ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF ALLIED HEALTH SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY

NAME OF INVESTIGATOR	FIKIR TADESSE
NAME OF ADVISORS	GIRUM SEBSIBE [MSc, BSc] ENDALEW GEMECHU [PHD Fellow]
FULL TITLE OF THE THESIS	INFANT FEEDING PRACTICE AND ASSOCIATED FACTORS AMONG HIV POSITIVE MOTHERS ATTENDING ART SERVICE IN GOVERNMENTAL HEALTH INSTITUTIONS OF BAHIR DAR TOWN, 2017
DURATION OF PROJECT	OCTOVER - JUNE, 2017
STUDY AREA	BAHIR DAR TOWN,AMHARA REGION, ,ETHIOPIA
TOTAL COST OF THE PROJECT	26,350.75 BIRR
ADDRESS OF INVESTIGATOR	TEL: +251-918012338 EMAIL: Fikirtadsol@gmail.com

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF ALLIED HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

INFANT FEEDING PRACTICE AND ASSOCIATED FACTORS AMONG HIV POSITIVE MOTHERS ATTENDING ART SERVICE IN GOVERNMENTAL HEALTH INSTITUTIONS OF BAHIR DAR TOWN, 2017

By

Fikir Tadesse (BSc)

A RESEARCH THESIS TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SCHOOL OF ALLIED SCIENCES, DEPARTMENT OF NURSING AND MIDWIFERY IN PARTIAL FULLFILLMENT FOR THE REQUIRMENT OF MASTERS DEGREE IN PEDIATRICS AND CHILD HEALTH NURSING.

JUNE, 2017

ADDIS ABABA, ETHIOPIA

APPROVAL SHEET
ADDIS ABABA UNIVERSITY
SCHOOL OF NURSING AND MIDWIFERY GRADUATE STUDIES

I hereby certify that I have read and evaluated this research thesis entitled infant feeding practice and associated factors among HIV positive mothers attending ART service in governmental health institutions of Bahir dar town, 2017 prepared under my guidance by Fikir Tadesse.

Fikir Tadesse _____ _____

Principal investigator Signature Date

I recommend that it is submitted as fulfilling the requirements of research thesis.

_____ _____ _____

Advisor Signature Date

_____ _____ _____

Advisor Signature Date

As a member of the Msc research open defense examination, I certify that I have read and evaluated the thesis prepared by Fikir Tadesse and examined the candidate. I recommend that the thesis be accepted as fulfilling the proposal requirements for the degree of masters of Science in pediatrics and child health nursing.

_____ _____ _____

Examiner Signature Date

Acknowledgment

First of all, I would like to express my heartfelt thanks to almighty GOD. I would also like to forward my deepest gratitude to my advisors ***Girum Sebsibe*** and ***Endalew Gemechu*** for their valuable and constructive advice and comments during the thesis and Addis Ababa University College of health science nursing department research committee for giving me this opportunity. I would like to extend my special gratitude to the study participant's who provide me the necessary and important information as per my question. And to government health institutions in which I got the base line data. Acknowledgement also goes to my beloved husband ***Solomon Tesfaye*** who was supporting me in each and every aspect of my life. Finally, I am indebted to all those whom I may not have mentioned here but contributed in one way or the other towards the success of this work.

Table of Contents

List of Tables

List of Figure

List of abbreviation and acronyms

AFASS – Acceptable, Feasible, Affordable, Sustainable, and Safe

AIDS – Acquired immunodeficiency syndrome

ANC – Antenatal care

AOR _ Adjusted odds ratio

ART – Anti-retroviral therapy

COR_ Crude odds ratio

EBF – Exclusive breast feeding

EMTCT – Elimination of mother to child transmission

ERF – Exclusive replacement feeding

FHRH—Felegehiwot Referal Hospital

HC ---Health Center

HIV – Human immunodeficiency virus

MF – Mixed feeding

MTCT – Mother to child transmission

PI--- Principal Investigator

PMTCT – Prevention of mother to child transmission

IFO-- Infant feeding options

SNNPR---Southern nations, nationalities, and peoples' region

SSA – Sub Saharan Africa

UNAIDS – United States agency for international development

UNICEF – United Nations international children's emergency fund

UNESCO – united nations educational, scientific and cultural organization

WHO – World health organization

Abstract

Background: Infant feeding practice is the important modifiable factor influencing the health of children born from HIV-positive mothers. While breastfeeding carries significant health benefits to infants and young children, HIV can be transmitted during breastfeeding from an HIV-infected mother to her infant. Breastfeeding may thus be responsible for 1/3 -1/2 of HIV infections in infants in African settings.

Objective: The aim of this study was to assess infant feeding practice and associated factor among HIV positive mothers attending ART service in governmental health institutions of Bahir dar city.

Methods: Institution based cross- sectional study was conducted in 4 health institutions which provides ART service in Bahir dar town from October to June, 2017. A total of 230 mother-infant pairs attending ART clinics were selected by systematic random sampling. The data were coded, entered and stored in to the computer using Epi Data version 3.1, then cleaned and analyzed by SPSS software version 20. Bivariate and multivariate models were run to assess any relationship between independent variable and outcome variable.

Result: The majority 173(75.2%) practiced exclusive breast feeding up to six months of age. 13.9% and 10.9% of mothers practiced exclusive replacement feeding and mixed feeding, respectively. In multivariable logistic regressions, mothers counseled about the recommended infant feeding options during delivery (AOR (95%CI):3.699(1.00-13.41), ever given any food or fluid before first breast milk (AOR (95%CI):0.015(0.001-0.188) and knowledge on PMTCT and the recommended infant feeding options (AOR (95%CI):0.189(0.042-0.855) were significantly associated with infant feeding practice.

Conclusion and Recommendation: The study revealed that majority mothers experienced exclusive breast feeding (75.2%). Mothers ever given any food/fluid before first breast milk, counseled the recommended feeding options during delivery and knowledge on PMTCT and the recommended infant feeding options were independent predictors of infant feeding practice. Adequate information should be provided to HIV positive mothers to select the best feeding options for their child.

Key words: infant feeding practice, HIV positive mothers, and Bahirdar.

1. INTRODUCTION

1.1 Background

Infant feeding practice is the important modifiable factor influencing the health of children born from HIV-positive mothers [1]. Breastfeeding is best for infants, and is an effective method of reducing the risk of common childhood morbidity, particularly gastrointestinal and respiratory infections, and of promoting child survival and maternal health through child spacing. While breastfeeding carries significant health benefits to infants and young children, it can transmit HIV virus from an infected mother to her infant [2].

The main causes of HIV infection in children is mother-to-child transmission during pregnancy, labour, delivery or after the child's birth during breastfeeding. Without any interventions, 20-45 % of infants had born with HIV-infection and with an estimated risk of 5-20 % through breastfeeding [3]. In African settings, breastfeeding can be responsible for 1/3 -1/2 of HIV infections in infants. The risk of postnatal transmission through breastfeeding is associated with clinical, immunological and virological maternal factors and infant feeding patterns. Low maternal CD4 cell count, increased maternal RNA viral load in plasma and breast milk, nipple bleeding, and abscesses, and fissures or lesions are associated with a higher risk of transmission through breastfeeding. Exclusive breastfeeding for up to six months, however, is associated with a three to fourfold decreased risk of transmission of HIV compared to non-exclusive breastfeeding; mixed feeding, therefore, appears to be a clear risk factor for postnatal transmission [2].

The risk of HIV infection in breastfeeding infants can be decreased by shorten the duration of breastfeeding, breastfeed exclusively in the early months, prevent and treat breast problems, prevent HIV infection during breastfeeding, and treat sores or thrush in the infant’s mouth early [4].

Infant feeding practices recommended to mothers known to be HIV-infected should support the greatest likelihood of HIV-free survival of their children and not harm the health of mothers. World health organization (WHO) recommended that HIV-infected mothers should breast feed exclusively for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for them and their infants before that time. At six months, if

replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided [5]. Ethiopia has been adopting these recommendations and promoting their implementation in the health institutions throughout the country [3].

1.2. Statement of the problem

Infant feeding in the context of HIV is complex because of the major influence that feeding practices exert on child survival. The dilemma is to balance the risk of infants acquiring HIV through breast milk with the higher risk of death from causes other than HIV, in particular malnutrition and serious illnesses such as diarrhoea, among non-breastfed infants [5].

Mother to child transmission is the most significant source of HIV infection in young children. HIV is a major contributor to maternal, infant and child morbidity and mortality [2]. Globally 36.7 million people are living with HIV; 3.2 million are under the age of 15 years. In 2015, 240,000 children under the age of 15 years were newly infected with HIV, 190,000 children died from AIDS. Ninety seven percent people living with HIV reside in low- and middle-income countries, in which 70% burden is in Sub-Saharan Africa (SSA), out of the total 88% are Children in this area [6]. The overall adult prevalence of HIV in Ethiopia estimates 1.1% in 2016 from 1.5% in 2011. In 2016, there were an estimated 671,941 people living with HIV including 109,133 children [7]. According to 2011 Ethiopia demographic health survey (EDHS), due to its large population size Amhara region has largest people living with HIV. Thus, although this region has lower HIV prevalence (1.6%), it still bears a significant proportion of the epidemic burden [8].

