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OPTIMAL INFANT AND YOUNG CHILD FEEDING PRACTICES AND ASSOCIATED FACTORS AMONG MOTHERS/CARETAKERS OF CHILDREN AGED 0-23 MONTHS IN NORTH ACHEFER WOREDA, AMHARA, ETHIOPIA, 2019 G.C.

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SCHOOL OF RESEARCH AND POSTGRADUATE STUDIES

FACULTY OF CHEMICAL AND FOOD ENGINEREING

OPTIMAL INFANT AND YOUNG CHILD FEEDING PRACTICES AND ASSOCIATED FACTORS AMONG MOTHERS/CARETAKERS OF CHILDREN AGED 0-23 MONTHS IN NORTH ACHEFER WOREDA, AMHARA, ETHIOPIA, 2019 G.C.

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A THESIS PAPER SUBMITTED TO BAHIR DAR UNIVERSITY, INSTITUTE OF TECHNOLOGY, SCHOOL OF RESEARCH AND POSTGRADUATE STUDIES IN FULFILLMENT OF THE REQUIREMENTS FOR MASTER OF SCIENCE IN APPLIED HUMAN NUTRITION.

JULY, 2019

BAHIR DAR, ETHIOPIA

BAHIR DAR UNIVERSITY

BAHIR DAR INSTITUTE OF TECHNOLOGY

SCHOOL OF RESEARCH AND POSTGRADUATE STUDIES

FACULTY OF FOOD AND CHEMICAL ENGINEERING

DECLARATION FORM

I, the undersigned, declare that this thesis report is my own original work and it has not been proposed and presented in other universities, colleges or other institutions for similar purpose.

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Approval of advisor: This thesis paper has been submitted with advisor's approval.

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II

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ABBREVIATIONS AND ACRONYMS

AMIYCF …….Adult, Maternal, Infant and Young Child Feeding

AOR ……...Adjusted Odds Ratio

CF ……Complementary Feeding

CI ……...Confidence Interval

COR ……Crude Odds Ratio

EBF ……. Exclusive Breast Feeding

EBM …… Exclusive Breast Milk

EDHS …… Ethiopian Demographic and health Survey

ETB …… Ethiopian Birr

FDRE …… Federal Democratic Republic of Ethiopia

HSDP ……. Health Sector Development Program

IYCF …… Infant and Young Child Feeding

MAD…….. Minimum Acceptable Diet

MDD…… Minimum Dietary Diversity

MDG …… Millennium Development Goals

MMF ……Minimum Meal Frequency

MOH ……. Ministry of Health

NNP ……. National Nutrition Program

PI ……. Principal Investigator

SDGs …… Sustainable Development Goals

UHEWs …… Urban Health Extension Workers

UN …… United Nations

UNICEF …… United Nations Children's Fund

WHO ……... World Health Organization

ABSTRACT

Background: Optimal infant and young child feeding (IYCF) practices during the first 2 years of life is paramount importance as this period is the "critical window" for the promotion of health, good growth, behavioral and cognitive development. As per the WHO (2010) definition optimal IYCF is initiation of breastfeeding within 1 hour of birth; EBF for first 6 months of life, introduction of complementary food from locally available food and hygienically prepared around 6 months, increased breastfeeding during illness and recovery and also continued breastfeeding for up to 2 years of age. The aim of this study was to determine the magnitude and the practices of IYCF at North Achefer Woreda.

Methods: Community based cross-sectional study design was conducted in North Achefer woreda, Amhara Region, Ethiopia from February 16 to 30, 2019. Multistage sampling technique was employed to select study participants. From four kebeles of the woreda data was collected using pre tested questionnaire at Denbola kebele adopted from WHO, EDHS survey questioner and prior similar studies done in other places. The data was entered and analyzed using SPSS ver. 25.0. P-value < 0.05 was considered significant.

Result: A total of 588 of mothers of children 0-23 month's age were included in the study yielding response rate of 97.2%. The mean (±SD) age of mothers was 27.1 years (±4.9), ranges from 18 to 43 years. The magnitude of timely initiation of (within an hour) and EBF was 78.9% and 83.0%. Eight in ten (79.9%) of mothers and around one-eighth (13.4%) of them gave colostrum and pre lacteal food to their infants after birth respectively. The magnitude of appropriate CF was 43.9% while that of optimal IYCF practice among 0-23 months children was 43.4%. The multivariable analysis showed attending secondary [AOR, 3.5, 95%CI: 1.1, 13.0] and higher education [AOR :2.2, 95%CI: 1.1, 7.0], being merchant [AOR: 2.3, 95%CI: 1.1,4.9], family income of 3000-3999 ETB [AOR: 1.4, 95%CI: 1.2,3.0], health institution delivery [AOR: 1.4, 95%CI: 1.2,2.8], PNC utilization [AOR: 1.6, 95%CI: 1.0, 2.1], good knowledge [AOR: 3.6, 95%CI: 1.5,8.2] and favorable attitude [AOR: 1.2, 95%CI: 1.1, 1.9] were statistically significant predictors of optimal IYCF practice.

Conclusion and recommendation: Sub optimal IYCF practice was prevalent and showing a gap compared to the WHO recommendation. Hence, there is a need to develop health education intervention targeting behavioral change in the study area regarding IYCF.

Keywords: Infant and Young child Feeding, Complementary feeding, Breast feeding.

1. INTRODUCTION

1.1 Background

As per the World Health Organization (WHO) definition optimal infant and young child feeding practices is initiation of breastfeeding within 1 hour of birth; exclusive breastfeeding for first 6 months of life, introduction of complementary food from locally available food and hygienically prepared around 6 months, increased breastfeeding during illness and recovery and also continued breastfeeding for up to 2 years of age (WHO, 2010).

Optimal infant and young child feeding practices rank among the most effective interventions to improve child health. 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 in children 0–23 months of age is therefore critical to improve nutrition, health and Development (WHO, 2008).

Optimal infant and young child feeding practices during the first 2 years of life is paramount importance as this period is the "critical window" for the promotion of health, good growth, behavioral and cognitive development. Optimal infant and young child feeding practices include initiation of breast-feeding within 1 hour of birth, exclusive breast-feeding for the first 6 months, and continuation of breast-feeding for 2 years or more, along with nutritionally adequate, safe, and age appropriate, responsive complementary feeding starting at 6 months (Chandwani et al., 2015).

According to EDHS 2016, almost all children (97%) are breastfed at some point. However, only 58% of infants under age 6 months are exclusively breastfed. The feeding practices of only7% of children age 6-23 months meet the minimum acceptable dietary standards. Only 14% of children had an adequately diverse diet, 58% of children under age 6 months are exclusively breastfed, and the percentage of exclusive breastfeeding declines with age from 74% in 0-1 months to 36% in 4-5 months. Contrary to the recommendation that children under the age of 6 months be exclusively breastfed, many infants are also fed with other liquids such as water (17%), non-milk liquids (5%), and other milks (5%) before reaching age 6 months (0-5months). Moreover, 11% of infants begin complementary foods before 6 months of age, with more than one-fifth of children (21%) consuming complementary foods

by age 4-5months. The percentage of children fed according to the minimum acceptable diet standards shows only small increase from 4% in 2011 to 7% in 2016 (EDHS,2016).

Breast feeding is one of the most effective means to ensure child health and survival. If breast-feeding were scale up to near universal levels, about 820,000 child lives would be saved every year. Globally, only 40% of infants younger than six months of age are exclusively breast feed. World Health Organization actively promotes breast-feeding as best sources of nourishment for infants and young children. Breast-feeding improves children's IQ, school attendance and is associated with high income during adult life (France Bégin *et al.,* 2016)

Inappropriate feeding practices may cause malnutrition, leading to stunting, wasting and being underweight amongst infants and young children. The incidence of malnutrition is highest amongst young children aged 6–18 months in most developing countries, and it is difficult to compensate for this later in childhood (Iqbal *et al.*, 2017).

Complementary feeding is the process of starting semi solid or solid food when breast milk alone or infant formula alone is no longer sufficient to meet the nutritional requirements of an infant and when other foods and liquids along with breast milk or a breast milk substitute are needed. The age range for complementary feeding is generally 6-23 months. Complementary feeding should be timely, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. The indictors for the minimum frequency of feeding complementary foods are based on whether the child is being breastfed or not who recommends that infants start receiving complementary foods at 6 months of age in addition to breast milk, initially 2-3 times a day between 6-8 months, increasing to 3-4 times daily between 9-11 months and 12-24 months with additional nutritious snacks offered 1-2 times per day, as desired. Appropriate complementary feeding should include feeding children a variety of foods to ensure that nutritional requirements are met. Therefore, it has been recommended that meat, poultry, fish, or eggs should be part of the daily diet, and eaten as often as possible (WHO, 2008).

1.2 Statement of the problem

In the world 60% of the infant and young child deaths, occur due to malnutrition where two-thirds of these deaths attributed to sub-optimal child feeding practices and infectious disease. Forty-one percent of these deaths occur in sub-Saharan Africa and 34% in South Asia. Apart from contributing to childhood disease burden, early under nutrition has long lasting effects on physical as well as cognitive growth into adulthood (WHO, 2010).

Globally under nutrition contributes more than one third of child death. In developing world 13% of children are wasted and 129 and 195 million children are underweight and stunted respectively. Among 6-9 month old children, less than 60% fed solid, semi-solid or foods while problems related to underweight and stunted are more prevalent problems among sub-Saharan Africa and Asia countries (Tamiru *et al.*, 2013).

Optimal infant and young child feeding practices rank among the most effective nutritional interventions to improve child health. The first two years of life provide a critical window of opportunity for ensuring children's appropriate growth and development through optimal feeding. Breast milk contains all the nutrients that an infant need in the first 6 months of life, including fat, carbohydrates, proteins, vitamins, minerals and water Breast milk also contains bioactive factors that augment the infant's immature immune system, providing protection against infection, and other factors that help digestion and absorption of nutrients (WHO, 2008).

Child health in general, and infant and young child feeding more specifically is often not well addressed in the basic training of doctors, nurses and other allied health professionals. Because of lack of adequate knowledge and skills, health professionals are often barriers to improved feeding practices. Breastfeeding has other benefits including protection from illness for the infant, psychological bonding between the mothers and her infant and economic savings as well as benefits to mothers, families and communities. Breastfeeding also improves the health of mothers by decreasing the risk of bleeding after delivery, promoting child spacing, and helping to prevent breast and ovarian cancers (NNP, 2013-2015).

Early initiation of breastfeeding helps prevent postpartum hemorrhage and increases breast milk production. Timely introduction of complementary foods is important, since both delayed and early initiation of CF is harmful. However, only 51.2% of mothers initiate breastfeeding within the recommended one-hour after delivery. According to EDHS 2016, almost all children (97%) are breastfed at some point. However, only 58% of infants under age 6 months are exclusively breastfed.

The feeding practices of only7% of children age 6-23 months meet the minimum acceptable dietary standards. Only 14% of children had an adequately diverse diet.58% of children under age 6 months are exclusively breastfed, and the percentage of exclusive breastfeeding declines with age from 74% in 0-1 months to 36% in4-5 months. Contrary to the recommendation that children under the age of 6 months be exclusively breastfed, many infants are also fed with other liquids such as water (17%), non-milk liquids (5%), and other milks (5%) before reaching age 6 months (0-5months). Moreover, 11% of infants begin complementary foods before 6 months of age, with more than one-fifth of children (21%) consuming complementary foods by age 4-5months. The percentage of children fed according to the minimum acceptable diet standards shows only small increase from 4% in 2011 to 7% in 2016 (EDHS,2016).

1.3 Literature review

Under nutrition is associated with 40% of child deaths. Globally in 2016, 155 million children under five years estimated to be stunted (too short for age), 52 million were wasted (too thin for height) and 41 million were overweight or obese (WHO fact sheet. 2016).

Most of the world's newborns are left waiting too long to begin breastfeeding. In 2017 alone, an estimated 78 million newborns had to wait more than one hour to be put to the breast. This means that only about two in five children (42 per cent), the majority born in low- and middle-income countries, were put to the breast within the first hour of life. Early initiation rates vary widely across regions– from 35 per cent in the Middle East and North Africa to 65 per cent in Eastern and Southern Africa(UNICEF, 2018).

