, cassava, Enset, or other local roots or tubers) 10. Any food made from legumes or nuts (e.g. Lentils, beans, soybeans, Pulses or peanuts) 11. Meat, Poultry, Fish 12. Eggs 13. Any food made from pumpkins, carrots, red sweet potatoes, ripe mango, ripe Papaya 14. dark green leafy vegetables 15. Any other fruits (e.g., bananas, apples, avocados, tomatoes) 16. Any other vegetables 17. Any food made with oil, fat or butter	

309	How many times did you feed [NAME] solid and/or semi-solid food between sunrise yesterday and sunrise today? If response is not numeric, probe for a numeric response	Number of feedings of solids and/or semi-solid foods _____	

JIMMA UNIBURSHIYAAN

FAYATETTA NAAGUWANNE AKKAMO SAYNISSIYAA KOLOJIYAN

YIIRAA NAATU GUJJO QUMMAA MUSSA XEELIYOGAN DAMOTA WOYDE WORADAN NAQASHA SHISHANAW GIGIDA OYSHATA

ENOTTA XEELIYAGA

Entte ha xinattiyo dorettidoge hagappe garssara de”iyaa oyshatta zaarana maallassa

1.Ha xinattiyaa huphphe qoffay

Yiiraa naatu gujjo qumma mussara gayttida yehotta entte woradan xanayanassa

2.Entteppe koyettiyabay

Issipettetanne dussaba, ayyotunna fayattetanne naatu gujjo qumma xeeliyoganoyshatuye zaruwaa immiyoga

3.ha xinatiyaa maadoy/go”aay

Ha xinattiyaan bettida mettotu bolli kawottettay woykko haara kawoba gidenna dirijitteti gigisiyo tanguwaa ekkanawu maades

4. ha oysha zariyogani enttena ayba mettoykka gakkenna

5. entte immido zaaroy ossikka coo qoccena, ha xinattiyaa ottiyaa assattu xalallay erees

6. ha oyshaninne zaruwan 30-35 daqiqa gidiyaga keena gammi’ssesi

7. ha oysha zaaruwani mulekka gelikke gaana maatay nagettidaga

8. Qoncce gidibenna oyshay de”ikko oychanawu dandayetta

Ha bollara qonccibattuni eeno giyaba gidikko, dommanna danayiyo? Eee==➔oysha dommitte,

Ta qattoy: Jimma Unibursiyaa

Ta sunttay: Barakat Efessonna

Silikke payddoy: 0932566697

3. Wolayttato Doonnaa Questionnaire

YIIRAA NAATTU QUMMA MUSSA XELIYAGAN AYOTUSSI GIGIDA OYSHA			
Sunttay (erso paydoy)_____ kabaliya sunttay _____ Oyshiyaga sunttay _____ baray _____ Gallassay ___/___/__			
1: ISSIPITETTA DUSSA XELIYAGA			
Payd.	**OYSHATA**	**OYSHATU DOORUWA**	**ADHA**
101	Ente layttay woyse?	Kumetta laytta_____	
102	Ente sooni appuni assay de"i?	_____	
103	Entte nababuwunne xufiyaa gutta eretti?	Ee…….1 Erikke…….2	
104	Entte timiriiya tamaridetti?	Ee…….1 Bawa erikke…….2	Adha 106
105	Appuntta kifiliya gakanawu tamarideti?	Gakkido xeekay/kifile/ _____	
106	Azina gelletta xelliyagan entte ,,,	gelabekke - 1 gelletidi de"os- 2 birshetida- 3 Ammi"iyaa - 4	
107	Entte Ammanoy aybe?	1. Orthodokisiya 3. Islama 2. Ammanno 4. katulukiyaa 5. haaratta	

108	Entte zare aybe?	1. Wolaytta 3. Tigre 2. Amaara 4. Guraghe 5.haaratta	
109	Entte keettaway nababuwanne xafuwa gutta danday?	Ee…….1 Bawa Erena……. 2	
110	Did he ever attend formal school?	Yes…….1 No…….2	Adha 112
111	Entte keetaway appunatta xeeka/kifiliyaa gakkanawu tamaridona?	Wurisido /xeekaykifile _____	
112	Entte ossoy aybe?	1. so assa/ayyo2. Kawo osancha 3. goshancha 4. haaratta	
113	Keettani awattetay o kushiyan de”i?	1. ayyen 3. Na”aan 2. awwan 4. Haara assan	
114	Ayyetu mishshani onne godattiya?	1. Awanne ayyiyo 2. Awwa xalla 3. Ayyiyo 4. haara	
115	Entte kallidi de”iyageti de”iyona?	1=Ee 2=bawwa kushinay xomppe/po”oy Radone Televizhine Mobayilliya silike So silikke firijjiyaa	
116	Entte sooni kalliyageti	Ee Bawaa	