More than 95% of HIV infection in children is acquired by mother to child transmission (MTCT). Depending on the presence and duration of breastfeeding, the risk of MTCT ranges from 15% to 45%. The overall risk of postnatal HIV infection was 3.9% among children breastfed for <6 months and 8.7% among children breastfed for >6 months. Globally, the rate was 4.7% at six weeks, but this was increased to 8.9% at the end of breastfeeding in 2015. Such differentials reflect reduced retention during the breastfeeding period, resulting in many new paediatric HIV infections [2, 9]. According to 2011 EDHS, the prevalence of mother to child transmission of HIV after the breast feeding period was 25% [8]. Poor breastfeeding practices especially lack of exclusive breastfeeding during the first 6 months of life and inadequate complementation were found to be substantial risk factors for infant and childhood morbidity and mortality [10].

WHO recommended for preventing MTCT of HIV and in particular, to prevent postnatal transmission through breastfeeding. They also considered the experiences of countries in implementing the current recommendations on HIV and infant Feeding. Mothers known to be HIV-infected should be provided with lifelong antiretroviral therapy (ART) or antiretroviral prophylaxis (ARP) interventions to reduce HIV transmission through breastfeeding; mothers should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter, and continue breastfeeding for the first 12 months of life. When mothers decide to stop breastfeeding at any time, infants should be provided with safe and adequate replacement feeds to enable normal growth and development [1].

According to UNAIDS/WHO estimates, prevention programmes helped reduce the annual number of people acquiring HIV to 2.1 million in 2015, a 35% decline in incidence since 2000, a massive expansion of ART has reduced the global number of people dying from HIV-related causes to about 1.1 million in 2015 – 45% fewer than in 2005, when HIV-related mortality peaked. UNAIDS/WHO estimates show that more than 18 million people were receiving ART in mid-2016 [11].

Ethiopia has implemented the recommendation and close to 20,000 (65%) of HIV positive pregnant women have received ARV/ART to prevent the vertical transmission of HIV from mother to child in 2014. HIV positive mothers receiving treatment has increased from less than 7,000 in 2001 to 19,813 in 2014 [12]. HIV-positive pregnant women, who received ART to prevent MTCT has significantly improved to 60.6% in 2014 [13]. However, there are major challenges of the programme in children includes low coverage (9.5%) of ART, lost of the mother and children to follow up at every step of PMTCT cascade [8]. There is a limited data between target and current situation of MTCT. Where 98% of pregnant women accessing Prevention of MTCT services (PMTCT), however, HIV positive pregnant women who have attended antenatal care (ANC) give 5.5% estimated HIV positive births [14].

Studies in Ethiopia have indicated that HIV is endemic with regional variation. However there is a scarcity of information on the prevalence of infant feeding practice among HIV positive mothers in the study area. This study were assessing infant feeding practice among HIV positive mothers and identify associated factors in Bahir dar town.

1.3. Significance of the study

Infant and young child feeding practices are important determinants of the health and nutrition status of children below the age of five years. Poor breastfeeding practices especially lack of exclusive breastfeeding during the first 6 months of life and inadequate complementary feeding are important risk factors for infant and childhood morbidity and mortality [5].

This research was tried to identify current status of infant feeding practices and factors associated with infant feeding practice of HIV positive mothers attending ART services in Bahir dar town.

The study will help to fill the gaps of infant feeding practice in the context of HIV and to recommend the findings to the policy makers in order to plan necessary programs. Provision of adequate information on existing knowledge and practices on infant feeding for mothers, caretakers, families, communities and other key actors at different levels, especially in ART sites will be given priority. This study will provide base line data for other researchers.

Additionally, understanding the determinants of general infant feeding practices among HIV-positive mothers will become relevant to infant feeding practices in the context of HIV.

2. LITERATURE REVIEW

2.1 Infant feeding practice

Infant feeding practices vary with individuals in different communities. The comparative preferences are dependent on social, cultural and economic factors. These include maternal willingness and freedom to choose preferred method, level of maternal knowledge on infant feeding, physical & social support provided during pregnancy, childbirth and postpartum experiences [15].

Infant feeding in the context of HIV is difficult because of the major influence that feeding practices influence on child survival. So the problem is to balance the risk of infants acquiring HIV through breast milk with the higher risk of death from causes other than HIV, particularly malnutrition and other serious illnesses such as diarrhea among non-breastfed infants [16].

In the study conducted in Nigeria in 2015 on 54 HIV positive mothers, thirty two respondents (59.3%) practiced replacement feeding, 14(29.9%) practiced mixed feeding while 8(14.8%) practiced exclusive breast feeding. Of the mothers that practiced mixed feeding, 10(71.4%) did not receive counseling on infant feeding practices [17].

The other cross sectional study done in Addis Ababa with sample size of 334 also identifies 77.8% of the participant practiced EBF up to six months of age and 76.3% practiced the feeding option they decided thinking it is safe for the baby, while 14.4% of the respondents practiced ERF. The reason for making this feeding option for 87.5% of them is that fear of MTCT of HIV/AIDS [16]. In the same year the study done in tigray town with sample size of 217 in the year 2014 identified that majority (90.40%) of mothers experiencing exclusive breast feeding (EBF) where as 5.9% and 3.7% were practicing mixed feeding (MF) and exclusive replacement feeding (ERF), respectively [10].

In Gondar town, the cross sectional study done in 2012 with sample size of 209 HIV positive mothers with less than two years old child attending PMTCT and ART service in governmental health institutions, one hundred eighty-seven (89.5%) of the study participants had followed Exclusive breast feeding (EBF) and exclusive replacement feeding (ERF) practice while significant percentage (10.5%) of the study participants had practiced MF [18].

From a total of 260 HIV positive mothers in Debre Markos town in the year 2014, the greatest proportion of mothers 238(91.5%) ever breast feed their babies. 201(77.3%) of respondents practiced exclusive breast feeding, whereas 37(14.2%) and 22(8.5%) practiced mixed feeding and exclusive replacement feeding, respectively [19].

2.2 Factors affecting infant feeding practice

2.2.1 Socio demographic characteristics

Socio demographic data is the most important factor influencing infant feeding practice. HIV infected mothers with younger age can accept the recommended infant feeding practice easily, but most of the time elders follow social norms than the recommendation. If the mothers are literate and have their own income, they can accept the best feeding option and able to apply replacement feeding.

A study done in south Africa western cape town with 80 sample size, Participants were aged between 18 and 39 years, majority of the participants (30.6%) were younger than 25 years and 95% of them use replacement feeding, 8 (22.2%) were between 25 and 29 years and 17 (47.2%) were older than 30 years and 10% of them use mixed feeding. Twenty-three of the women (63.9%) were unemployed; of those, 8 (34.8%) were supported by their partner and 7 (30.4%) received government grants and they were financially unable to sustain feeding option once the first 6 months' supply of free formula milk had finished [20].

The other study done in tigray region in 2014, from 209 participants 118 (53.9%) of the infants were male and 101 (46.1%) were females. Majority (53.9 %) of the mothers were literate, among them 88.1% had sufficient knowledge on infant feeding practice and 46.1% were illiterate and 11.9% of them had insufficient knowledge on infant feeding practice. With respect to their occupation, out of the total study participants about 130 (59.4%) of them were housewives, 20 (9.1%) were governmental employee and 17(7.8%) were daily laborer [10].

2.2.2 Knowledge towards infant feeding recommendation

The descriptive cross sectional survey done in Zimbabwe in the year 2008 revealed that the majority (88%) of respondents were able to define exclusive breastfeeding, though 36 (74%) practiced exclusive breastfeeding. On the dangers of mixed feeding, 36 (74%) were

knowledgeable. Of those practicing exclusive breastfeeding, 25 (50%) were afraid of transmitting HIV virus to their babies, but were constrained by socio-economic and cultural factors [21].

The other study done in western Kenya from a total of 385 individuals participated in the survey, Most of the respondents (85.5%) knew of breastfeeding as a route of HIV transmission with sex and age being highly associated with this knowledge [22].

The other cross sectional study done in Addis Ababa with sample size of 334 identifies the majority 318 (95.2%) of them heard about infant feeding options recommended for HIV positive mothers. Most of 330(99.1%) the mothers knew the recommended infant feeding practices and when asked the pacific type of feeding option, 292(88.5%) mentioned exclusive breast feeding for the first 6months followed by complementary feeding [16].

Study done in Shashemene referral hospital in the year 2016 out of the total study respondent, 56.8% had good knowledge towards infant feeding practice [23].

Institution based cross sectional study conducted in jabi tehinan Woreda governmental health facilities by using quantitative method of the total 376 women, 106 (28.1%) women had sufficient knowledge about recommended breastfeeding for infant born from HIV positive mothers [24].

2.2.3 Knowledge of HIV positive mothers towards PMTCT

Maternal knowledge in this context referred to the extent to which mothers understood and defined HIV & AIDS, modes of transmission and prevention of HIV from mother to child. Several research studies have been done to assess the level of knowledge among mothers in the context of HIV.

The cross sectional study in western Kenya in the year 2013 done by using quantitative and qualitative method with 105 study participant, total of 47 (42.3%) respondents knew that HIV could be transmitted from mother to child during delivery, 46 (41.5%) during breast feeding and 18 (16.2%) in pregnancy period. Prevention of MTCT of HIV revealed that 95% of the respondents knew that it was possible [15].