A cross sectional study in Belgium shows that early initiation of breastfeeding was 64.89% and exclusive breastfeeding for six months was 65.95%. Infants who received weaning foods at the age of six months was 65.95%, however 15.95% of infants had not received weaning food seven at 23 months of age (Khanna *et al.*, 2014).

A community based study done in Gujarat, India revealed the prevalence of early initiation of breast-feeding within an hour and exclusive breast feeding for 6 months is 94.2% and 95% respectively It is estimated that sub- optimal breastfeeding, especially non-exclusive breast feeding in the first 6 months of life, results in1.4 million deaths and 10% of the disease burden in children younger than 5 years. In the world more than 10 million children die annually each year, in which 41% of these deaths occur in sub-Saharan Africa (Chandwani *et al.*, 2015).

A cross-sectional community based study in Benishangul Gumuze region revealed that majority of (73.9) the mothers practice timely introduction of complementary feeding(Guracho and Amentie, 2017). A community based cross sectional study in Oromia region, Asela town reveled, timely initiation and exclusive breast feed was 86.3% and 70% respectively, 91.1% of the mothers-initiated liquids, semi-solids and soft foods at six months of life (*Sasie et al.,* 2017). A cross-sectional community based study in Axum town reveled that timely initiation of complementary feeding is 52.8%(Yemane *et al.*, 2014). A community based cross-sectional study in Jimma Arjo town shows that introduction of complementary food before 6 month is 42.9 %(Tamiru *et al.*, 2013). A community based cross-sectional study

in Hawassa town revealed that the prevalence of exclusive breast feeding is 60.9%(Adugna *et al.*, 2017).

A community based cross-sectional study conducted in Lasta district; Amhara region revealed that the prevalence of complementary feeding practice is 56.5%(Molla *et al.*, 2017). A community based cross-sectional study done in Motta Town, East Gojjam, Amhara region shows that the prevalence of exclusive breast feeding is 50.1%(Tewabe *et al.*, 2016). A cross sectional study which was conducted in Gozamen district revealed that the prevalence of exclusive breast feeding is 74.1%(Hunegnaw *et al.*, 2017).

Based on the study conducted in Lasta district of Amhara region, 56.5% of children aged 6–23 months received appropriate complementary feeding, considering timely introduction, minimum dietary diversity, and meal frequency. Exposure to public media, occupation of mother, mother's decision making role on how to use family income and use of postnatal care service were found to be independent predictors of complementary feeding practice(Molla *et al.*, 2017).

According to a community-based study in slum area of Bahir Dar city, the prevalence of appropriate complementary feeding practice was 7%. Thirty nine out of forty mothers introduced complementary food timely, 47% of mothers gave the minimum meal frequency, and 7% children took the minimum food diversity and acceptable diet. Independent predictors for complementary feeding practice were having secondary and above education of the mother, receiving postnatal care, possession of radio and giving birth at hospital (Demilew *et al.*, 2017).

Based on the study in Shashemene woreda in Oromia region, the prevalence of inappropriate infant and young child feeding practice in study area was 67.9%. Being government and private employee of husband, poorest socio-economic status, not attending ANC, child age 0 - 5 months, negative attitude of mothers and number of children 3 - 4 were independent predictors of inappropriate IYCF practice (Yonas *et al.*, 2015).

1.3.1 Conceptual framework

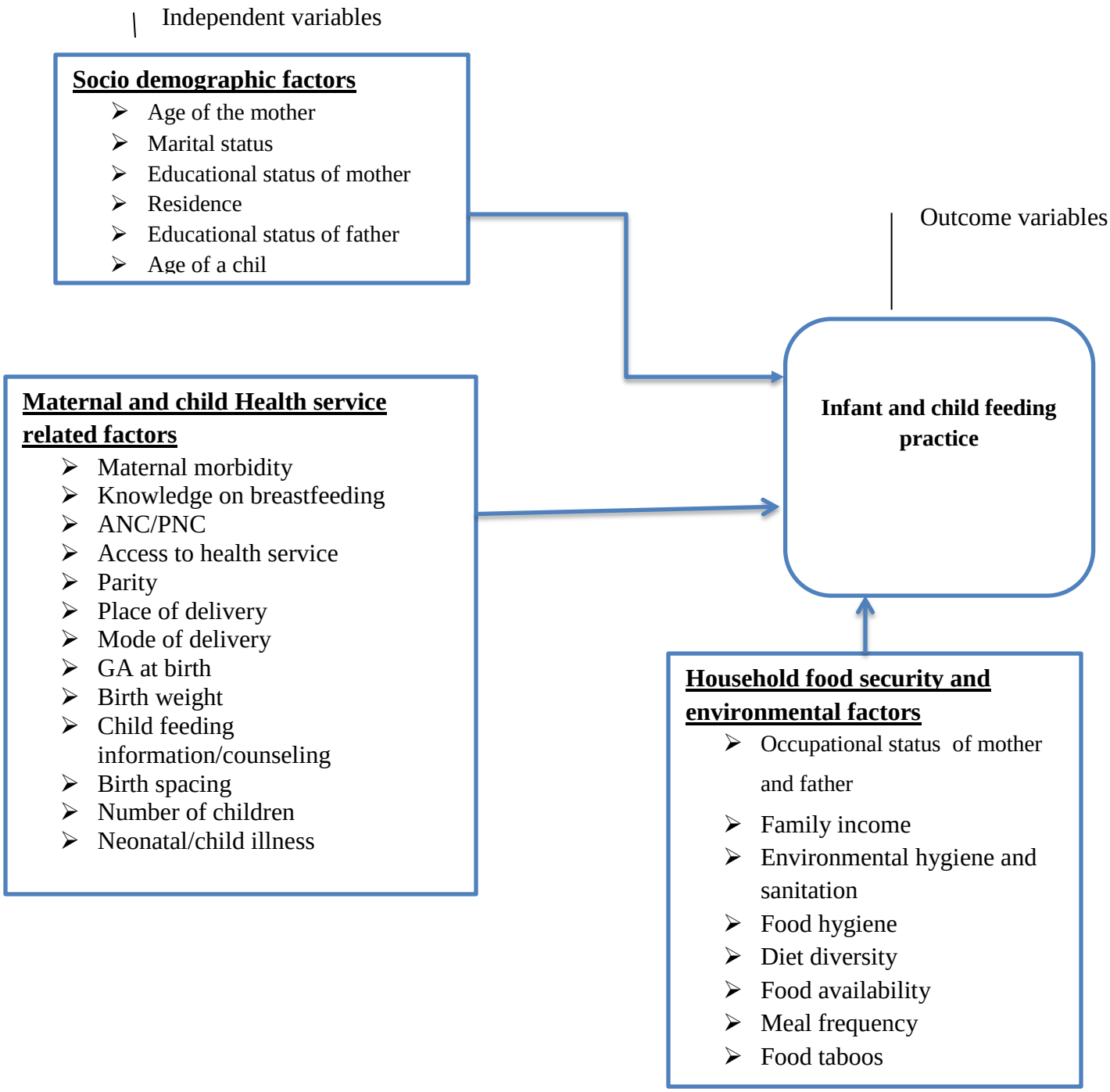

Figure 1: Conceptual framework on factors associated with exclusive breastfeeding practice Adopted from Ochola (2008).

1.4 Significance of the study

Nutrition is essential for children's health and development. Adequate nutrition during infancy and early childhood is fundamental to their development. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development (WHO, 2009). The EDHS (2016) report shows that child-feeding practice is low and not proper. Pre-lacteal feeding practice 7.9%, Early initiation of breast feeding within an hour 66.0% , Exclusive breast feeding of under 6 months region 4.6% .

Besides, researches are not available that can show specifically on infant and child feeding practices and factors associated with it in the study area. Hence, by identifying these gaps, this study will be documented and provides relevant information for government policy makers and NGOs to develop relevant interventional strategies. Furthermore, this study may serve as baseline data for further research of the same topic.

2. OBJECTIVES

2.1 General objective

- To assess the practices and associated factors of optimal infant and young child feeding practices among mothers of aged 0-23 months in North Achefer Woreda, Amhara Region, Ethiopia, 2019.

2.2 Specific objectives

- To determine the magnitude of optimal infant and young child feeding practice among mothers of children aged 0-23 months in North Achefer Woreda, Amhara Region, Ethiopia, 2019.
- To determine factors associated with optimal infant and child feeding practice among mothers of children age 0-23 months in North Achefer Woreda,Amhara Region, Ethiopia, 2019.

3. METHODS

3.1 Study area and period

The study was done in North Achefer Woreda from February 16 to 30, 2019. Liben, the administrative town of North Achefer woreda, is located 95km from the Bahir-Dar city, capital of Amhara regional state, 540 km northwest of Addis Ababa, the capital of Ethiopia. According to the information from North Achefer Woreda head of office, there are 32 kebeles, 5 urban and 27 rural kebeles (the lowest local administrative units) and the total population of the woreda is 256, 065, (126,752 female and are 129,313 male). In the woreda, there are 60,380 women in the reproductive age group (15–49 years) and 34,681 children under five years of age, total under two 12, 932, and total 6-59 months 1,288. In the woreda, there is one primary hospital, seven health centers, 27 health post and 5 non-governmental organization clinics provide health care services to the residents.

3.2 Study design

Community based cross-sectional study was used.

3.3. Population

3.3.1 Source population

All mothers/care takers of infants and young children aged 0-23 months in North Achefer Woreda.

3.3.2 Study population

All randomly selected mothers/care takers of infants and young children aged 0-23 months in North Achefer Woreda during the study period.

3.4 Inclusion and Exclusion criteria

3.4.1 Inclusion criteria

All randomly selected volunteer mothers/care takers of infants and young children aged 0-23 months during the study period.

3.4.2 Exclusion criteria

Mothers/care takers of infants and young child who were seriously ill at the time of data collection

3.5 Sample size determination and Sampling procedures

3.5.1 Sample size determination

Sample size was calculated using single population proportion formula based on the proportion of exclusive breast feeding (EBF) from the study done in Motta town which was 50.1% and complementary feeding (CF) from similar study in Lasta district North East Amhara, Ethiopia which was 56.5% and by taking 95% confidence interval and margin of error of 5 % (Tilahun *et al*., .2017; Menberu et *al.*, 2017).

$$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2} * DE$$

Where; n – sample size

Z – Value of z statistic at 95% confidence level = 1.96 (for both)

P – Proportion of EBF 50.1% = 0.7(1-P =0.499) and CBF 56.5%=0.565, 1-P =0.435),

d – Maximum allowable error 5% = 0.05 (for both)

DE-Design effect---- (1.5)

- Then the sample size calculated to be 576 which were **605** after adding 5% of non-response rate EBF.
- For complementary feeding (CF)=566 and after adding 5% of non-response rate final n=594
- The greater sample size (n=605) was used in the study

3.5.2 Sampling technique and procedure

Multistage sampling technique using two stage of the sampling procedure was used. Cluster sampling method was used by considering each Kebele as a cluster and 4 kebeles out of 32 kebeles was selected, in four selected kebeles there are total population of 44,438 and total households of 9,287. Then proportional allocation of sample size was carried out for each Kebele to attain the required sample size based on the respective Kebele's number of households. Then the households with eligible children in each kebele were selected using simple random sampling technique (using the registration book from each kebele's health post) until the required households (sample) achieved in each Kebele and finally in the woreda as shown below (**Figure 2)**.The first household was selected by lottery method and

if the selected child's mother was not present, the selected house was revisited and if the selected house had no eligible child sampling with replacement was used i.e. the next household.