	de”iyona?	satte 1 2 saykille 1 2 motoriyaa saykille 1 2 hare gare 1 2 makinay 1 2 woliwoluwa 1 2	
117	Enttessi goshsha gade dee”i?	1. Ee 2. Bawaa	
118	Entte soono kacce mehe, goshsha mehenne dee”i?	1. Ee 2. Bawaa	
119	Hagetuppe awuge entte soon dee”i?	1=Ee 2=Bawaa mehiyaa matta mizzaa paara haariyaa dorssa deshaa kuttuwa	
120	Mishshaa minjiyo bankiya karde dee”i?	1.Ee 2.Bawaa	
2: AYYETU FAYATETARA GAYTIDABA XELIYOGAN			
201	Hano gakkanawu appuni natta yellideti?	_____	
203	Shra wode bessiyaa kallota ekkideti?	1.Ee 2.bawaa	➔Adha 205
204	Apputo shara kallideti]?	qoday _____	
205	Wurisetta naa”a awan	1.entte sooni	

	yelideti	2. kawo hostalliyaan 3.kawo fayatteta goliyan 4.kawo daaliyaan 5.kawoba gidenaa fayatteta keettaan 6.haarata	
206	Enttena maarettiday onne?	1.fayatetta ossancha 2.fayatteta ekistenshiniyo 3.shore assay/daabo assay 4.haaratta	
207	Maarettappe simmin issi saminitta gidon fayatetta ossanchani bee"ettideti?	1. Ee 2.baawa 8.Erikke	Adha 209
208	Qeera naata qumma miiziyogani zoretta ekkidetti?	1.Ee 2.baawa	
209	Uyiyo haattaa awappe duqqetti?	1.bommbappe 2.nagettida pultuwappe 3.shaffa haatta 4.Irraa haatta 5.haaratta	
210	Gujjo qummaba siyi eretti?	1.Ee 2.Erikke	➔ Adha 213
211	Siyikko, atba ayba siyideti ?	1=Ee 2=baawa A) 6 agina kummiyode gujjo qumma immiyoga dommiyoga B)dumma dumma kattaa qommota aye xanttara issippe immiyoga C)watti wattidi yiiraa naata gujjo qumma mizziyoga(kattaa yessuwanne woqutto immiyoga)	

212	Appun layttan ayyotti yiiraa naatussi gujjo qumma immana koshiyona?	1)6 aginani 2)6 aginappe koyrottidi	
213	Gallassan ayyoti 6-23 agina gakkida yiiraa nattussi apputto qumma immanawu koshshi?	1)2ttu woykko 3ttu 2) 2-3 ppe guttaa	
214	Lastike gossiya(xuxuwappe) yiraa natta gujjo kata naata ushiyooge lo”o?	1.Ee 2.gidena	
215	Simma ordde shenderay yiira naata culli?	1.Ee 2.gidena	
216	Yiiraa naatussi gujjo kaatta kattanappe koyrottidi kushshiyaa mecettideti?	1.Ee 2.gidena	
217	Yiiraa naata kaatta sheshesha uttissi simidi kushshiyaa meccettideti?	1.Ee 2.gidena	
218	Gujjo qummaba oppe siyideti?	1.fay/ossanchappe 2.TV/Radoniyappe 3.laggitappe/soppe 4.haarassappe)	
219	Ayy wode gujjo qummba siyideti?	1. abe ixxatta 2.maarettan 3. maaratti simmidi 4. hargida yiiraa ekki biidi 5. hargibenna yiiraa ekki biidi 6. kaattafan	
220	Awappe gujjo kattaba	1. fayyattetta keettaappe	

	siyidetti?	2.heeraa yaa”appe 3. sooni	
3: YIIRA NAATU GUJJO QUMMA MUSSA XELIYAGA			
301	Yiiraa mattumay aybe?	1. Attuma 2.Maccaa	
302	Yiiraa layttay woysse?	_____ Agina Loyttidi piligitte	
303	Yiiraay appuntto qaantte?	_____	
304	Yiiraay appuni layttaa gam”I simmin yeletide?	_____	
305	Zino 24 saatte gidoni xaantta xammide?	1. Ee 2. baawa	
306	Zino 24 saatte gidoni gujjo qumma miide?	1. Ee 2. baawa	
307	Zino 24 saatte gidoni xanttanne gujjo qumma demmide?	1. Ee 2. baawa	
308	Hagappe kaalada zino 24 saatte gidoni yiiraay ayba ayba qumma qommuwa midakkonne oychanawu koyayisi,	1=Ee 2=baawa 1. aye xaantta 2. geshshaa haattaa 3.haara ushshatta(sukkariya haattara, tukkiya, shayiya, loxxigaba, laqilaqiyaba) 4.jussiyaa malattiyabatta 5. fabirikka maatta	

		6. mizzee maatta 7.pillanne meqida maatta 8. meezettido kaattata (maliduwa badalla, uruziyaa, gisittiya, gashiyaa) 9. meezettido xapho kattata(shukariya, mitta boyiya, uuttaanne hhm) 10. kaattaa ayffetta(missira, baqqella, attara, ocholiniyaa) 11. Ashuwaa(mehiyaa, kuuttuwa, moliya) 12phuphuliyaa 13. duttidinne bokkidi ekki miyobatta kaarotiyaa, zo”o shukariyaa, kaa{ida manguwaa,ka”ida paapaayya 14. karexxi matta malatida attakilitteta 15. muuziyaa, appliyaa, avocadosiyaa, ttimatimiyaa) 16. haara attakilitteta 17. zayttiyappt/ooyssappe kaa”ida kattata	
309	Zino 24 saatte gidoni yiiraay apputto gujjo qumma mizidetti	paydduwaan _____	