In 2013, the other study done in Hawassa revealed that among the respondents, 192 (82.3%) knew PMTCT of HIV. Of these, 112 (48.3%) of the respondents knew ART drugs given for HIV-positive pregnant mothers could reduce the risk of HIV transmission. Majority of the respondents, 209 (90.1%), knew that a child from HIV-positive mother need follow up at ART clinic [25].

The quantitative method study done in Dessie town in the year 2015 identifies from 301 sample size, majority of the study participants (93.4%) had the knowledge of HIV/AIDS transmission ways. Majority of the study participants (55.8%) were known what the service PMTCT mean, among of these 33.6% had source of information from health personnel. However, 42.9% were not having clear understanding what PMTCT means. And almost half of the study participants 50.2% clearly having the knowledge of benefits of PMTCT approach, but 35.9% were not sure [26].

2.2.4 Disclosure of the status

Disclosure of HIV positive status is critical in both prevention of vertical transmission of HIV and mitigation of its impact. A common obstacle to disclosure is mothers' fear of its consequences, including physical violence, rejection, blame and abandonment. When HIV infected mothers disclose their status to their spouse, family, and friend or to health professionals, they can get counseling about infant feeding from them.

The study done in Gondar town in 2012, from 209 study participant one hundred eighty three (87.6%) of the respondents had free discussion or disclosure about their HIV status with their spouse and 3.8% of them had got information on infant feeding option , while 26 (12.4%) had not disclosed their HIV status with their spouse. Of the participants 137 (65.6%) had free discussion or disclosure of their HIV status with their family and majority of them had got feeding information and 72 (34.4%) had not disclosed [18].

2.2.5 Maternal and Infant Health Conditions

Institution based Cross-sectional descriptive study done in south and north wolo zone, Out of the 373 respondents, 46(12.3%) encountered health problems; Breast and nipple problems in 16(34.8%). and 30(65.2%) had non breast related health problems. As a result of maternal

illnesses, 21(45.6%) reported to change their infant feeding practices from EBF to mixed feeding during their illness time. Out of 373 respondents 78(20.9%) infants had at least one illness since birth and 35(44.9%) of their mothers changed their infant feeding practice from EBF to mixed feeding, during infants' illness time [27].

Even though the provision of PMTCT reduces the risk of MTCT of HIV, there is a chance to acquire HIV infection through infant feeding practices particularly mixed breast feeding. In Ethiopia, all infant feeding options commonly ERF (exclusive replacement feeding), EBF (exclusive breast feeding), and MF (mixed feeding) were practiced and assessed, but there is gap. Therefore, this study is proposed to fill this gap.

2.3 Conceptual Frameworks

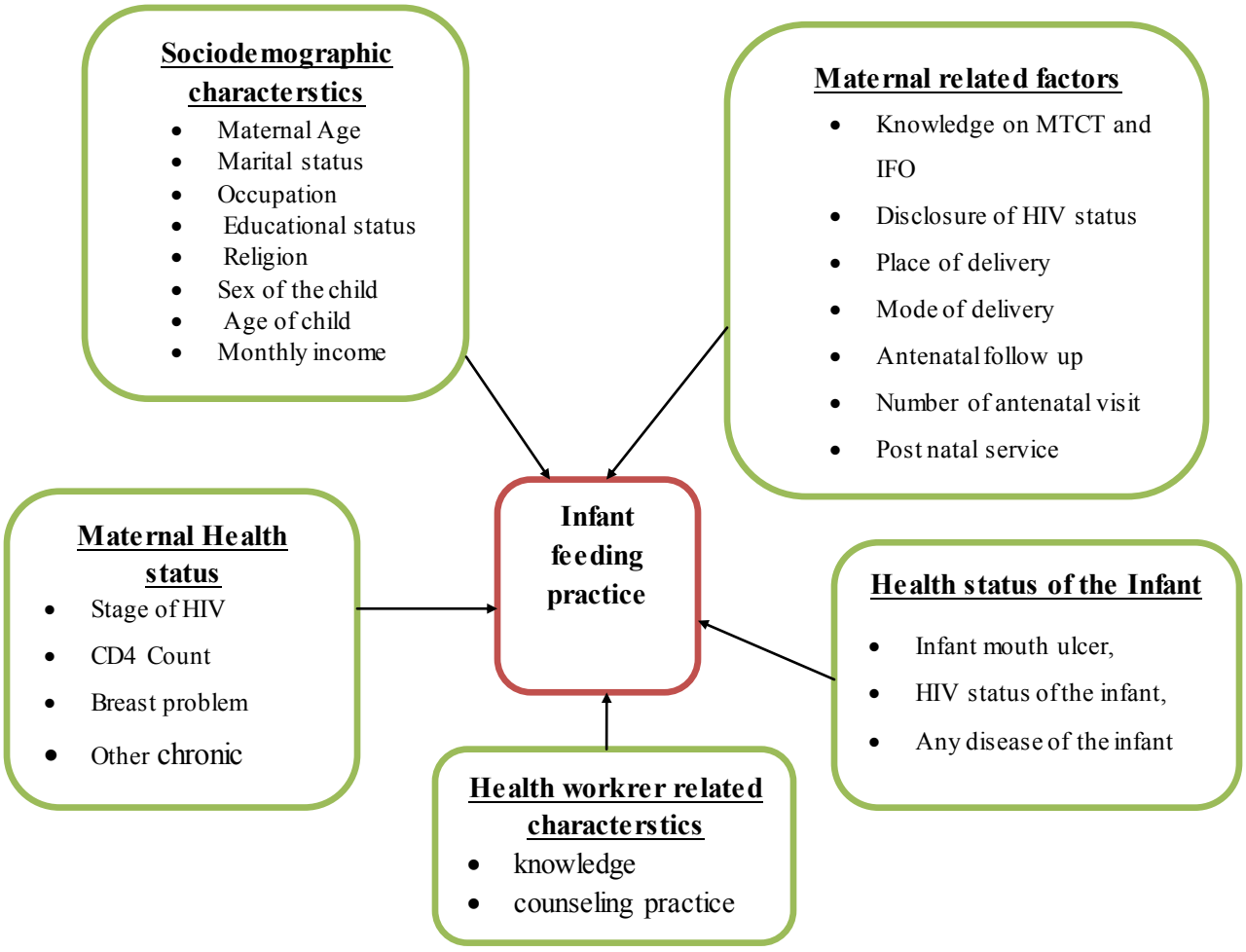

Figure 1: Conceptual frame work on infant feeding practices among HIV positive mothers receiving ARV/ART with its determinants [16].

3. OBJECTIVE

3.1 General Objective

To assess infant feeding practices and its associated factors among HIV positive mothers attending ART service in Governmental Health institutions of Bahir Dar town, 2017.

3.2 Specific objectives

To determine infant feeding practices of HIV positive mothers attending ART services.

To identify factors associated with infant feeding practice of HIV positive mothers attending ART services.

4. METHOD AND MATERIAL

4.1 Study area and period

The study was conducted in Bahirdar ART service providing governmental health institutions. Bahir dar is located in North West part of Ethiopia which is the capital city of Amhara regional state having a total population of 311,724 and is found at a distance of 565 km from Addis Ababa, capital city of Ethiopia. It is one of the leading tourist destination in Ethiopia, with a variety of attractions in the nearby Lake Tana, Blue Nile river, and its monasteries and is one of the twelve cities that was conferred the UNESCO learning cities award 2015. It has 2 governmental hospitals and 10 health centers; among them the 2 hospitals and 5 health centers provide ART service [28], and the study was carried out from March to April, 2017.

4.2 Study design

Institution based cross-sectional study was conducted

4.3 Population

4.3.1 Source population

All mothers who have a child and attending ART services in health institutions of Bahir Dar town during the study period

4.3.2 Study Population

The study populations were HIV positive mother with a child less than 1 year of age who have follow-up in four randomly selected ART service providing governmental health institutions.

4.3.3 Sample population

The sample populations were the selected HIV positive mother with a child less than 1 year of age by systematic random sampling who had follow-up and presented on the time of data collection in four randomly selected ART service providing governmental health institutions.

4.4 Eligibility criteria

4.4.1 Inclusion criteria:

- HIV positive mothers having less than one years old child who had follow up in the ART unit in the selected facilities from March to April, 2017.

4.4.2 Exclusion criteria:

- Those mothers who were severely ill and unable to respond were excluded.

4.5 Sample size and sampling technique

4.5.1 Sample size determination

Sample size were determined by using single population proportion formula at 95% confidence interval and 5% margin of error as well as the prevalence of infant feeding practice 83.8%. Hence,

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

Where: n = required sample size

$Z\alpha/2$ = critical value for normal distribution at 95% confidence interval which equals to 1.96

P = 83.8% (Prevalence of EBF, MF, and ERF were 83.8%, 10.5%, and 5.7% respectively, from the research done in the same title in Gondar, 2012) [18],

d = an absolute precision (margin of error 5%)

Non-response rate = 10%

$$n = \frac{(1.96)^2\ 0.838(1-0.838)}{(0.05)^2}$$

n = 209 (by adding 10% non response rate the sample size will be

n= 230

4.5.2 Sampling technique

From all governmental health institutions in Bahir dar, the 2 hospitals and 5 health centers actively provide ART service, and then by using simple random sampling (lottery method) one hospital and 3 health centers were selected. The sample size was selected from the selected ART service providing centers by using systematic random sampling method. Proportional allocation of the number of cases to participate in the study from each health facilities was considered. The sampling interval (K) for each institution was determined by dividing each population size, by required sample size, **n**. HIV positive mothers card number from appointment book was the sampling frame. Then every 2 interval the sample were selected.