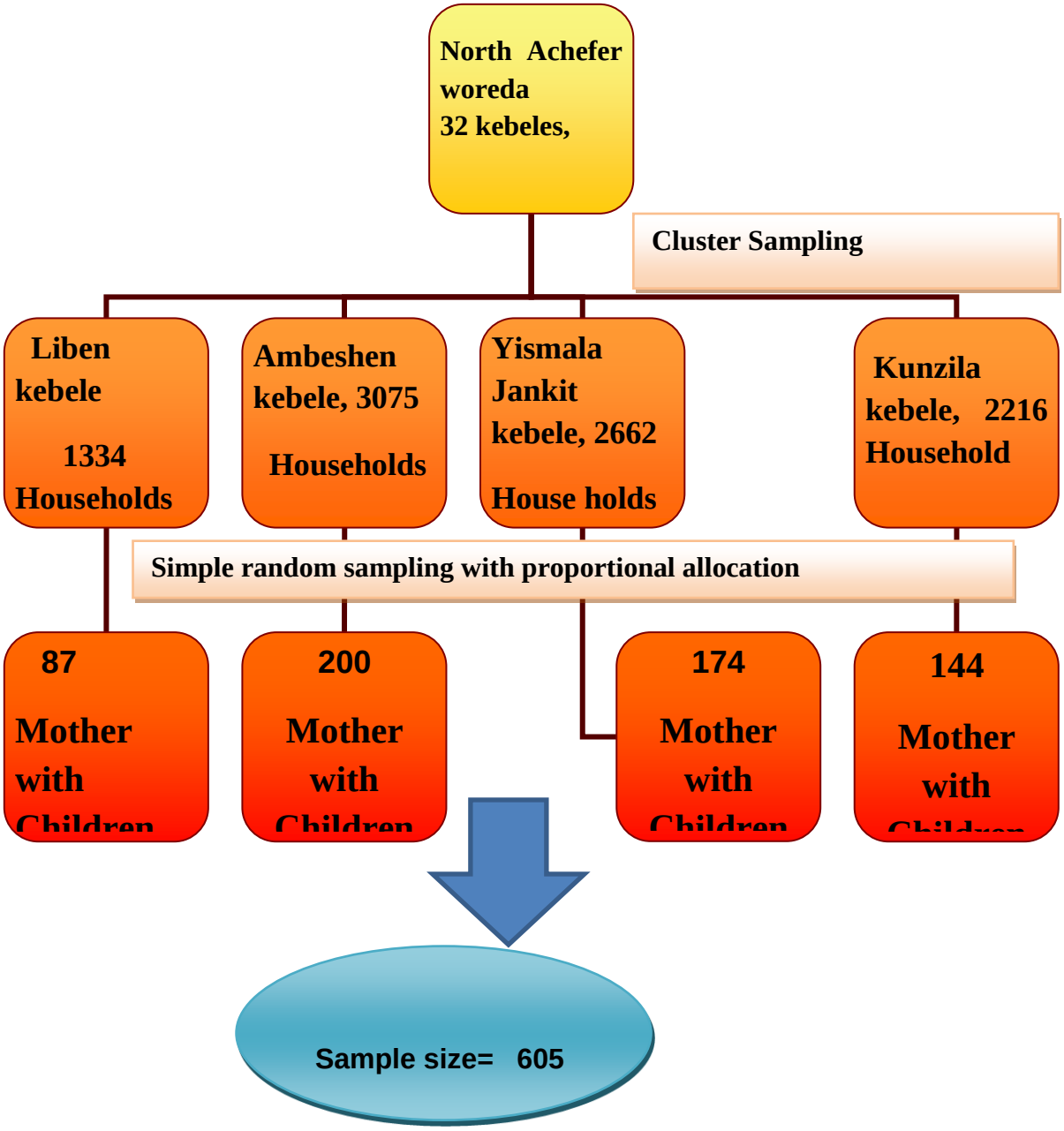

Figure 2: Schematic representation of sampling procedure for child feeding practices and associated factors among mothers of infant and young child aged 0-23 months North Achefer Woreda, Amhara Region, Ethiopia, 2019

3.6 Study variables

3.6.1 Dependent variables

- Optimal infant and young child feeding practice

3.6.2 Independent variables

❖ Socio-demographic variables

- Age
- Marital status
- Occupation
- Family size
- Age of older sibling
- Presence of illness
- Educational status
- Religion

❖ Maternal related factors/practices

- Use of ANC services
- Use of PNC services
- Place of delivery
- Access to health services
- Access to health information

❖ Knowledge and attitude of mother

❖ Household food security and Environmental hygiene and sanitation

- Family income
- Occupational status of mother and father
- Environmental hygiene and sanitation
- Food hygiene
- Diet diversity
- Food availability
- Meal frequency
- Food taboos

3.7 Operational definition

📖 **Infant:** a child aged between 0 and less than12 months of life (sometimes referred to as 0-11 months).

📖 **Young child**: a child aged between 12months and less than 24 months (sometimes referred to as 12-23 months).

- **Infants and young child mother;** includes both biological and non-biological mother/care taker.
    - **Non biological mothers/care taker**; are surrogate mothers when the real mother of the infant or child died or become seriously ill and unable to give care (including breast feeding) to her baby.
- **Pre-lacteal feeding;** feeding newborns anything other than breast milk before breast milk is initiated or regularly given in the first days (WHO, 2010).
- **Exclusive breastfeeding:** means that an infant receives only breast milk from his or her mother or a wet-nurse, or expressed breast milk, and no other liquids or solids, not even water, with the exception of oral rehydration solution, drops or syrups consisting of vitamins, minerals supplements or medicines (WHO, 2010).
- **Appropriate Complementary feeding practice** means timely initiation (at 6 months) of complementary food, minimum meal frequency and minimum dietary diversity otherwise it was considered as inappropriate (WHO, 2010).
- **Minimum meal frequency (MMF):** Breast feeding infant receive solid, semi-solid, or soft foods at least twice a day and at least three times a day for infants aged 6-8 months and 9-23 months respectively. Non-breastfed infant age 6-23 months are considered to be fed with a minimum meal frequency if they receive solid, semi-solid, or soft foods at least four times a day (EDHS,2016).
- **Minimum dietary diversity (MDD):** Children age 6-23 months (both breastfed and non-breastfed children) fed from at least four food groups (fruit or vegetable, grains, roots, or tubers) 24 hours (EDHS, 2016).
- **Minimum acceptable diet (MAD)**: is proportion of children age 6-23 months who receives a minimum acceptable diet (apart from breast milk) which is a combination of the minimum dietary diversity (MDD) and minimum meal frequency (MMF)**.** This composite indicator is calculated from the following two fractions:

$$\frac{\text{Breastfed children age 6-23 months who had at least the minimum dietary diversity and the minimum meal frequency during the previous day}}{\text{Breast fed children age 6-23months}}$$

$$\frac{\text{Non-breastfed children age 6-23 months who received at least two milk feedings and had at least the minimum dietary diversity (not including milk feeds) and the minimum meal frequency during the previous day}}{\text{Non-breastfed children age 6-23 months}}$$

- **Optimal infant and young child feeding (IYCF) practice**: Ten feeding practice indicators were used to construct comprehensive IYCF practices to assess the adequacy and to classify into optimal and suboptimal IYCF practices. Based on these indicators, optimal IYCF involves timely initiation (within one hour of birth) of breast feeding, colostrum feeding, pre-lacteal feeding, non-bottle feeding, exclusive breast feeding, breastfeeding frequency, timely introduction of complementary foods, minimum food diversification, minimum meal frequency and continued breast feeding form 0- 23 months otherwise it was consider as suboptimal IYCF (WHO,2008).
- **Good knowledge:** when the respondents correctly answered above median score of the knowledge assessing questions favorable to optimal IYCF otherwise poor knowledge (Yonas *et al.*, 2015).
- **Favorable attitude:** when respondents score above median score of the attitude assessing questions favorable to optimal IYCF considered as having favorable attitude otherwise unfavorable.

3.8 Data collection procedures (instrument, personnel)

. An English version of questionnaire was adapted and translated into Amharic version. Data was collected with a pretested structured questionnaire. Four trained data collectors (two HEWs and two trained degree midwife) under the supervision of two supervisors (one-health officer and the investigator) using structured questionnaires through face-to-face interview among mothers of infants and young children aged 0-23 months collected data.

3.10 Data quality control and pretest

The questionnaires were prepared in English language by reviewing different literatures. The English version of questionnaire was translated into Amharic version. Prior to the actual data collection period data tools was pre tested by conducting on 5% of the study population at Denbola kebele to check for the accuracy of responses, language clarity, and appropriateness of the tools, and necessary modifications was made on the questionnaire accordingly before being applied on the study participants. Before data collection, training

was given for data collectors and a supervisor regarding infant and young child feeding, inclusion and exclusion criteria is, sampling procedure and which age group involved in the study for one day. The assigned supervisors supervised the data collection. The supervisors were making routine checkup for completeness and consistency of the data and necessary feedback were offered for data collectors on the next day before the start of data collection.

3.9 Data processing and analysis

After data collected and coded, it was checked for completeness and then entered and analyzed using SPSS version 25.0 software. The data was presented using table, graphs and charts. Proportions and summary statistics such as mean, standard deviation was calculated for variables. Simple and multiple binary logistic regressions were used to determine the associated factors. The variables that are found with $P<0.2$ at binary logistic regression will be entered to multivariable analysis. Both Crude Odds Ratio (COR) and Adjusted Odds Ratio (AOR) with 95% confidence interval (CI) was used to show the strength of association. p-value less than 0.05 were considered statistically significant.

3.11 Ethical Consideration

Ethical clearance was obtained from Ethical review committee in Bahir Dar University College of Engineering, School of Food and Chemical Engineering, and a written permission letter was obtained from North Achefer Woreda Health Office. The purpose and objective of the study was explained and oral consent was obtained from each selected study participant or mother. Participants were also informed that participation is on voluntary basis and were assured on the right to refuse or withdraw from the study at any time. Confidentiality of information provided by study participants was assured and told that the information gathered was only is used for purposes of improving health delivery services and for academic purposes. Hence, the results of this study shared only with the relevant stakeholders including Bahir Dar university food and chemical engineering school.

4. RESULTS

4.1. Socio-Demographic Characteristics

A total 588 of mothers of children 0-23 month's age were included in the study yielding response rate of 97.2%. The mean (±SD) age of the mothers was 27.1 years (±4.9) and ranged from 18 to 43 years. Majority of the mothers (98.5%) were married while more than three fifth (64.6%) were housewives. With regard to educational status, 306 (52.0%) mothers did not have formal education. Most of the respondents were Orthodox by religion (99.0%). Concerning father's education level, 50.0 % of them had no formal education while 293 (49.8%) of fathers were farmers. More than half 337 (57.3%) of households had a family size one to four and the median family size was three (**Table 1**).

Table1. Socio-demographic characteristics of respondents

Variables (n = 588)	**Category**	**Frequency**	**Percent**
Age of mother (years)	≤19	29	4.9
	20-24	75	12.8
	25-29	201	34.2
	30-34	159	27
	≥35	124	21.1
Marital status of mother	Married	579	98.5
	Single	4	0.7
	Widowed	2	0.3
	Divorced	3	0.5
Educational status of mother	No education	306	52
	Primary education	132	22.4
	Secondary education	71	12.2
	Higher education	79	13.4
Religion of mother	Orthodox	582	99
	Muslim	5	0.9
	Protestant	1	0.2
Occupational status of mother	Housewife	380	64.6
	Government employee	78	13.3
	Merchant	65	11.1
	Farmer	34	5.8
	Student	20	3.4
	Daily Laborer	8	1.4
	Other	3	0.5
Educational status of father (n=579)	No formal education	287	49.6
	Primary education	103	17.8
	Secondary education	84	14.5

	Higher education	105	18.1
Occupational status of father (n=579)	Farmer	286	49.4
	Merchant	145	25.0
	Government employee	106	18.3
	Daily laborer	16	2.8
	Student	12	2.1
	Other	14	2.4
Family size	1-4	337	57.3
	5-8	175	29.8
	≥8	76	12.9
Family income	<1000	210	35.7
	1000-2999	160	27.2
	3000-3999	84	14.3
	>4000	134	22.8

4.2 Child Characteristics

Nearly half (50.5%) of children were males and 63.4% of children were 13-23 months old. More than two third (68.7%) of children were second and above in birth order. The birth intervals between the youngest child (index child) and his immediate older were more than two years is more than half of children (58.0%). The majority (99.3%) mothers were biological to their babies (**Table 2**).

Table 2. Child characteristics

Variables	**Category**	**Frequency (n = 588)**	**Percent**
Relation of mother/care taker with child	Biological	584	99.3
	Care taker	4	0.7
Sex	Male	297	50.5
	Female	291	49.5
Age (completed months)	<6	192	32.7
	7-12	181	30.8
	13-23	215	36.6
Birth order	1st	184	31.3
	2nd or above	404	68.7
Preceding birth interval (n=404)	<2years	61	15.1
	≥2years	343	84.9

4.3. Maternal and Child Health Services Use

A total of 507 (86.2%) mothers attended antenatal care (ANC). Among all mothers, about 47.6% had less than four visits. During ANC follow up, 83.3% of mothers had received information about Infant and Young Child Feeding Practices (early initiation of breast feeding, colostrum feeding, exclusive breast feeding and complementary feeding). Majority (97.8%) of mothers delivered vaginally and about a tenth (11.1%) of mothers gave birth at home. Nearly nine in ten (89.8%) of mothers did have PNC at least once, in which three fourth (78.0%) have got breast feeding counseling during their visit (**Table 3**).

Table 3: Maternal and child Health service characteristics

Variable	Category	Frequency (n = 588)	Percent
ANC visit	No	81	13.8
	Less than 4	280	47.6
	>=4	227	38.6
Infant and child feeding counseling during ANC (n=507)	Yes	422	83.7
	No	85	16.3
Place of delivery	Health institution	523	88.9
	Home	65	11.1
Mode of delivery	Vaginal delivery	575	97.8
	Cesarean section	13	2.2
PNC visit (post-delivery)	Yes	528	89.8
	No	60	10.2
Infant and child feeding counseling during PNC (n=528)	Yes	412	78.0
	No	116	22.0

4.4 Knowledge and attitude of respondents about IYCF

Out of total, 575 (97.8%) of mothers had ever heard about IYCF. As depicted in the figure 3 below, the main source of information of respondents about IYCF was health extension workers (HEWs) accounted for 402(69.9%) followed by health professionals and family, friends or neighbors which took 180 (31.4%) and 160 (27.9%) respectively. Media like radio 97 (16.9%) and television 72 (12.5%) were also used as their source of information about IYCF.

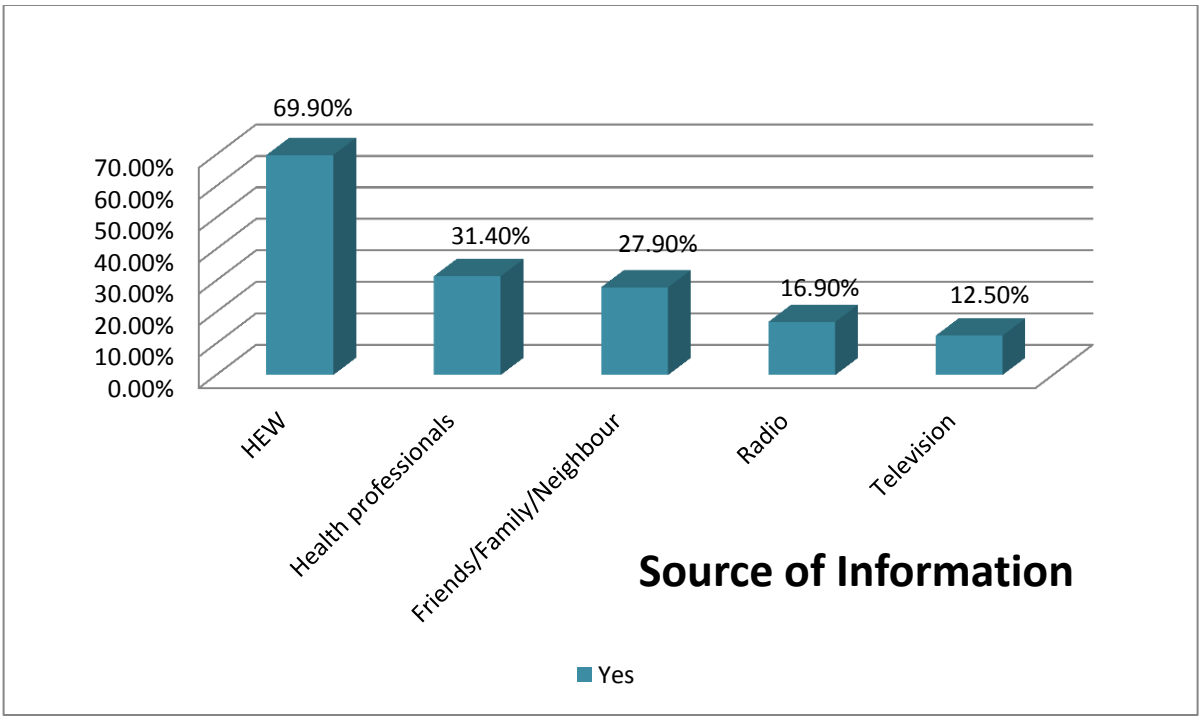

Figure 3: Source of information about IYCF among respondents in North Achefer Woreda, Amhara Region, Ethiopia, and February 2019.

Respondent's knowledge of IYCF practice was assessed by six knowledge assessing questions. Based on this, generally 522(88.8%) of respondents replied correctly above median of knowledge assessing questions and found to have good knowledge about IYCF practice. Similarly, a total of six questions about IYCF were asked to assess the attitude of respondents using Likert's scale. Based on this, out of 588 respondents, 343 (58.3%) were above median score and found to have favorable attitude.

4.5 Feeding practice of Mothers

4.5.1. Breast feeding practice

The finding of this study showed that all participated mothers were breast-feeding their children during the survey. More than three quarter 464 (78.9%) of mothers-initiated breast-feeding within the first hour of delivery (**Figure 4**).

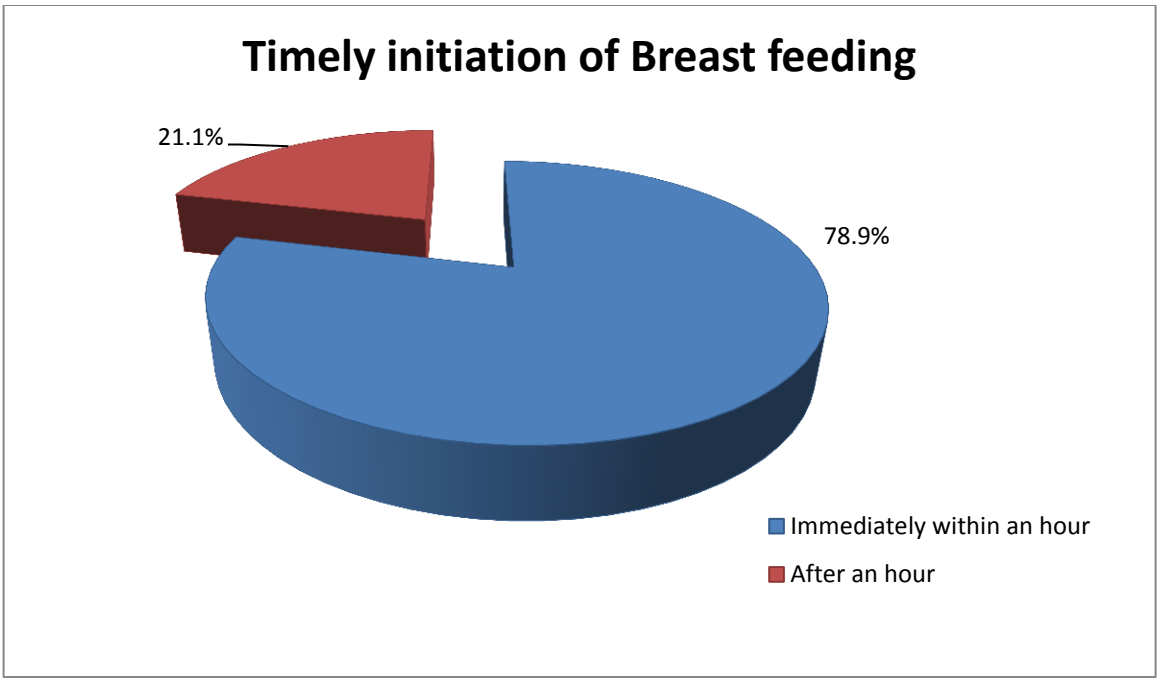

Figure 4: Timely initiation of breast feeding among 0-23 month's old children in North Achefer Woreda, Amhara Region, Ethiopia, and February 2019.

As per the finding of this study, more than one-eighth 79 (13.4%) of mothers gave pre lacteal food to their infants after birth (**Figure 5**).

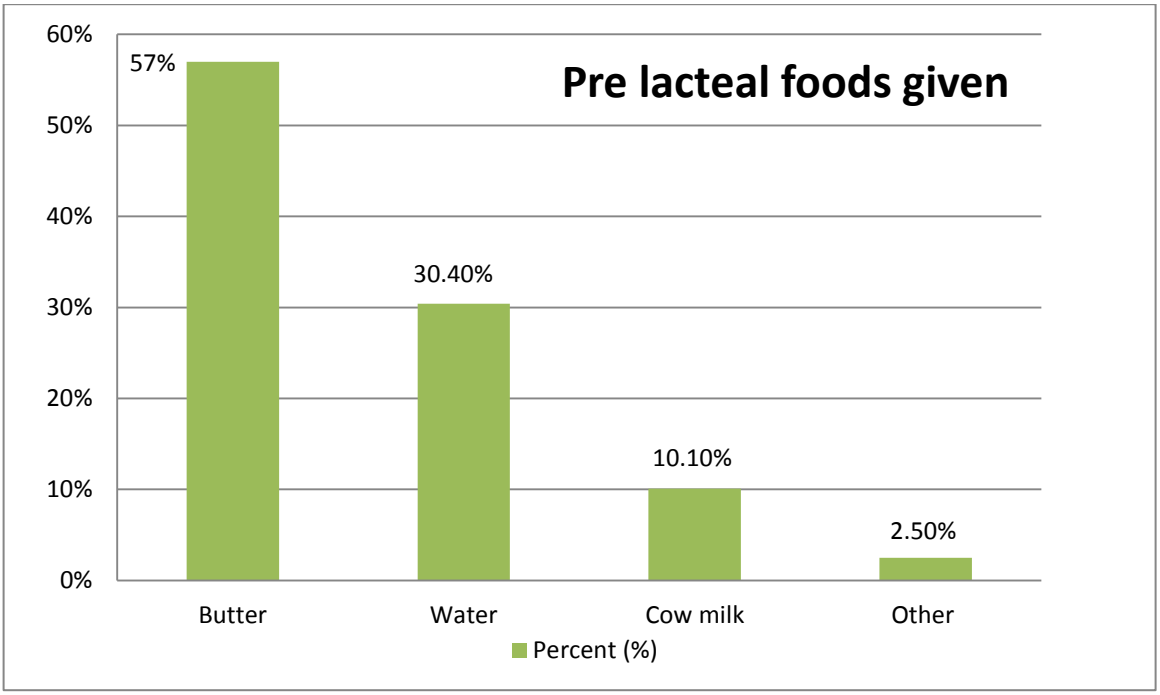

Figure 5: Prelacteal foods given among 0-23 months old children in North Achefer Woreda, Amhara Region, Ethiopia, and February 2019.

The study reported that 79.9% of the mothers gave colostrum to their infants. Regarding exclusive breastfeeding, majority (83.0%) of less than 6 months infants were breast fed exclusively. The frequency of breast-feeding was reported to be 8 times or above per day in 521 (88.6%) of respondents. Out of a total 588, 423 (71.9%) of children less than 23 months become sick at least once and of which, only 141 (33.3%) of mothers were increasing the frequency of breast feeding to their sick children (**Figure 6**).