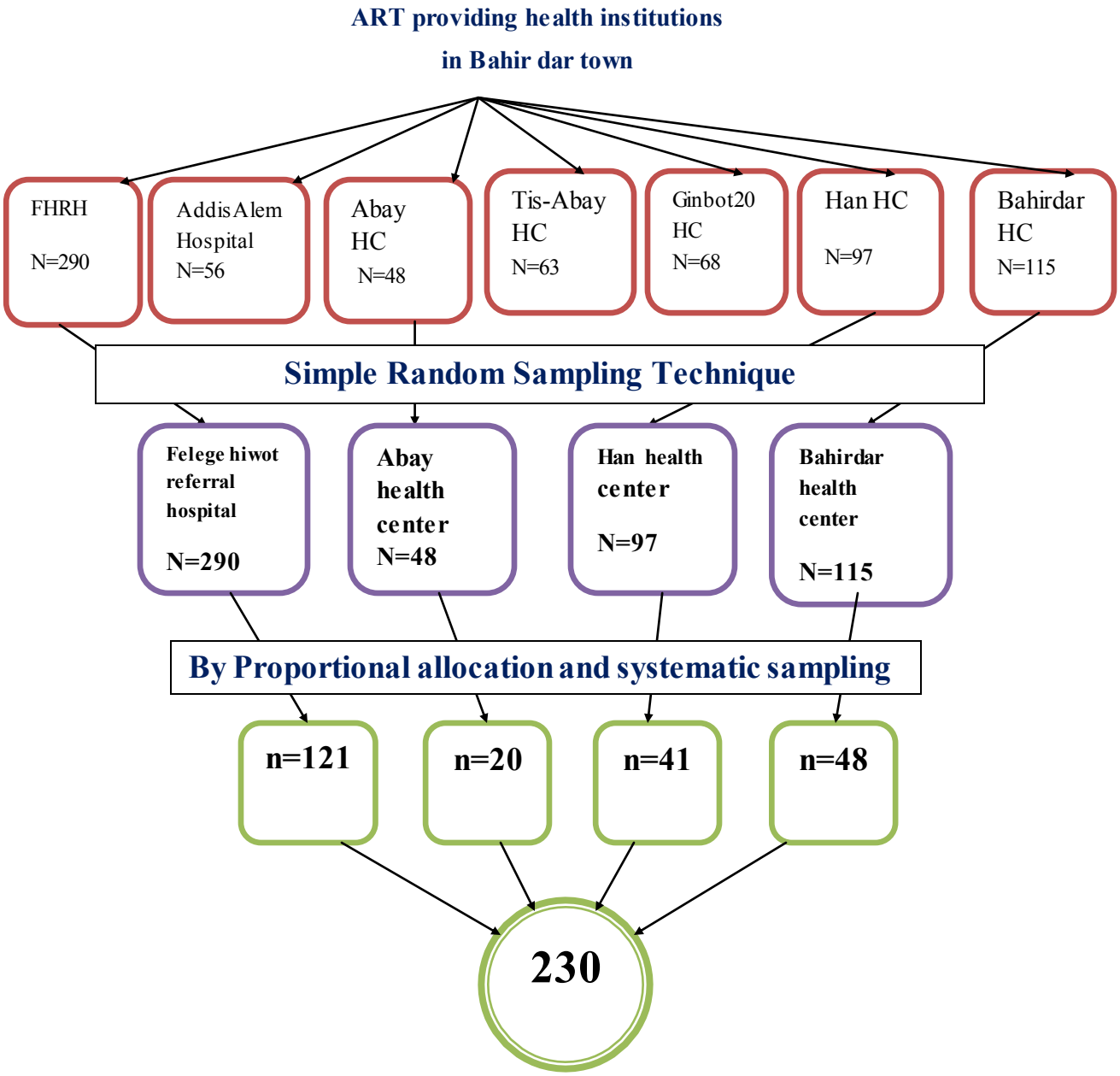

Figure 2: Schematic Presentation of Sampling Procedure for a study done on infant feeding practices of HIV positive mothers attending ART services, in governmental institutions of Bahir dar town, 2017.

4.6 Study Variables

4.6.1 Dependent variables

- Infant feeding practices

4.6.2 Independent variables

- **Socio demographic variables**: Maternal Age, marital status, occupation, educational status, religion, monthly income, sex of the child and age of child
- **Maternal related factors**: Knowledge, Disclosure of HIV status, Place of delivery, Mode of delivery, Antenatal follow up, number of antenatal visit, Post natal service
- **Maternal health status**: Stage of HIV,CD4 Count,Breast problem,Other chronic illness
- **Health condition of the infant**: Infant mouth ulcer, HIV status of the infant, Any disease of the infant
- **Health workers related characterstics**: Counseling practice

4.7 Operational definition

- **Infant feeding practices**: are set of recommendations for appropriate feeding of new-born and children to prevent mother to child transmission of HIV. The responses are categorized as Safe and unsafe.
- **Safe infant feeding practice:** proportion of mothers who practiced either exclusive breast feeding or exclusive replacement feeding to their infants up to six months and started complementary foods at 6 months.
- **Unsafe infant feeding practice**: proportion of mothers who practiced mixed feeding up to six months of age or started complementary food below six months of the infant's age.
- **Exclusive breast feeding** - Giving the infant no other food or drink, not even water, apart from breast milk (including expressed breast milk), with the exception of drops or syrups consisting of vitamins, mineral supplements or prescribed medicines up to six months or if the infant is less than 6 months up to the day of the interview.
- **Exclusive replacement feeding** - The process of feeding a child who is not receiving breast milk with an infant commercial or home prepared milk, during the first six months until the child is fully fed on family foods or if the infant is less than 6 months up to the

day of the interview. And this should be with a suitable breast-milk substitute – commercial formula or home prepared formula with micronutrient supplements.

- **Mixed breast feeding** - Breastfeeding with the addition of fluids, water, solid feeds and non-human milks in the first 6 months of age or if the infant is less than 6 months up to the day of the interview. And started complementary food below or above six months of the infant's age.
- **Good knowledge** - Respondant who scored greater than or equal to mean
- **Poor knowledge** – Respondant who scored below the mean

4.8 Data collection techniques and instrument

4.8.1 Data Collection Instrument

Data was collected from March to April, 2017 by using pre-tested structured questionnaire adopted from different literatures after being modified to the local context and to the research objective by the investigator. The questionnaire was translated into Amharic language, then the Amharic version back translated into English by language professional, and consistency between the original and the back translated versions was checked by the investigator to keep the reliability and validity.

4.8.2 Data collection process

Data was collected by four health workers (data collectors) working from other health institutions at the ART unit by using a structured interviewer administered questionnaire for the study participants. Continuous supervision of the data collectors was made by one supervisor and principal investigator.

4.8.3 Data processing and analysis

The completeness of the questionnaire was checked before data entry and the data were coded, entered and stored in to the computer using Epi Data version 3.1. Data was cleaned and analyzed by SPSS software version 20. Descriptive statistics was carried out using table and figure. In order to investigate the association of independent variables with infant feeding practice both bivariate and multivariate analysis were used. The variables that showed an association with the outcome variable at the bivariate analysis with p value <0.2 was entered into the final multivariable logistic regression to control for potential confounders. Adjusted odds ratio (AOR)

along with 95 % confidence interval was estimated to assess the strength of the association and a P value <0.05 was considered to declare the statistical significance in the multivariable analysis.

4.8.4 Data Quality Control

A one day training and orientation was given by principal Investigator for 4 data collectors and 1 supervisor on the objective and significance of the study, how to collect and record the appropriate information, procedures of data collection techniques, the whole contents of the questionnaire and to keep confidentiality. Pre-test was done on 5 % of the samples in Addis Alem Hospital before the actual survey and important modification was made on the basis of the findings. During the data collection time close supervision and monitoring was made every other day by the supervisor and principal investigator to ensure the quality of the data. The supervisor was MPh degree holder in public health and the data collectors were clinical nurse holders. At the end of each day, the collected data was checked for its completeness and logical consistency by supervisor and principal investigator and corrective discussion were under taken for the next day data collection with all the data collectors and the supervisor.

4.9 Ethical consideration

Ethical clearance was obtained from Addis Ababa University ethical review committee. Official letter of permission from the department was submitted to Bahir dar town health institutions which provide ART service, and then verbal consent was obtained from the mothers of the child under study and confidentiality of the information given by the respondent was maintained.

4.10 Dissemination plan

The Findings of this study are presented to Addis Ababa University, college of allied health science, department of Nursing and midwifery. In addition, the findings will submit to the health office of Bahir Dar town and Amhara region health office. Trial will be made to publish in peer reviewed journals for further utilization.

5. RESULT

5.1 Sociodemographic characteristics

A total of 230 HIV positive mothers having infants from three ART service providing health centers and one hospital under Bahir dar town were included in the study making the response rate of 100%. The mean age of mothers and infants were, (28.49± 4.44) years and (7.67±2.9) months, respectivey. One hundred seventeen (50.9%) of mothers had male child and majority of the mothers, one hundred seventy four, (75.7%) were married. Regarding to maternal education, about One-third of the mothers was 1-8 grade attended and sixty nine, (30%) of the respondents were unable to read and write. Concerning their religion, ethinicity and occupation, majority (73.9%) of respondents were Orthodox Christian, (97%) Amhara and (45.2%) house wife, respectively. 62.6 % of the respondant had >1000 monthly income. (See table 1 below).

Table 1: Socio demographic characteristics of HIV positive mothers in 4 health facilities in Bahir dar town, 2017, (n= 230)

Variable	Category	Frequency	Percent (%)
Age of the mother (n=230)	18-24	41	17.8
	25-29	93	40.4
	30-35	84	36.5
	>35	12	5.2
Age of the child (n=230)	≤6 month	69	30.0
	7-11.9 month	161	70.0
Sex of the child (n=230)	Male	113	49.1
	Female	117	50.9
Marital status (n=230)	Single	21	9.1
	Married	174	75.7
	Divorced	28	12.2
	Widowed	7	3.0
Mother's education (n=230)	Unable to read and write	69	30.0
	Grade 1-8	79	34.3
	Grade 9-10+2	36	15.7
	10+2 and above	46	20.0
Religion (n=230)	Orthodox Christian	170	73.9
	Catholic	6	2.6
	Protestant	8	3.5
	Muslim	46	20.0
Ethnic group (n=230)	Amhara	223	97.0
	Oromo	7	3.00
Mother's occupation (n=230)	Government employee	34	14.8
	Private employee	19	8.3
	Daily laborer	33	14.3
	House wife	104	45.2
	House servant	2	0.9
	Merchant	35	15.2
	others*	3	1.3
Husband's education (n=174)	Unable to read and write	21	12.1
	Able to read and write	17	9.8
	Grade 1-8	29	16.6
	Grade 9-10+2	43	24.7
	10+2 and above	64	36.8
Husband's occupation (n=174)	Government employee	47	27.0
	Private employee	38	21.9
	Daily laborer	27	15.5
	Merchant	50	28.7
	others**	12	6.9
Monthely income (n=230)	<500	14	6.1
	500-1000	72	31.3
	>1000	144	62.6

Others*= farmer, prostitute; others**= farmer, driver

5.2 Obstetric history

Out of 230 mothers, 117 (50.9%) and 74 (32.2) had 1 and 2 children, respectively. Almost all 228(99.1%) of them attended ANC follow up in the last pregnancy and out of them 158(68.7%) mothers had four ANC visits. The majority 228(99.1) of the mothers were counseled on infant feeding options Out of which, 190 (82.6%), 93 (40.4%), 116 (50.4%) and 195 (84.8%) were counseled during ANC, Delivery, PNC and ART visits, respectively. All of the mothers 230 (100%) delivered at the health institutions via spontaneous vaginal delivery (51.3%) and 94.3% of the total respondents were attended PNC. (See table 2 below).

Table 2: Obstetric history of HIV positive mothers attending ART services at 4 health institutions in Bahir dar town, 2017, (n=230)

Variable	Category	Frequency	Percent (%)
Number of children m(±s.d) (n=230)	1.74±0.94		
Attending ANC (n=230)	Yes	228	99.1
	No	2	0.9
ANC visits m(±s.d) (n=228)	3.89 ± 0.811		
Counseled on infant feeding (n=230)	Yes	228	99.1
	No	2	0.9
During ANC (n=228)	Yes	190	83.3
	No	38	16.7
During delivery (n=228)	Yes	93	40.8
	No	135	59.2
During PNC (n=228)	Yes	116	50.9
	No	112	49.1
During ART visits (n=228)	Yes	195	85.5
	No	33	14.5
Place of birth (n=230)	Health institution	230	100
Mode of delivery (n=230)	SVD	118	51.3
	CS	26	11.3
	Instrumental	86	37.4
Attending PNC (n=230)	Yes	217	94.3
	No	13	5.7

5.3 HIV Disclosure

Most of 131(57%) the mothers knew their HIV status before this pregnancy. 183(79.6%) of the mothers disclosed their HIV status out of which, majority of mothers, 132(57.4%) disclosed to their husband. (See table 3 below)

Table 3: disclosure status of HIV positive mothers attending ART services at 4 health institutions in Bahir dar town, 2013, (n=230)

Variables	Category	Frequency	Percent (%)
The time HIV status is known (n=230)	Before pregnancy	131	57.0
	During this pregnancy	96	41.7
	During delivery	1	0.4
	After delivery	2	0.9
Disclosed your HIV status (n=230)	Yes	183	79.6
	No	47	20.4
For whom your HIV status disclosed (n=183)	Husband		
	Yes	132	72.1
	No	51	27.9
	Sister/brother		
	Yes	44	24.0
	No	139	76.0
	Family		
	Yes	63	34.4
	No	120	65.6
	Friend		
	Yes	29	15.9
	No	154	84.1

5.4 Feeding practice of HIV positive mothers

From the total 230 mothers, 201(87.4%) had ever breast fed their infant, 182 (90.5%) of them initiated the first breast milk less than one hour after birth. Sixteen infants (9.3%) received food/fluid before the first breast milk. While 8(4%) children received food/drink before the first breast milk. 57(24.8%) were given foods/fluids other than breast milk until six months of age. The commonly given food for the infants in addition to breast milk was milk powder (68.4%). Only 0.9% and 7.8% of the respondent practiced wet nursing and expressed milk, respectively. The reason for wet nursing was mother had got breast problem and sick. No one had treated the expressed milk with heat before they gave to their babies. The major reasons were to separate from the infant (61.1%) and infant unable to suckle on breast feeding (22.2%). Majority of the respondents used bottle 15(83.3%), while 3(16.7%) used cup.

The majority 173(75.2%) practiced exclusive breast feeding up to six months of age and 71(30.9%), 66(28.7%), and 66 (28.7%) practiced the feeding option they counseled by health professional, fear of MTCT of HIV/AIDS ,and thinking it is safe for the baby,respectively. While 32 (13.9%) of the respondents practiced exclusive replacement feeding. The reason for making this feeding option for 28 (87.5%) of them is that fear of MTCT of HIV/AIDS. Seventeen (53.1%) of the mothers gave commercial infant formula. A total of 178(74.4%) of the mothers started complementary food for their child, 153(86.0%) of the mothers who started at the age of 6months, while the rest (14%) started before the age of 6 months. (See table 4 below)

Table 4: Infant feeding practice of HIV positive mothers attending ART services at 4 health institutions in Bahir dar town, 2017, (n=230)

Variables	Category	Frequency	Percent (%)
Ever breast feed (n=230)	Yes	201	87.4
	No	29	12.6
Time of first intiation of breast milk (n=201)	Within first hour	182	90.5
	After first hour	19	9.5
Infant received any food or fluid before breast milk (n=201)	Yes	8	4.0
	No	193	96.0
What food or fluid (n=8)	Better	2	25.0
	Water	1	12.5
	Water and suger	4	50.0
	Other***	1	12.5
Ever given food/fluid other than breast milk before 6 month (n=230)	Yes	57	24.8
	No	173	75.2
What food or fluid (n=57)	Milk powder	39	68.4
	Cow milk	1	1.75
	Porriege	3	5.3
	Adult food	14	24.6
Other person breast feed your child (n=230)	Yes	2	0.9
	No	228	99.1
Why (n=2)	Mother sick	1	50.0
	Breast problem	1	50.0
Ever given expressed milk (n=230)	Yes	18	7.8
	No	212	92.2
Utensil used to (n=18)	Bottle	15	83.3
	Cup	3	16.7
Ever treated expressed milk with heat (n=18)	Yes	0	
	No	18	100
Why you express (n=18)	To relive crackle nipple	3	16.7
	To separate from the infant	11	61.1
	Infant unable to suck	4	22.2
Feeding options you practiced (n=230)	Exclusive breast feeding	173	75.2
	Exclusive replacement feeding	32	13.9
	Mixed feeding	25	10.9
Feeding practice (n=230)	Safe feeding	205	89.1
	Unsafe feeding	25	10.9
Reason for the feeding option (n=230)	Thinking it is safe for the baby	66	28.7
	Can't afford cost of replacement	4	1.7
	feeding	66	28.7
	Fear of MTCT of HIV	1	0.4
	No counseling was done	71	30.9

	Health professional counsling Norm of the society Breast milk insufficient Fear of stigma and discrimination	3 17 2	1.3 7.4 0.9
Practiced replacement feeding (n=230)	Yes No	32 198	13.9 86.1
Reason for choosing replacement feeding (n=32)	Fear of MTCT of HIV Mother sick during delivery	28 4	87.5 12.5
Frequency of replacement feeding per day (n=32)	<8 times ≥8 times	1 31	3.1 96.9
Started complementary feeding (n=230)	Yes No	178 52	74.4 22.6
Age complementary feeding started (n=178)	<6 month ≥6 month	25 153	14.0 86.0