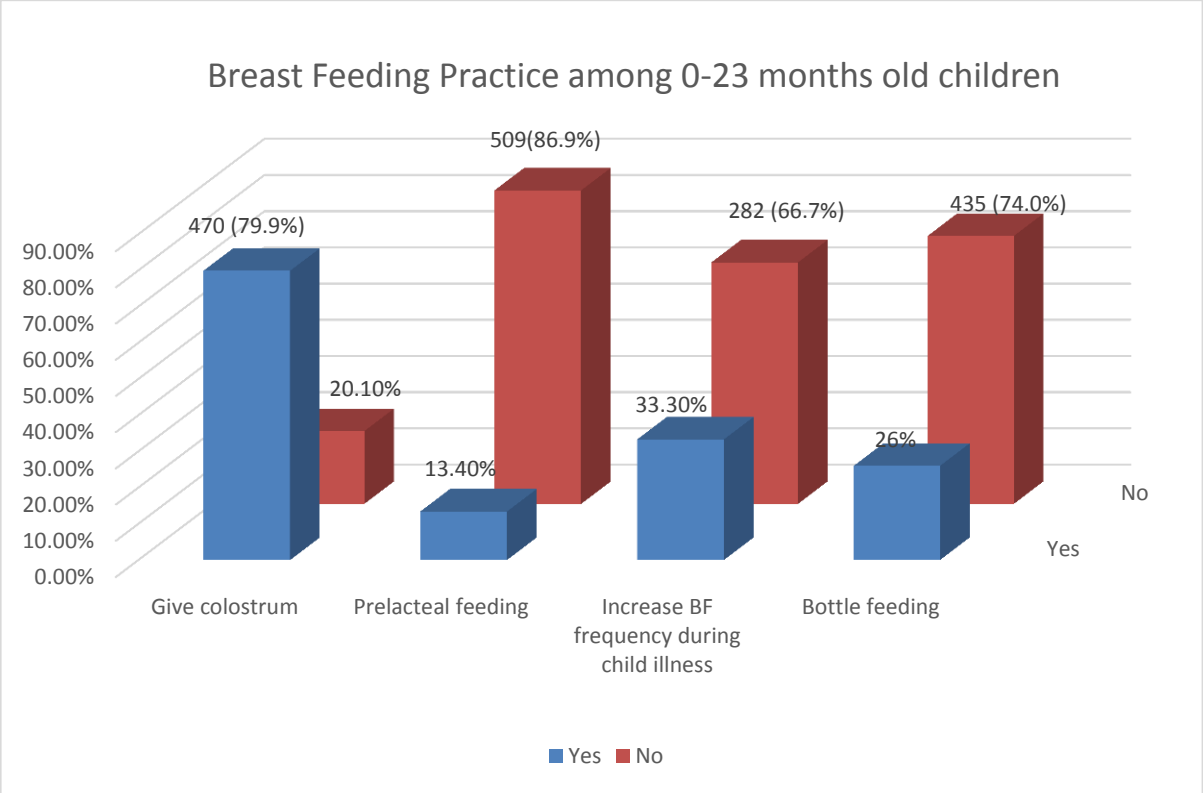

Figure 6. Breast feeding practices among mothers of 0-23 months old children in North Achefer Woreda, Amhara Region, Ethiopia, and February 2019.

Mothers were influenced on their child feeding practice mostly by health workers, their husbands and relatives, accounted for 78(36.4%), 64(29.9%) and 59(27.6%) respectively (**Figure 7**).

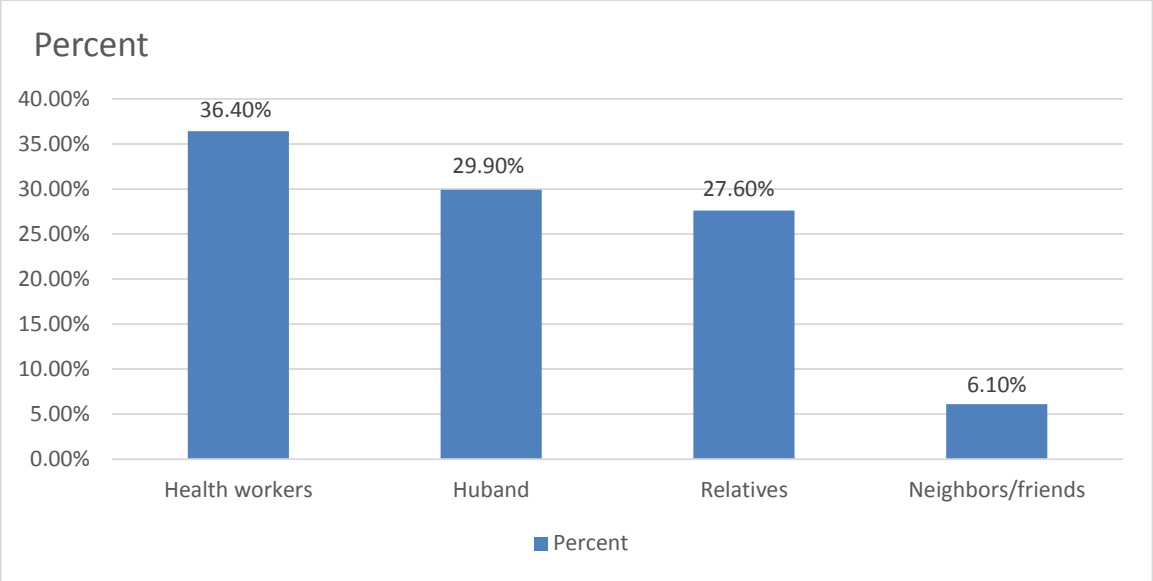

Figure 7: influencer who influenced IYCF practice of mothers in North Achefer Woreda, Amhara Region, Ethiopia, and February 2019.

4.5.2. Complementary feeding practice of Mothers

Sixty-eight (17.2%) of mothers started feeding solid, semi-solid and soft foods before the children turn their 6 months (**Figure 8**) due to reported reasons of insufficient breast milk, maternal illness, infant thirst and mother busy, accounted for 51(75%), 8(11.6%), 5(7.4%) and 4(5.9%) respectively.

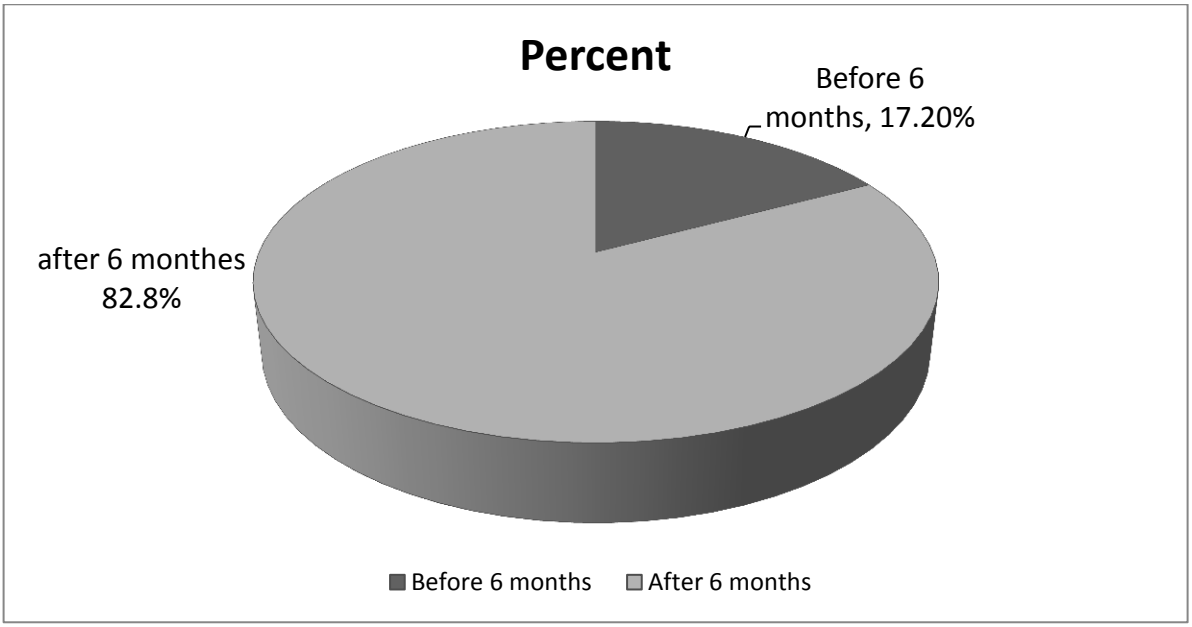

Figure 8: Introduction of complementary feeding among 6-23 months old children in North Achefer Woreda, Amhara Region, Ethiopia, and February 2019.

Among 396 children aged 6-23 months, only 177 (44.7%) of children met the requirements for minimum dietary diversity (MDD) while 211 (53.3%) of children met minimum meal (MMF) frequency. The proportion of children age 6-23 months who met minimum acceptable diet (MAD), which is the composite of minimum dietary diversity and minimum meal frequency, was 175 (44.2%). Based on the WHO recommended criteria of appropriate complementary feeding practice, about 174 (43.9%) of 6-23 months children were getting appropriate complementary feeding.

4.5.3. Optimal Infant and Young Child Feeding Practice of Respondents

Ten feeding practice indicators were used to construct comprehensive infant and young child feeding practices to assess the adequacy and to classify into optimal and suboptimal IYCF practices. These indicators were timely initiation of breast feeding, colostrum feeding, pre-lacteal feeding, bottle feeding, exclusive breast feeding, and breast-feeding frequency, timely introduction of complementary foods, minimum food diversification, and minimum meal frequency and continued breast feeding. Based on these indicators, optimal IYCF practice among 0-23 month's children was only 255 (43.4%).

4.6 Factors associated with IYCF Practice of Respondents

The table 4 below illustrates the binary logistic regression that shows the association between practices of IYCF with socio-demographic, maternal and child health related variables as well as knowledge and attitude on IYCF practice results from simple binary logistic analysis indicate that IYCF practice among 0-23months children was significantly associated with maternal age, maternal education, family size, birth order, birth spacing, monthly family income, post-natal care (PNC) visit as well as knowledge and attitude about IYCF.

Variables having a p-value of less than 0.2 (at 95% CI) in the simple binary logistic analysis were exported into the multivariable regression models to identify predictor variables of IYCF. After adjusting for the confounding variables, multivariable analysis result showed that only maternal education, father's occupation, family income, place of delivery, PNC visit, knowledge on IYCF and attitude towards IYCF were significantly associated ($P < 0.05$) with optimal IYCF practice among 0-23 months of children.

Mothers who already had attended secondary and higher education were, respectively, 2.2[AOR: 2.2, 95%CI: 1.1, 7.0] and 3.5 [AOR: 3.5, 95%CI: 1.1, 13.0] times more likely to optimally practice IYCF than those mothers who had no education. Concerning occupation, taking farmers as reference, fathers who are merchant were 2.3 [AOR: 2.3, 95%CI: 1.1, 4.9] times more likely to practice IYCF optimally than farmers. Mother with family average monthly income 3000-3999 ETB were 1.4 [AOR: 1.4, 95% CI: 1.2, 3.0] times more likely to practice optimal IYCF than those with monthly income less than 1000ETB. Mothers who delivered at health institutions were 1.4 [AOR: 1.4, 95% CI: 1.2, 2.8] times more likely to practice optimal IYCF than those who delivered at home. Regarding PNC utilization mother who utilized PNC after the delivery of the index child were 1.6 [AOR: 1.6, 95% CI: 1.0, 2.1] times more likely to practice optimal IYCF compared to those who didn't have PNC follow up. Regarding knowledge on IYCF, mothers who had a good knowledge about IYCF were 3.6 [AOR: 3.6, 95%CI: 1.5, 8.2] times more likely to be practice optimal IYCF than mothers who had poor knowledge about IYCF. The odds of optimal IYCF practice were 1.2 [AOR: 1.2, 95%CI: 1.1, 1.9)] times higher in mothers who had favorable attitude towards IYCFs than those with unfavorable attitude.

Table 4: Multiple logistic regression analysis showing factors associated with IYCF practice of mothers with 0-23months old children.