Other***- soft drinik, tea

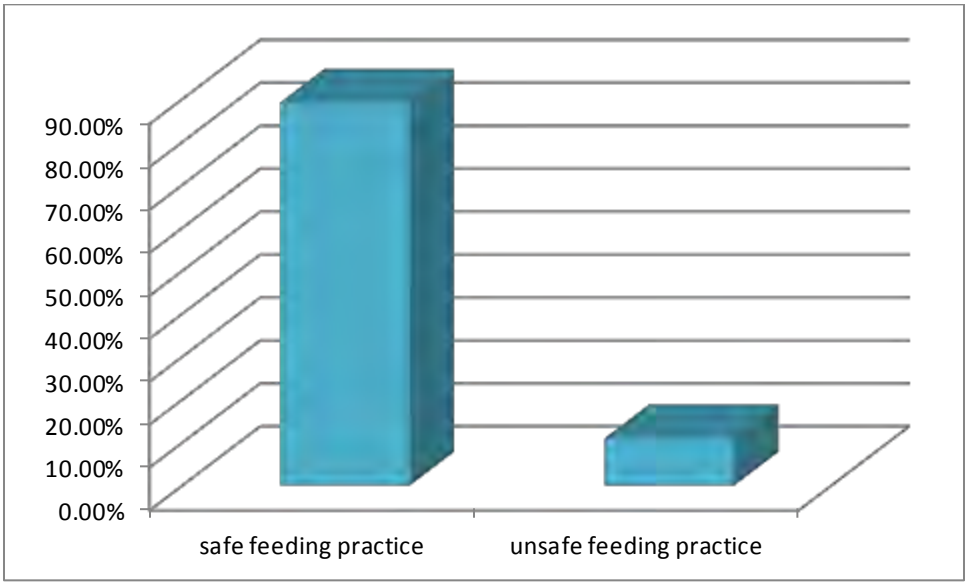

Figure 3: prevalence of infant feeding practice among HIV positive mothers attending ART service in governmental health institutions of Bahirdar town, 2017.

5.5 Awareness of HIV positive mothers towards MTCT and infant feeding options

Almost all 228 (99.1%) of the mothers knew that HIV could be transmitted from mother to child, Out of which 191 (83.8%), 207 (90.8%) and 159 (69.7%) mothers were answered that it could be transmitted during pregnancy, delivery, and breast feeding, respectively. The majority 228 (99.1%) of them heard about infant feeding options recommended for HIV positive mothers, of which, 225 (98.7%) heard from health professionals. Most, 228(99.1%) of the mothers knew the recommended infant feeding practices and when asked the recommended type of feeding option, 206 (90.4%) mentioned exclusive breast feeding for the first 6 months. (See table 5 below)

Table 5: Awareness of HIV positive mothers on recommended infant feeding options and MTCT of HIV who attending ART services at 4 health institutions in Bahir dar town, 2017

Variables	Category	Frequency	Percent (%)
Knowledge on MTCT (n=230)	Yes	228	99.1
	No	2	0.9
when (n=228)	During Pregnancy		
	Yes	191	83.8
	No	37	16.2
	During Delivery		
	Yes	207	90.8
	No	21	9.2
	During Breast feeding		
	Yes	159	69.7
	No	69	30.3
Heard about recommended infant options for HIV positive mothers(n=230)	Yes	228	99.1
	No	2	0.9
Heard from (n=228)	Health professional	225	98.7
	Other****	3	1.3
Knowledge on recommended infant feeding options for HIV positive mothers (n=228)	EBF		
	Yes	206	90.4
	No	22	9.6
	ERF		
	Yes	158	69.3
	No	70	30.7

Other****-husband, nighbours

5.6 knowledge of mothers on recommended infant feeding options and PMTCT

The mean value of mothers knowledge on PMTCT and recommended infant feeding options were 7. Scores below the mean is considered as poor knowledge and scores greater than or qual to the mean value were considered as knowledgeable. In this study, majority (63.2%) of the respondents had poor knowledge about mother to child transmission of HIV and the recommended infant feeding.

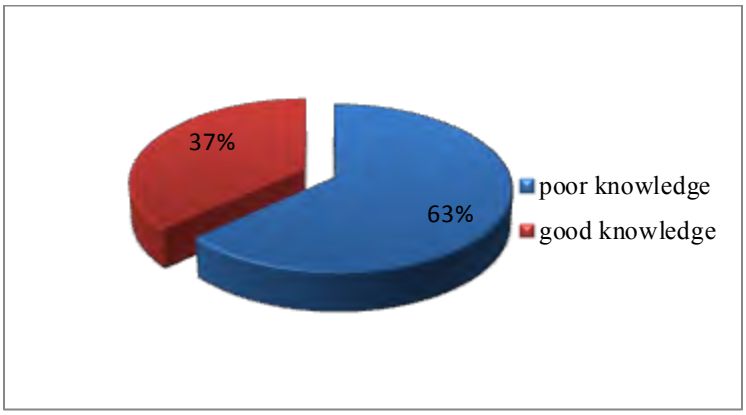

Figure 4: knowledge towards MTCT of HIV and recommended infant feeding options among HIV positive mothers attending ART service in governmental institution of bahir dar town, 2017.

5.7 Mothers and infant health condition

60.9% of mothers had >500 cell/mm^3 CD4 count and more than half of the mothers 206 (89.6%) were on stage 1 of HIV disease progress, and most of them 182(79.1%) had not encounter any breast problem, and majority, 204(88.7%) answered that they had no any long term illness. Almost all, 225(97.8%) of the infants had not encountered any oral ulcer and 98 (42.6%) mothers knew the HIV status of their child. Only 3(1.3%) of them were positive. From 230 infants, 51(22.2%) were developed illness, out of which, 17(7.4%) encountered diarrhea. (See table 6 below)

Table 6: health condition of HIV positive mothers and infants attending ART services at 4 health institutions in Bahir dar town, 2017

Variables	Category	Frequency	Percent (%)
CD4 count(cell/mm^3) (n=230)	<200	3	1.3
	200-500	87	37.8
	>500	140	60.9
Disease progress (n=230)	Stage 1	206	89.6
	Stage 2	24	10.4
Ever encountered breast problem (n=230)	Yes	48	20.9
	No	182	79.1
Type of breast problem (n=48)	Breast engorgement	33	68.8
	Sore nipples	11	22.9
	Cracked nipples	2	4.2
	Burning and tingling	2	4.2
Any long term illness (n=230)	Yes	26	11.3
	No	204	88.7
Type of long term illness (n=26)	Tuberculosis	7	26.9
	Diabetic mellitus	11	42.3
	Hypertension	4	15.4
	Cardiac problem	4	15.4
Infant's mouth ulcer (n=230)	Yes	5	2.2
	No	225	97.8
Do you know HIV status of your child (n=230)	Yes	98	42.6
	No	132	57.4
HIV status of your child (n=98)	Negative	95	96.9
	Positive	3	3.1
Infant ever been diseased (n=230)	Yes	51	22.2
	No	179	77.8
Disease type (n=51)	Diarrhea	17	33.3
	Common cold	13	25.5
	Pneumonia	12	23.5
	Vomiting	9	17.7

5.8 Counseling practice of health workers

Almost all 225(97.8%) of the mothers answered that the health worker explained to them the different feeding options. 228(99.1%) of mothers answered the health care providers told them about advantages of breast feeding, and 198(86.1%) stated that they were counseled on disadvantages of breast feeding, while 205(89.1%) of the mothers were told about advantages of replacement feeding. Some 206(89.6%) of them had been told on disadvantages of replacement feeding.

Regarding the safety of the feeding options, 200(87.0%) of the mothers were informed about the risk of mixed feeding, and 165(71.7%) of the mothers stated that the health care provider explained about how to practice the chosen feeding choice. (See table 7 below)

Table 7: Counseling practice of health workers on infant feeding options among HIV positive mothers attending ART services at 4 health institutions in Bahir dar town, 2017

Variables	Category	Frequency	Percent (%)
Health care provider explain different feeding option (n=230)	Yes	225	97.8
	No	5	2.2
Health care provider tells about advantage of breast feeding (n=230)	Yes	228	99.1
	No	2	0.9
Health care provider tells about disadvantage of breast feeding (n=230)	Yes	198	86.1
	No	32	13.9
Health care provider tells about advantage of replacement feeding (n=230)	Yes	205	89.1
	No	25	10.9
Health care provider tells about disadvantage of replacement feeding (n=230)	Yes	206	89.6
	No	24	10.4
Health care provider tells about risk of mixed feeding (n=230)	Yes	200	87.0
	No	30	13.0
Health care provider explain how to practice the chosen feeding options (n=230)	Yes	165	71.7
	No	65	28.3

5.9 Factors affecting infant feeding practice

In the bivariate analysis; maternal education [COR=0.124(95%CI=0.016-0.988)*], Counseling on infant feeding options during delivery [COR=5.21(1.5-18.1)**], Counseling on infant feeding options during Postnatal care [COR=4.25(1.52-11.88)**], Time of initiation of first breast feeding after delivery [COR=12.37(4.35-35.14)***], Mother ever given any food / fluid to their infant before first breast feeding [COR=0.015(0.002-0.126)***, knowledge of mothers on mother to child transmission of HIV/AIDS and recommended infant feeding options[COR=0.31(0.102-0.94)*, being counseled by health workers on advantage of replacement feeding [COR=3.09(1.101-8.67)*] were found to be significantly associated with infant feeding practice; However, in the multivariable logistic regression, ,mothers counseld the recommended feeding options during delivery, ever given any food or fluid before first breast milk, and knowledge of mothers on the recommended feeding options and PMTCT were significantly associated with infant feeding practice. HIV positive mothers who counsled on infant feeding options during delivery were 3.699 times more likely to practice safe infant feeding practice as compared to their counter parts, (AOR (95% CI):3.699(1.00-13.41). However, those HIV positive mothers who ever given any food/fluid before first breast milk for their infant and knowledge of mothers on the recommended feeding options and PMTCT were 98.5 % and 81.1% less likely to safely practice infant feeding, (AOR (95% CI): 0.015(0.001-0.188) and [AOR (95% CI): 0.189(0.042-0.855)] as compared to those who did not give prelacteal feeding and had good knowledge, respectively. (See Table 8)

Table 8: Factors affecting infant feeding practices among HIV positive mothers attending ART service in governmental institutions of Bahir dar town, 2017.