Variables		IYCF practice		Odds ratio		
		Optimal	**Suboptimal**	**COR (95%CI)**	**AOR (95%CI)**	**P-value**
Age of mother	<20	10 (34.5%)	19 (65.5%)	1	1	
	20-24	43 (57.3%)	32 (42.7%)	1.1(0.5,2.6)	5.8(0.9,10.1)	0.052
	25-29	97 (48.3%)	104 (51.7%)	**2.5(1.7,5.0)**	2.6 (0.5,10.0)	0.257
	30-34	65 (40.9%)	94 (59.1%)	**2(1.3,3.3)**	3.2(0.6,7.7)	0.171
	≥35	40 (32.3%)	84 (67.7%)	1.5(0.9,2.5)	2.8(0.5,4.0)	0.231
Marital status of mother	Married	250(43.2%)	329(56.8%)	1.7 (0.4,6.2)	**NI**	
	Unmarried*	5 (55.6%)	4(44.4%)	1		
Maternal education	No education	117(38.2%)	189 (61.8%)	1	1	
	Primary education	61(46.2%)	71 (53.8%)	1.4(0.9,2.4)	1(0.5,2.1)	0.974

	Secondary education	39 (54.9%)	32(45.1%)	**1.6(1.1, 3.3)**	**2.2(1.1,7.0)**	0.041
	Tertiary	38(48.1%)	41(51.9%)	1.4 (0.9,2.5)	**3.5(1.1,13.0)**	0.037
father's education	No education	108(37.6%)	179(62.4%)	1	1	
	Primary education	47 (45.6%)	56 (54.4%)	2.1(0.5,7.9)	1.1(0.5,3.8)	0.894
	Secondary education	38(45.2%)	46(54.8%)	1.5(0.4,5.9)	1.2(0.5,3.8)	0.690
	Tertiary	57(54.3%)	48(45.7%)	1.5(0.4,6.0)	4.1(0.6,10.0)	0.144
Mother's occupation	Housewife	166(43.7%)	214(56.3%)	1	NI	
	Gov.t employee	36(46.2%)	42 (53.8%)	1.1(0.6,1.6)		
	Merchant	32(49.2%)	33(50.8%)	1.25(0.7,2.0)		
	Other**	21(32.3%)	44(67.7%)	0.6(0.4,1.1)		
father's Occupation	Farmer	98(34.3%)	188(65.7%)	1	1	
	Merchant	74(51%)	71 (49%)	1.25 (0.7,2.5)	**2.3(1.1,4.9)**	0.028
	Gov't employee	58(54.7%)	48(45.3%)	1.25 (0.6,2.5)	3.1(0.1,4.7)	0.699
	Other***	20(47.6%)	22(52.4%)	0.6(0.3,1.1)	1.3(0.2,3.3)	0.056
Family size	≤4	169(50.1%)	168 (49.9%)	1	1	
	>4	86(34.3%)	165 (65.7%)	**0.5(0.4,0.7)**	0.9(0.5,1.5)	0.560
Sex if child	Male	124(41.8%)	173(58.2%)	1	NI	
	Female	131(45%)	160(55%)	1.1(0.8,1.6)		
Birth order	1st	101(54.9%)	83(45.1%)	1	1	
	2nd or above	154(38.1%)	250 (61.9%)	**0.5 (0.4,0.7)**	1.9(0.9,4.0)	0.33
Birth spacing	<2years	14(23%)	47(77%)	1	1	
	≥2years	140(40.8%)	203 (59.2%)	**2.3 (1.3,4.4)**	1.9(0.3,2.1)	0.081
Family income	<1000	80(38.1%)	130(61.9%)	1	1	
	1000-2999	58 (36.2%)	102(63.7%)	0.9(0.7,1.5)	0.7(0.4,2.4)	0.290
	3000-3999	47(56%)	37(44%)	**1.9(1.2,3.1)**	**1.4(1.2,3.0)**	0.027
	≥4000	70(52.2%)	64 (47.8%)	**1.7(1.2,2.8)**	1.1(0.4,1.8)	0.720

ANC visit	Yes	222(43.8%)	285 (56.2%)	1.1 (0.7,1.8)	NI	
	No	33 (40.7%)	48 (59.3%)	1		
Place of delivery	Health institution	232(44.4%)	291(55.6%)	1.5(0.9,2.5)	**1.4 (1.2,2.8)**	**0.042**
	Home	23 (35.4%)	42 (64.6%)	1	1	
PNC visit	Yes	416 (78.8%)	112(21.2%)	**1.8(1.2, 2.7)**	**1.6 (1.0, 2.1)**	**0.021**
	No	2(3.3%)	58(96.7%)	1	1	
Knowledge about IYCF	Good	242(46.4%)	280 (53.6%)	**3.3 (2.0,5.0)**	**3.6(1.5,8.2)**	**0.000**
	Poor	13 (19.7%)	53 (80.3%)	1	1	
Attitude towards IYCF	Favorable	161(46.9%)	182(53.1%)	**1.4 (1.1,2.0)**	**1.2(1.1,1.9)**	**0.012**
	Unfavorable	94 (38.4%)	151(61.6%)	1	1	

**single, divorced, widowed; **Farmer, private employee, cashier, student, daily laborer; ***private employee, daily laborer, tailor, car driver & students; p value < 0.05 presented in bold; NI- Variable not included in the model*

5. DISCUSSIONS

This study strived to assess optimal infant and young child feeding practice and associated factors among mothers of children aged 0-23 months in North Achefer woreda, Ethiopia. As a global public health recommendation, the strategy for IYCF describes essential actions to protect, promote and support optimal IYCF. According to WHO, optimal IYCF practice involves timely initiation of breast feeding (within an hour of birth), colostrum feeding, no pre-lacteal feeding, non-bottle feeding, exclusive breast feeding, breastfeeding of at least eight times (or on demand) per day, increased breastfeeding during illness and recovery, timely introduction of complementary food from locally available and hygienically prepared food, minimum food diversification, minimum meal frequency and continued breast feeding up to 2 years (WHO, 2010).

Based on the finding of this study, 13.4% of mothers gave pre lacteal food such as butter, water, cow milk, sugar solution and locally made *atimit* to their infants and 26% of them practiced bottle feeding. This is consistent with the study done in south Gonder zone 11.1% (Nekatebeb *et al.*, 2010) but in contrary to the recommendation by WHO though the figure of pre-lacteal feeding is slightly lower (15%) and the bottle-feeding practice is higher (23%) than the findings from a community-based study conducted in Bahir Dar city (Demilew *et al.*, 2017).

According to this study, the magnitude of timely initiation of breast feeding within an hour was 78.9%. The figure of early initiation of breast feeding was lower than the study done in Bahir Dar city 84% (Demilew *et al.*, 2017), in Assella town 86.3% (Sasie *et al.*, 2017) and in Gujarat, India 94.2% (Chandwani *et al.*, 2015). However, this figure was higher than the study finding in Hawassa town, 60.9% (Adugna *et al.*, 2017), Motta Town, 50.1% (Tewabe *et al.*, 2016), in Amhara regional level 38% and the national level in Ethiopia 73.0% (EDHS, 2016), and in Belgium 73.8% (Khanna *et al.*, 2014). This higher figure may be attributed to the fact that in this study majority (88.9%) of the mothers had given birth in health institutions that have the mandate to ensure the implementation of National IYCF recommendations and also the better performance of HEWs (69.9%) in providing information about IYCF practices in study area.

As per the finding of this study, nearly 79.9% of the mothers gave colostrum to their infants and 83% of them exclusively breast fed their children for the first 6 months. The prevalence of exclusive breast feeding was higher compared to EDHS 2016 in which 58% of children under age 6 months are exclusively breastfed (EDHS, 2016). This could be explained by the higher percentage of ANC follow up, mother delivery at health institution, and PNC visits in the study during which counseling about infant feeding practice was given.

In consistent with the WHO and national recommendation (FDRE, 2004; WHO, 2010), a bit less than nine in ten (88.6%) mothers in this study were reported to breast-fed at least 8 times per day. In contrast, only one third (33.3%) of mothers increased the frequency of breast feeding to their sick children.

Based on this study, about 43.9% of 6-23 months children were getting appropriate complementary feeding. This is lower than the study done in Lasta district; Amhara region that revealed 56.5% complementary feeding practice (Molla *et al.*, 2017). but it is higher than the study findings in other parts of Ethiopia Abyi Adi town, Northern Ethiopia 10.75% (Mekbib *et al.*, 2014), Enemay district, Northwest Ethiopia 40.5% (Gessese *et al.*, 2014) and Ethiopian National prevalence 8% (EDHS, 2016), and Ghana 32.0% (Gyampoh *et al.*, 2014). These relatively better practices might be due to practices change with time, the presence of nutrition intervention program by nongovernmental organization in the study area, and the efforts of health extension workers, health professionals, and other bodies in the study area.

From this study, the magnitude of timely initiation of complementary feeding among 6-23 months children was 82.8%. This is nearly comparable with the study in Abiyi Adi town 80% (Mekbib *et al.*, 2014) and in Kenya 81%(Korir, 2013) . However, the finding is higher compared to similar studies done in in Jimma Arjo town, 42.9% (Tamiru *et al.*, 2013), Axum town,52.8%(Yemane *et al.*, 2014), Harar 54.4%(Abera, 2012), EDHS 73.0% (EDHS, 2016) and in Uganda 75% (Wamani *et al.*, 2005) but it is lower than a figure from a study in Assela 91.1% (Sasie *et al.*, 2017) and Tanzania 92.3%(Victor, 2013). These discrepancies could probably due to differences in study setting, sample size, socio demographic characteristics, socioeconomic issues, maternal health service utilization, mother's knowledge and attitude on complementary feeding.

This study also revealed that minimum meal frequency among 6–23 months old children in this study was 53.3%, which is in line with the study in Assela 53.8% (Sasie *et al.*, 2017) but lower than a study in Shashemene Woreda 82.0% (Yonas *et al.*, 2015). This figure is however relatively higher than the study findings in slum area of Bahir Dar city 47% (Demilew *et al.*, 2017), Amhara region 34% and at national level of Ethiopia 45% (EDHS, 2016), in Western Uganda 49% (Wamani *et al.*, 2005), Delhi India 48.6% (Khan *et al.*, 2012), and Nepal 33.3%(Chapagain, 2013). This relatively increased level of minimum meal frequency possibly explained by counseling and education given during ANC and PNC visit by health personnel.

The study reported that around 44.7% of children aged 6-23 months met the minimum dietary diversity, which is consistent with the study finding in West Bengal India, 43.4% (Dasgupta *et al.*, 2014). But this finding is lower than the study findings in Nepal 75.8% (Chapagain, 2013) and Pakistan 50.0% (Iqbal *et al.*, 2017). In contrast, it is higher compared to the study conducted in slum area of Bahir Dar,7% (Demilew *et al.*, 2017), Assela, 26.3% (Sasie *et al.*, 2017), Shashemene 39.1% (Yonas *et al.*, 2015), at national level of Ethiopia 14% (EDHS, 2016), in Tanzania, 38.0% (Victor et.al 2013), and Delhi India 32.6% (Khan *et al.*, 2012). These discrepancies could probably due to difference in criteria used to calculate minimum diet diversity as well as due to the difference in study settings, sample size, socioeconomic and cultural difference.

Infant and young child feeding practice is suboptimal throughout the world (WHO, 2008), especially in developing countries is a common practice. This study showed that the magnitude of optimal IYCF practice was 43.4%. Though Ethiopian government developed and implemented the IYCF guideline since 2004 to improve feeding practice(FMOH, 2004), the IYCF practice among 0-23months children remains suboptimal in which more than half (56.6%) of feeding practice was suboptimal in the present study. This figure is lower than the study done in Oromia Region, Shashemene woreda (Yonas *et al.*, 2015)and Assela town(Sasie *et al.*, 2017) and at national level(EDHS, 2016), where in the magnitude of suboptimal IYCF practice is 67.9%, 76.6% and 96% respectively. This could be due to the active engagements of the HEW and health professional, and the media access in study area they could accessed the IYCF related information as well as the influence from husbands,

relatives or friends on feeding practice and due to the fact that the national level was conducted only from 6-23 months of age children.

Moreover, this study tried to assess factors affecting IYCF practice among mothers of 0-23 months aged children by multivariate analysis using binary logistic regression. Based on this, maternal education, husband's occupation, family income, place of delivery, PNC, knowledge and attitude on IYCF were found to be the independent predictors of optimal IYCF practice.

Accordingly, maternal education was one of the determinants of IYCF practice and mothers who already had attended secondary and higher education were approximately two to three times more likely to optimally practice IYCF than those who had no education. This result is consistent with the study done in Bahir Dar(Demilew *et al.*, 2017). This could be due to as educational status of mother gets improved, health seeking behavior of the mother may increase, which in turn may have positive impact on IYCF practice. Husband's occupation was another factor identified to be associated with IYCF practice in which those mothers whose husbands were merchant were 2.3 times more likely to practice IYCF optimally than those whose husbands were farmers. This is in line with the study in Shashemene woreda (Yonas *et al.*, 2015). This is probably due to income generation and house hold decision making or influencing ability related to occupation.