Variables	Category	Infant feeding practice		COR (95% CI)	AOR (95% CI)
		unsafe	safe		
		n (%)	n (%)		
Maternal educational status	Unable to read and write	9(13%)	60(87%)	0.148(0.018-1.212)	
	Grade 1-8	12(15.2%)	67(64.8%)	**0.124(0.016-0.988)***	
	Grade 9-10+2	3(8.3%)	33(91.7%)	0.244(0.024-2.456)	
	10+2 and above	1(2.2%)	45(97.8%)	**1.00**	
Counseling on infant feeding options during delivery	yes	3(3.2)	90(96.8)	**5.21(1.5,18.11)****	**3.699(1.00-13.41)***
	No	20(14.8)	115(85.2)	**1.00**	**1.00**
Counseling on infant feeding options during Postnatal care	yes	5(4.3)	111(95.7)	**4.25(1.52,11.88)****	
	No	18(16.1)	94(83.9)	**1.00**	
Time of initiation of first breast feeding after delivery	Within 1st hour	15(8.20	167(91.8)	**12.37(4.355,35.14)*****	
	After 1st hour	10(52.6)	9(47.4)	**1.00**	
Had you ever given any food / fluid before first breast feeding	Yes	7(87.5)	1(12.5)	**0.015(0.002,0.126)*****	**0.015(0.001,0.188)****
	No	18(9.3)	175(90.7)	**1.00**	**1.00**
Knowledge of mothers on MTCT and infant feeding	Poor	20(13.9)	124(86.1)	**0.31(0.102,0.940)***	**0.189(0.042-0.855)***
	Good	4(4.8)	80(95.2)	**1.00**	**1.00**
Had you been counseled by health workers on advantage of replacement feeding	Yes	19(9.3)	186(90.7)	**3.09(1.101,8.678)***	
	No	6(24.0)	19(76)	**1.00**	

Significant at *P value <0.05, **P value <0.01 and p*** value<0.001

6. DISCUSSION

The aim of this study was to assess infant feeding practice and associated factors among HIV positive mothers who were attending ART service in governmental health institutions of Bahir dar town. The study revealed that majority (75.2%) of the mothers experienced exclusive breast feeding, some practiced exclusive replacement feeding (13.9%) and small proportion (10.9%) had undergone mixed feeding for their infants. In another expression very great number of the HIV positive mothers experienced safe feeding (89.1%) and the rest unsafe feeding options (10.9%).

The Ethiopian Ministry of Health guideline on infant feeding recommendations of HIV exposed infants recommends EBF for the first 6 months and introducing complementary feeding at 6 months and keep on breastfeeding until12-18 months.

This study revealed that the prevalence of HIV positive mothers practicing exclusive breast feeding (EBF) for the first six months of age was 75.2% which is higher than the study done in Nigeria (14.8%), South Africa (5%), Kenya (40.6%), Addis Ababa, Ethiopia (30.6%) and southern nations, nationalities,and peoples' region (56.3%). It is in line with Cameroon (70%) and Debre Markos (77.3%), [17, 20, 15, 29, 30, 19, 31]. This may be due to mothers thinking EBF is safe for the baby and majority of the respondants were counseled by health professionals. However, it is lower than the study done in Shashemene (96.6%) and Gondar (83.3%). This descripacy may be due to mothers expected that breast milk only is not sufficient to the infant and add other food.

The prevalence of HIV positive mothers practicing exclusive replacement feeding (ERF) for the first six month was 13.9% which is higher than that of Kenya (0.4%), southern nations, nationalities,and peoples' region (8.1%), Shashemene (2.7%), Mekelle (3.4%),and Debre Markos (8.5%), [15, 30, 23, 32, 19]. The reason for the difference in this study may be fear of mother to child transmission of HIV (87.5%) and mother was sick. However, the result is lower than the study done in Nigeria (26%), South Africa (38.7), Kenya (41%), Addis Ababa, Ethiopia (46.8%), and south and north wolo, Ethiopia (95.1%), [33, 34, 35, 29, 27]. This discrepancy may be due to the current cost inflation might have part for this minimal ERF practice b/c they could not afford to buy formula food.

According to WHO guide lines, Breast feeding with other foods or liquids in the first six month constitutes mixed feeding. In this study, 10.9% of the respondants were practiced mixed feeding. This is lower than the study done in South Africa (30.5%), Kenya (42.2%), and SNNPR (35.6%), [34, 36, 30]. The reason may be in this study majority of the respondants counseled about different recommended feeding options during ANC, delivery, PNC, and ART follow up. It was however higher than 4%, 7.8%, 0.7%, and 6.3% reported in Kenya, Addis Ababa, Shashemene, and Mekelle, respectively [35, 16, 23, 32]. The major reason for this study is the mother expected that breast milk is insufficient for the infant and fear of stigma and discrimination.

Early breast feeding is very critical factor for improving child survival. Breastfeeding also presents many benefits other than reducing the risk of child mortality. So breast milk should be initiated in the first hours of birth, and it is considered as the first vaccine [2]. This study also identified, from those mothers who ever breast feed, 90.5% timely initiated the first breast milk with in first hour of delivery. This finding is beter than previous study done in Addis Ababa (80.4%) and mekelle (85.5%). This might be due to all the delivery was in the health institution (100%) and more than half of the mothers delivered normal SVD delivery (51.3%), so no delay of attachment with their babies might also be the possible explanation [16, 32].

In this study, mothers who practiced prelacteal feeding were 4%. This is lower than the study done in north wolo zone (11.1%). This might be the recentness of the study that the respondants have more information about infant feeding and all delivery in this study is in the health institution. In the comparative study, the reasons stated for providing prelacteal feeding were culture and do not have enough milk [37].

In multivariable analysis, mothers knowledge towards the recommended infant feeding options and PMTCT were 81.1% less likey to practice safe feeding options, [AOR (95% CI): 0.189(0.042-0.855)]. This is lower than the study done in Shashemene, (AOR = 10.95 (95%CI = 3.855-31.118). This discrepancy might be in this study most of the respondents were illiterate [23].

Mother who had ever given any food/fluid before first breast milk, [AOR=0.015(95%CI=0.001-0.188)] were 98.5% less likely to practice safe infant feeding options as compared to those mothers who didn't given any food/fluid. Mothers who counseled about infant feeding options during delivery were 3.699 times more likely to practice safe feeding options as compared to those who didn't have ccounseling during delivery.

Strength of the study

- Intensive training and every other day supervision were conducted for data collectors.
- All associated factors were taken after indication of significance in the Variable ―goodness of fit" for the models.

Limitation of the study

- This study was cross-sectional study design, so cause and effect relation was not assured.
- The study findings are limited in terms of overall generalization because the study was institution based there might be a possibility of underestimating mixed (unsafe) feeding because mothers counseled on recommended infant feeding practice might answer the questions accurately.
- Recall bias was also one of the limitations of the study as the mother was expected to remember feeding patterns of the child since birth.

7. CONCLUSION AND RECOMMENDATION

7.1 Conclusion

The study revealed that majority of the mothers experienced exclusive breast feeding (75.2%) followed by 13.9% exclusive replacement feeding. This could be an advised way of infant feeding practice by World Health Organization and Ethiopia Minister of Health. Mixed feeding was still prevalent (10.9%) among the mothers which increased the risk of mother to child transmission of HIV. HIV positive mothers counseled about the recommended infant feeding options during delivery, ever given any food/fluid to their infant before first breast milk and knowledge on PMTCT and the recommended feeding options were independent predictors of infant feeding practice.

7.2 Recommendation

- ART service providing health institutions in Bahir dar town would be better to strengthen the works on creating the awareness towards safe feeding practice among HIV positive mothers during ante natal care, ART follow up, and post natal care.
- Health extension workers should encourage HIV positive mothers to deliver at health institutions for getting essential new born care for their infant.
- More advice should be given for mothers to get a timely treatment during mother & infants' illness.
- Increase the ANC & PNC visits by reaching the communities
- Further research should be conducted by including more study sites to allow a more robust analysis.