Mother with monthly average income of 3000-3999 ETB was 1.4 times more likely to practice optimal IYCF than those with monthly income less than 1000ETB. Similarly, mothers who delivered at health institutions were found to be positively associated with IYCF practice. Health institution delivered mothers were1.4 times more likely to practice optimal IYCF than those who delivered at home, which is line with the study done in Assela town (Sasie *et al.*, 2017).This could be related to the income level and child feeding counseling that would be given at health institution during the time of delivery. Maternal postnatal care utilization after the delivery of the index child was 1.6 times more likely to practice optimal IYCF compared to those who didn't utilize PNC. This might be due to the fact that health professionals have been educating and advising mothers on infant and child feeding practice during PNC since PNC is a good platform for educating and advising mothers about IYCF practice.

Knowledge and attitude about IYCF practice were the other predictor variables of optimal IYCF practice. Mothers who had a good knowledge about IYCF were 3.6 times more likely to practice optimal IYCF than mothers who had poor knowledge. Optimal IYCF practice was also 1.2 times higher in mothers who had positive attitude towards IYCFs than those with negative attitude. This is consistent to the study done in Oromia region, Shashemene woreda (Yonas *et al.*, 2015). This may be due to that the improved knowledge as well as favorable attitude of mother on IYCF practice could motivate mothers to practice an optimal IYCF.

6. LIMITATION OF THE STUDY

- There could be recall bias because of the time gap for some feeding practice related questions
- This study did not address factors like environmental hygiene and sanitation and house hold food security issues.

7. CONCLUSION AND RECOMMENDATION

7.1 CONCLUSION

The findings of this study have clearly indicated that optimal IYCF practice is low and there is a gap compared to WHO recommendation, especially pre-lacteal feeding, bottle feeding**,** late initiation of breastfeeding, low practice of colostrum feeding, early introduction of additional foods, inadequate breast feeding and unchanged breast-feeding frequency during child illness were the common practices in study area. Besides, the study showed that the prevalence of appropriate complementary feeding among 6–23 months old children in the study area was low. Though the prevalence of timely initiation of complementary feeding was comparatively adequate, the minimum meal frequency and the minimum dietary diversity were low. Moreover, this study found that maternal education, husband's occupation, family income, place of delivery, PNC visit; knowledge and attitude on IYCF were statistically significant predictors of optimal IYCF practice.

7.2 RECOMMENDATIONS

Based on the study findings the following recommendations have been forwarded:

- ☞ The government and nongovernmental health institution especially health workers should focus on health education on behavioral change towards pre-lacteal feeding practice, bottle feeding, late initiation of breastfeeding (BF), low practice of colostrum feeding, early introduction of additional foods, inadequate BF and unchanged breast-feeding frequency during child illness were the common practices in study area.
- ☞ Intensive counseling service should be developed and implemented routinely in the health institution during ANC, delivery and PNC visit in order to create awareness about IYCF and thereby to increase IYCF practice of mothers.
- ☞ The policy makers need to come up with IYCF policies that would reach the mothers in the community with practical IYCF intervention especially on CF and EBF.
- ☞ Further, interventional initiatives should focus on improving maternal education, socio-economic status, PNC utilization for further improvement of optimal IYCF.
- ☞ Moreover, longitudinal studies need to be conducted to carefully track IYCF practice from birth to 23 months of age children to come up with more representative findings.
- ☞ Researchers should investigate factors related with optimal IYCF practices like environmental and hygiene, house hold level food security and cultural taboos in this specific area.

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9. ANNEX: QUESTIONNAIRE

Annex I: English version

BAHIR DAR UNIVERSITY

INSTITUTE OF TECHNOLOGY

SCHOOL OF RESEARCH AND POSTGRADUATE STUDIES

FACULTY OF FOOD AND CHEMICAL ENGINEREING

Research title: Assessment of optimal infant and young child feeding practice and associated factors.

Is there less than two years (0-23 months) child in this house? Yes ☐ No ☐

Good morning /Good afternoon, my name is…….working as data collector in this study which is research project on optimal infant and young child feeding practice and associated factors among mothers of children aged 0-23 months in North Achefer district, North west Ethiopia designed to be conducted in fulfillment of MSc in applied human Nutrition by Endeshaw Degie from Bahir Dar University. Dear respondents, there is no problem on you or your family by giving this information that is confidentiality is kept. The main purpose of this study is to assess the infant and young child feeding practice and associated factors among mothers/caretakers of aged 0-23 months in North Achefer district. The benefit this research is to identify the problems of optimal infant and young child feeding practices and prevent child malnutrition in the district. There are lists of questions with different sections in the next pages and you are kindly requested to give your real experience and practices about what you are going to be asked by the data collector through face to face interview. The interview takes not more than 30 minutes. We are inviting mothers who have a child between the ages of 0-23 months to contribute for the study. Feel free that you will not be personally identified by name and the result will be reported in group but not individually. You have also the right to refuse and not to give response to any question you are not comfortable.

So can I proceed to the questions?

1. Yes: Continue 2. No; Say thank you and stop

Contact address: Dr. Yoseph Worku Advisor: 0911842800

Endeshaw Degie (PI): 0918394935

Participant Identification Code:			
Data Collector's Code:			
Supervisor's Code:			
Date of Data Collection:			
Starting Time:			
Ending Time:			

Part I: Socio demographic conditions

NO	Questions	Responses	Skip (→)
101	Age of the child	_____ Months	
102	Sex of the child	1. Male 2. Female	
103	Birth order of the child	1. First 2. Second and above	
104	Birth spacing of the child	1. Less than two years 2. Above two years	
105	Relation of the respondent to the child	1. Biological mother 2. Non biological mother	
106	Age of the mother	_____Years	
107	Marital status of the mother	1. Single 2. Married 3. Divorced 4. Widowed	
108	Religion of mother	1. Orthodox 2. Muslim 3. Protestant 4. Other (specify)_____	
109	Ethnicity of mother	1. Amhara 2. Oromo 3. Tigrai 4. Other(specify)_____	

110	Educational status of mother	1. No formal education 2. Primary school 3. Secondary school 4. College or University	
111	Occupation status of the mother	1. Housewife 2. Farmer 3. Government employee 4. Student 5. Merchant 6. daily laborer 7. Other (specify)_____	
112	Educational status of the father	1. No formal education 2. Primary school 3. Secondary school 4. College or University	
113	Occupation status of the father	1. Merchant 2. Government employee 3. Student 4. Farmer 5. Daily laborer 6. Other (specify)----------	
114	Monthly family income	_____ ETB	
115	Family size	_____	

Part II: Maternal and child health services

NO	**Questions**	**Responses**	**Skip (→)**
201	Did you get ANC follow up during pregnancy for this child?	1. Yes 2. No	
202	If Q201 is yes how frequent you visit?	1. Once 2. Two times 3. Three times 4. Four times 5. More than four times	
203	Have you got counseling on infant and child feeding during ANC visit	1. Yes 2. No	If no→204
204	Where was your child born?	1. Health institution 2. Home	

205	Mode of delivery	1. Vaginal 2. Cesarean delivery	
206	Gestational age at birth (in weeks)	_____	
207	Mother's perception on the newborn	_____	
208	Did you have PNC visit for this child?	1. Yes 2. No	If no→Part III
209	Have you got counseling on infant and child feeding during PNC	1. Yes 2. No	

Part III. Knowledge and attitude of mothers/caretakers

NO	**Questions**	**Responses**	**Skip (→)**
301	Have you ever heard about infant and child feeding?	1. yes 2. no	
302	If yes for Q301, where did you hear about infant and child feeding?	1. Radio 2. Television 3. Both radio and television 4. HEWS 5. Other health workers 6. Family/friend/neighbor	
303	Breast feedings important for child health.	1. agree 2. disagree 3. I do not know	
304	Breast feeding is important for maternal health	1. agree 2. disagree 3. I do not know	
305	A newborn infant should be put on breast immediately after birth?	1. agree 2. disagree 3. I do not know	
306	The first milk/colostrum Should be given to a newborn infant?	1. agree 2. disagree 3. I do not know	
307	Pre-lacteal feeding is harmful to an infant	1. agree 2. disagree 3. I do not know	
308	Breast milk alone without water and other liquid enough for the first 6 months?	1. agree 2. disagree 3. I do not know	
309	When do you start complementary	1. Immediately after birth	

	feeding for the child?	2. after 6 months 3. after one year 4. after 2 years 5. Don't know	
310	When do you stop breast feeding for your child?	1. at 6 months 2. after one year 3. after 2 years 4. Don't know	
311	Breast Feeding should continue up to 2 years	1.Yes 2. No	

Part IV Child feeding practice of mothers

NO	**Questions**	**Responses**	**Skip (→)**
401	When did you initiate breast feeding after birth	1. Immediately after birth 2. after an hour	
402	Did you give the first breast milk (colostrum)	1. yes 2. No	
403	Did you give pre lacteal feed to your infant after birth?	1. yes 2. no	If no →405
404	If yes Q403 what pre lacteal feed was given?	1. Water 2. Butter 3. Cow's milk 4. Sugar solution 5. Other (specify)_____	
405	Child feeding practice before 6 months	1. Exclusive breastfeeding 2. Mixed feeding	
406	On breastfeeding during the time of data collection	1. yes 2. no	
407	How frequent did you breast feed your child	_____	
408	Increase breast feeding frequency during illness	1.Yes 2. No	
409	Infant bottle feeding	Yes 2. No	
410	When did you start complementary child feeding	1. Before 6 months 2. At 6 months 3. After 6 months	If answer '3" →412
411	What was your reason for giving additional food before 6 months	1. Mother Busy 2. breast milk is not enough 3. Infant thirst 4. Mother ill	

		5. Other(specify)----------	
412	What additional food did you give for your child after 6 months	1. Other than family food **2.** Family food	
413	The content of the additional food	1. Animal food 2. Legumes and cereals 3. Vegetable and fruit 4. All **5.** Other (specify)_____	
414	How frequent did you give food per day	_____	
415	Continued breast feeding	1. Yes 2. No	
416	Is there a person who influence the child feeding practice?	1. Yes 2. No	
417	If question Q416 is "yes" who influence the child feeding practice?	1.Husband/spouse 2. Neighbors/friends 3.Relatives 4.Health worker	

Annex II: አሚኖ ቃለ ማጠይቅ

ባህር ዳር ዩኒቨርሲቲ

የቴክኖሎጂ ተቋም

የስነ -ምግብና ኬሚካል ቴክኖሎጂ የድህረ ምረቃ ጥናት ክፍል

ለሚከተርስ ሞጂዎ ጥናታዊ ፅሁፍ የሚሆን መረጃ ማሰባሰቢያ እንዲሆን የተዘጋጀ ቃለ ማጠይቅ

የሚከጥር ጠባቂነት ትና ፈቃደኝነት ማጠየቂያ መወሰጃ ቅፅ

የተጠያቂውመለያ ቁጥር---------

መረጃ ስብሳቢው፣ እባክዎን የሜቱጥለወጓ አንቀፅ ለተጠያቂው ያንብበልዎትና ፈቃደኛ ከሆነ ብቻ መረጃ ማከብሰብ ይጀምሩ፡ ፡

እንደምንዋሉ/እንደምን አደሩ በመጀመሪያ ስለትበብርዎ አማከግናለሁ፡ ስሜ----------እባላለህ ከባህር ዳር ዩኒቨርሲቲ የስነ -ምግብና ኬሚካል ቴክኖሎጂ የተምህርት ክፍል ለሚከተርስ ፕሮግራም ሞጂዎ ፅሁፍ ለማዘጋጀት በአቶ እንደሻውደጌ በተዘጋጀ ቀለ ማጠይቅ ሲሆን የጥናቱ ዋና ዓላማበሰሜን አቸፈር ወረዳ ለሜኖሩ ዕድሜዎቸው ከ0-23 ወር ለሆኑ ጨቅላ ህፃናትና ህፃናት እናቶች ላይ በጠቅ ማጥባት፤ በተጨሜሪ ምግብና ተያያዥ ምክንቶች ዙሪያ መረጃ ለማከብሰብ ነውየመጣሁት፡ ፡ከዚህ ቀጥሎ በተለያዩ ክፍሎች የተዘጋጁ ማጠይቆች አሉ፤ ስለዚህ በማጠይቁ ማረት እባክዎን ያለዎትን ተሞክሮና የሚያወቁትን ለመመለስ ይሞክሩ፡ ፡የማጠይቁ ጊዜ ከ30 ደቂቃ በላይ አይፈጅም፡ ፡ሚከጥራዊነቱ የተጠበቀ ነውየእርስዎ ስም አይጠቀስም እንዲሁም የጥናቱ ወጤት በተናጠል በስም ሪፖርት አይደረግም፡ ፡በዚህ የጥናት ፅሁፍ ያለማከተፍ መበትዎ የተጠበቀ ነው ወይንም ያልተመቸዎትን ማንኛውንም ጥያቄ ይለፈኝ የሚለት መበት አልዎት፡ ፡

ለማከተፍ ፈቃደኛነዎት ሀ) አዎ ☐ ለ) አልፈልግም (በማማከገን ማጠይቁን ይጨርሱ) ☐

ፊርማ----------

ስለትብበርዎ/ት እናማከግናለን

የቃለ ማጠይቁ ቀን------/--------/------(ቀን/ወር/ዓመተ ምህረት)

ከተማ----------ቀበሌ----------

አቅጣጫ <u>ለምርጫጥያቄዎች መልሱን ያከቡ ለሌሎቹ ክፍት ቦታወን ይመሉ</u>

ክፍል 1፡ የተጠየቂውአጠቃላይ መረጃ

ተ.ቁ	የጥያቄ አይነ ቶች	የምላሽ አማራጮች	ወደ ተ.ቁ እለፍ (→)
101	የህፃኑ ዕድሜ	----------ወር	
102	የህፃኑ ፆታ	1. ወንድ 2. ሴት	
103	ከህጻኑ ጋር ያለዎት ግንኙነ ት	1. እናት 2. ተንከባካቢ	
104	የህፃኑ እናት ዕድሜ	----------ዓመት	
105	የጋብቻ ሁኔታ	1. ያገቡ 2. ያላገቡ 3. የፈቱ 4. ባል የሞተባት	
106	የህፃኑ እናት ሀይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ሌላ(ካለ ይጠቀስ)-------	
107	የእናት ብሄር	1. አማራ 2. ኦሮሞ 3. ትግሬ 4. ሌላ(ይጠቀስ)----------	
108	የትምህርት ደረጃ	1. መደበኛ ትምህርትያለተማሩ 2. የመጀመሪያ ደረጃ 3. ሁለተኛ ደረጃ 4. ኮሌጅ/ዩኒቨርሲቲ	
109	የህፃኑ እናትስራ ሁኔታ	1. የቤት እመቤት 2. አርሶ አደር 3. የመንግስት ሰራተኛ 4. ተማሪ 5. ነጋዴ 6. የቀን ሰራተኛ 7. ሌላ (ይጠቀስ)--------	
110	የህፃኑ አባት የትምህርት ደረጃ	1. መደበኛ ትምህርት ያተማሩ 2. የመጀመሪያ ደረጃ 3. ሁለተኛ ደረጃ 4. ኮሌጅ/ዩኒቨርሲቲ	

111	የህፃኑ አበት የስራ ሁኔታ	1. አርሶ አደር 2. የመንግስት ሰራተኛ 3. ተማሪ 4. የቀን ሰራተኛ 5. ነጋዴ 6. ሌላ (ይጠቀስ)----------	
112	የቤተሰቡ የወር ገቢ	----------የኢት.ብር	
113	የቤተሰብ አባላት ብዛት	----------	

ክፍል 2፡ የእናት እና የህፃኑ የጤና ሁኔታና የጤና አገልግሎት

ተ.ቁ	የጥያቄዎች አይነት	የምላሽ አማራጮች	ወደ ተ.ቁ እለፍ (→)
201	ህፃኑን እርጉዝ እያሉ የቅድመወሊድ አገልግሎት አግተው ነበር	1. አዎ 2. የለም	
202	ስንት ጊዜ የቅድመወሊድ ክትትል አደረጉ	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት ጊዜ 4. አራት ጊዜ ከአራት በላይ	
203	ለቅድመ ወሊድ ክትትል በሚያደርጉበት ወቅት ስለጤት ማጥባት የምክርአገልግሎት ተሰጥዎት ነበር	1. አዎ 2. የለም	
204	ልጅዎን የት ወለዱት	1. ጤና ተቋም 2. ቤት	
205	ልጅዎን እነዴት ወለዱት	1. በሜህፀን 2. በቀዶ ጥገና 3. በመሳሪያ በመታገዝ	
206	በወሊድ ወቅት የዕርግዝና ርዝሜ (በሳምንት)	----------	
207	የልጁ ክብደት በወሊድ ወቅት (በኪ.ግ)	----------	
208	በሜጩፈሻው የወሊድ ወቅት መንትያ ወይም ከዚያ በላይ ነበር	1. አዎ 2. የለም	
209	ልጁ ስንተኛሽ ነው	1. የመጀመሪያ 2. ሁለተኛ/ ከዚያ በላይ	ሜልሱ 1 ከሆነ ወደ ተ.ቁ 211 እለፍ
210	ለተ.ቁ 209 ምላሽ 2 ከሆነ በስንተኛ ዓመቱ ተወለደበት/ባት	1. ከ2 ዓመት በታች 2. ከ2 ዓመት በላይ	
211	ሕፃኑ ወዲያወኑ እንደተወለደ ታሞነበር ወይ	1. አዎ 2. አልታመም/ችም	ሜልሱ 2 ከሆነ ወደ ክፍል 3

			እለፍ
212	ለተ.ቁ 211 ምላሽ አዎ ከሆነ የእናት ጡት ይጠባ ነበር ወይ	1. አዎ 2. የለም	
213	ለተ.ቁ 212 ምላሽ አዎ ከሆነ ጡት የማጥባት ድግግሞሹን ጨምረሽለት ነበር ወይ	1. አዎ 2. የለም	

ክፍል 3. እወቀትና አመለካከትን በተመለከተ

ተ.ቁ	የጥያቄ አይነት	የምላሽ አማራጮች	ወደ ተ.ቁ እለፍ (→)
301	ስለጨቅላ ህፃን አመጋገብ ሰምተውያውቃሉ	1. አዎ 2. የለም	
302	ስለህፃን አመጋገብ ሰምተውየሚያወቁ ከሆነ በምን ሰሙ	1. በራዲዮ 2. በቴሌቪዥን 3. በራዲዮናበቴሌቪዥን 4. በጠፍ ኤክስቴሽ 5. በሌሎች የጠፍ ባለመያዎች 6. በጓደኛ/ጎረቤት/ቤተሰብ	
303	ለህፃን ጡት ማጥባት ጠፍ ይጠቅሟል ብለውያስባሉ	1. እስማማለሁ 2. አልስማማም 3. አላወቅም	
304	ጡት ማጥባት ለእናትጠፍ ይጥቅሟል ብለውያስባሉ	1. እስማማለሁ 2. አልስማማም 3. አላወቅም	
305	ህፃኑ እንደተወለደ ወዲያውኑ ጡት መጥባት አለበት ብለውያስባሉ	1. እስማማለሁ 2. አልስማማም 3. አላወቅም	
306	የእናት ጡት እነገር ለልጁ ማጡት አለበት ብለውያስባሉ	1. እስማማለሁ 2. አልስማማም 3. አላወቅም	
307	ከእናት ጡት ወተት በፊት ለህፃን ሌላ ምግብ ማጡት አለበት ብለውያስባሉ	1. እስማማለሁ 2. አልስማማም 3. አላወቅም	
308	ለመጀመሪያዎች 6 ወራትለህፃኑ ከወሃና ከሌሎች ፈሳሽነገሮች ውጭየእናት ጡት በቂ ነውብለውያስባሉ	1. እስማማለሁ 2. አልስማማም 3. አላወቅም	
309	ለህፃኑ ከእናት ጡትበተጨማሪ ተጨማሪ ምግብ መቼ ነው የሚጀመረው	1. ወዲያውኑ እነደተወለደ 2. ከስድት ወር በኋላ 3. ከአንድ ዓመት በኋላ 4. ከሁለት ዓመት በኋላ	

		5. አላወቅም	
310	ለህጻኑ የእናት ጡት መቼ ነው መጀመር የሚቆመት	1. ስድስት ወር ሲሞላ 2. ከአንድ ዓመት በኋላ 3. ከሁለት ዓመት በኋላ 4. አላወቅም	

ክፍል 4. የህፃኑ አመጋገብ ልምድ

ተ.ቁ	የጥያቄውአይነት	የምላሽ አማራጮች	ወደ ተ.ቁ እለፍ (→)
401	ለህፃኑ እናት ጡት መቼ ነው የጀመረው	1. ወዲያወኑ እንደተወለደ 2. ከተወለደ ከአንድ ስዓት በኋላ	
402	የእናት ጡት ወተት እነገር ለህፃኑ ይሰጣል	1. አዎ 2. 2. አይሰጥም 3. አላዎቅም	
403	ከዚህ ቀን በፊት ለህፃኑ ምንድነው የመጣቡት	1. የእናት ጡት ወተት ብቻ 2. በአብዛኛውየእናት ጡት ወተት 3. የእናት ጡት ወተትና ሌላ ተጨማሪ ምግብ	
404	በመጀመሪያው 6 ወር ለህፃኑ የእናት ጡት ወተት ብቻ እንዲሰጠውየሚያግዝሽ ሰውአለ	1. አዎ 2. የለም	
405	ለተ.ቁ 404 አዎ ከሆነ ማን ውየሚያግዝሽ	1. ባለቤቴ 2. የቤተክርስቲያን አባት 3. የጡፍ ባለሟያ 4. ሌላ ካለ ይጠቀስ-------	
406	ከእናት ጡት በተጨማሪ ወዲያው ለህፃኑ ሌላ ነገር ማጠጡት አስፈላጊ ነውብለውያስባሉ	1. አዎ 2. የለም	ጥያቄ ቁ.406 የለም→**408**
407	ለተ.ቁ 406 አዎ ከሆነ ለህጻኑ ከእናት ጡት በተጨማሪ ምንድነ ውየሚጠው	1. ወሃ 2. ቅቤ 3. የላምወተት 4. በስኳር የተበጠበጠ ወሃ 5. ሌላ (ይጠቀስ)---------	
408	በህፃኑ አመጋገብ ሁኔታ ተፅኖ የሚያደርግብሽ ሰውአለ	1. አዎ 2. የለም	
409	ለተ.ቁ 408 አዎ ከሆነ ማን ው	1. ባለቤቴ 2. እናቴ 3. የባለቤቴ እናት 4. የጡፍ ባለሟያ	

410	በ24 ስዓት ወስጥ ለህፃኑ ስንት ጊዜ የእናት ጡት ይሰጣል	----------(በቁጥር ይግለፁ)	
411	ለህፃኑ ከእናት ጡት በተጨማሪ ምግብ መቼ ነው የሚጀመረው	1. ከስድስት ወር በፊት 2. ከስድስት ወር በኋላ	መልሱ 2 ከሆነ →**413**
412	ከስድስት ወር በፊት ለህፃኑ ተጨማሪ ምግብ የሚሰጡ ከሆነ ምክንያቱ ለምን	1. እናት የስራ ጫና ስለሚኖርባት 2. የእናት ጡት በቂ ስለሚይሆን 3. ህፃኑ ወሃ ሊጠማው ስለሚቻል 4. እናት የምትታመም ከሆነ 5. ሌላ (ይጠቀስ)----------	
413	ለህፃኑ ከስድስት ወር በኋላ ከእናት ጡት በተጨማሪ የሚሰጠው ምግብ ምንድነው	1. የተለየ ምግብ 2. የቤተሰብ ምግብ	
414	ለህፃኑ ከእናት ጡት ወተት በተጨማሪ የምግብ ይዘት ምን መሆን አለበት	1. የእንስሳት ተዋጽኦ 2. ባቄላ ማሽል ጥራጥሬና እህል 3. ቅጠላቅጠልና ፍራፍሬ 4. ሁሉንም አይነት 5. ሌላ (ይጠቀስ)----------	
415	ለህፃኑ ተጨማሪ ምግቡን በቀን ለስንት ጊዜ ይሰጣሉ	---------- (በቁጥር ይግለፁ)	

እናመሰግናለን!!!

ከላይ የተወሰደውመረጃ ሁሉ እኔ እሰካለኝ እውቀት ድረስ እውነ ተኛና ትክክለኛ መሆኑን በፊርማዬ አረጋግጣለሁ፡

የመረጃ ሰብሳቢው ስም----------

ፊርማ----------

ቀን----------