REFERENCES

1. WHO. HIV and infant feeding. Revised principles and recommendations RAPID ADVICE. November 2009.
2. WHO, UNAIDS, UNICEF. HIV transmission through breast feeding. A review of available evidence. 2007.
3. Ethiopia FMOH. National comprehensive PMTCT training participants manual. Module one. 2016.
4. UNICEF fact sheet. HIV and infant feeding. 2012.
5. WHO, UNAIDS, UNFPA, UNICEF. HIV and infant feeding. Principles and recommendations for infant in the context of HIV and a summary of evidence. 2010.
6. UNAIDS/WHO estimates. Global summery of the AIDS epidemics. 2015.
7. Ethiopia. HIV/AIDS estimates and projection. 2011-2016.
8. Federal democratic republic of Ethiopia. Country progress report on the HIV response. 2014.
9. UNAIDS. The incredible journal of the global plan towards the elimination of new HIV infection among children by 2015 and keeping their mothers alive. On the fast truck to an AIDS free generation.2016.
10. Amdom G/ hiwot. Infant feeding practice of HIV positive mothers and its determinants in public health institutions in central zone, Tigray region, northern Ethiopia. International Journal of Pharma Sciences and Research. Dec 2014 Vol 5 No 12, 0975-9492.
11. WHO. Prevent HIV, test and treat all. Progress report 2016.
12. WHO Ethiopia country office. HIV/AIDS progress. 2014.
13. Ethiopia. Prevention of mother to child transmission HIV case team. 2014.
14. Federal democratic republic of Ethiopia minister of health. Accelerated plan for scaling up prevention of mother to child transmission (PMTCT) services in Ethiopia. 2012.
15. Godfrey Nyongesa Wapang'ana. Assessment of factors influencing infant feeding practices among HIV positive mothers in Rongo district, western Kenya. 2013.
16. Tigist Daniel. Infant feeding practice and associated factors among HIV positive mothers attending ART service in Governmental health institutions in Addis Ababa. 2014.
17. L. C. Ikeako H. U. Ezegwui, M. I. Nwafor, E. Nwogu-Ikojo and T. C. Okeke. Infant feeding practice among HIV positive women in Enugu, Nigeria. British Journal of Medicine & Medical Research8 2015, (1): 61-68,: 2231-0614
18. Dagnachew Muluye, Desalegn Woldeyohannes, Mucheye Gizachew, and Moges Tiruneh Infant feeding practice associated factors of HIV positive mothers attending prevention of mother to child transmission and antiretroviral therapy clinics in Gondar town health institutions, Northwest Ethiopia.2012.
19. Elias Bekele Wakwoya, Tatek Abate Zewudie, and Kahsay Zenebe Gebreslasie. Infant feeding practice and associated factors among HIV positive mothers in Debre Markos Referral Hospital East Gojam zone, North West Ethiopia. The Pan African Medical Journal. 2016; 24:300:1937-8688.

20. K E M petrie, S D Schmidt, C E Schwarz, H E koornhof, D marais. Knowledge, attitudes, and practices of women towards prevention of mother to child transmission (PMTCT) programme at the vanguard community health center, Western Cape – a pilot study. 2007.
21. Mahaka HT, Chakombera E. Knowledge, attitudes and practices on infant feeding options among HIV positive mothers. Central Africa jornal of medicine. 2008 Sep-Dec; 54(9-12):51-3.
22. Wachira J, Otieno-Nyunya B, Ballidawa J, Braitstein P. Assessment of knowledge, attitudes and practices of infant feeding in the context of HIV: a case study from western Kenya. SAHARA J. 2009 Nov; 6(3):120-6; quiz 127-33.
23. Dereje bayissa demissie, Fikadu Tadesse, Bezawit Bezabih, and Jemal Negewo. Infant Feeding Practice and Associated Factors of HIV Positive Mothers Attending Prevention of Mother to Child Transmission and Antiretroviral Therapy Clinics in Shashemene Referral Hospital. An International Peer-reviewed Journal. 2016, Vol.30, 2422-8419.
24. Ayu Gizachew, Balcha Berhanu, Dube Jara and Zewdu Dagnew. Level of Knowledge, Attitude and Associated Factors among Women toward Breastfeeding in the Era of HIV/AIDs, Jabi Tehinan Woreda, Northwest Ethiopia. Journal of Clinics Mother Child Health. 2012, ISSN:2090-7214
25. Amanuel A Abajobir and Agegnehu B Zeleke. Knowledge, Attitude, Practice and Factors Associated with Prevention of Mother-to-Child Transmission of HIV/AIDS among Pregnant Mothers Attending Antenatal Clinic in Hawassa Referral Hospital, South Ethiopia. Journal of AIDS & Clinical Research. 2013, 2155-6113
26. Tadesse G/Egziabher Kahissay. Assessment of knowledge and attitude about prevention of mother to child transmission of HIV option B* and associated factors among ANC clinics in Dessie town, south wolo, Amhara regional state. 2015.
27. Yeshimebet Ali, Dr.P.Surender Reddy. Assessment of infant feeding practice among HIV positive mothers receiving ARV/ART and HIV status of their infant with its determinants in south and north wolo zone, Amhara region, Ethiopia. Interntional journal of scientific research. February 2015,Vol : 4 • 2277 - 8179
28. Tana high level forum on security in Africa. Bahir dar city profile physical feature/ characteristics. 10 February 2015.
29. Yitaysh maru, Jemal haidar.Infant feeding practice of HIV positive mothers and its determinants in selected health institutions of Addis Ababa, Ethiopia. Ethiop. J. Health Dev. 2009;23(2):107-114
30. Astewaya Mengstie, Tirhas Tadese and BogaleTessema. Assessment of factors associated with infant and young child feeding practices of human immunodeficiency virus (HIV) positive mothers in selected hospitals of Southern Nations, Nationalities, and Peoples' Region (SNNPR) Ethiopia. Journal of AIDS and HIV research. 2015, vol 8(6):2141-2359.
31. P. N. Fon, J. C.N. Assob, J. Ndzo, E. Ngu. Infant-feeding practices of HIV-positive mothers in the south west region of Cameroon. 2012
32. Yonas Girma, Alemseged Aregay, Gebrezgabiher Biruh. Infant Feeding Practice and Associated Factors among HIV Positive Mothers Enrolled in Governmental Health Facilities

in Mekelle Town, Tigray Region, North Ethiopia. Journal of HIV/AIDS and infectious disease. 2014;vol2:1-8
33. Usman Aishat, Fawole Olufunmilayo, Dairo David, Saheed Gidado. Factors Influencing Infant Feeding Choices of HIV Positive Mothers inSouthwestern, Nigeria. American Journal of Public Health Research. 2015:Vol. 3, No. 5A, 72-79
34. Keith Ellis. Determinants of Infant Feeding Practices of Hiv-Positive and Hiv-Negative Mothers In Pretoria, South Africa. Yale School of Nursing Digital Theses. 2013 Paper 1004.
35. Stephen K. Muleshe. Determinants of Infant and Young Child Feeding Practices among HIV Positive Mothers in Kibera, Nairobi, Kenya, 2011.
36. Joshua Mose omwenga, Jeremy Murithinjiru, and Hamson Omaenyabera. Determinants of infant feeding practice among HIV positive mothers attending comprehensive care clinic at a hero sub country hospital, Kenya. International Journal of novel research in health care and nursing. September - December 2016:Vol. 3, Issue 3, pp: (127-135).
37. Nigus Bililign, Henok Kumsa, Mussie Mulugeta and Yetnayet Sisay. Factors associated with prelacteal feeding in north eastern Ethiopia: a community based cross-sectional study. International breast feeding journal. 2016: DOI 10.1186/s13006-016-0073-x.

ANNEX

Annex 1: English Questionnaire

General Information for the Study Participants

Hello, my name is _____; I am a nurse and now I am collecting data from patients in ART clinic for the research being conducted on feeding practice of infant in relation of the risk of maternal to child transmission of HIV by Fikir Tadesse who is the Master of Science degree student by pediatrics in Addis Ababa University. The result of the study will be helpful to the study population by identifying the proper breast feeding practices and thereby provision of the right information accordingly. It may also be used as a base line data for intervention project in the same population and will be used for the planning and intervention on prevention of HIV transmission from mother to child in the local area as well as nationally. I am going to ask you questions to be responded by you. Some of the questions are very personal questions. Your answers are completely confidential. Your name will not be written on this form. Participation by answering the questions that I am going to provide you is strictly on voluntary base. However, your honest answer to this question will help me for better understanding of what people think, say and do about certain kinds of behaviors. I would greatly appreciate your cooperation and help in response to this study. The interview takes about 20-30 minutes.

If you have any questions about this study you may ask me or the principal investigator Fikir Tadesse (Tel. 0918012338, E-mail- fikirtadsol@gmail.com).

Consent form for study subjects

I the undersigned have been informed about the purpose of this particular research project and I have been informed that the information I give will be used only to the purpose of the study. In addition I am also informed that my identity as well as the information I will be providing will be kept confidential. Based on this, I agree to participate in the research voluntarily.

Witnesses

Signature: _____

Data collection format for Addis Ababa University, Msc research project on practice of infant feeding practice of HIV positive mothers in Bahir dar city

Part 1) Socio Demographic data

No	Questions	Coding categories	Skip to
101		_____years	

	How old are you?		
102	What is the age of your child?	---------- month	
103	Sex of your child	Male ----------1 Female----------2	
104	What is your current marital status?	Single ----------1 Married ----------2 Divorced ----------3 Widowed----------4	
105	What is the highest educational level you completed?	Unable to read & write ------1 Grade 1-8 ----------2 Grade 9-10+2 ----------3 10+2 completed & above ---4	
106	What is your religion?	Orthodox ----------1 Catholic ----------2 Protestant ----------3 Muslim ----------4 Others (specify) ----------5	
107	What ethnic group does you belong to?	Amhara----------1 Tigre ----------2 Oromo ----------3 Gurage ----------4 Others (specify) ----------5	
108	What is your current occupation?	Government employee-------1 Private employee ----------2 Daily-laborer----------3 House wife ----------4 House made/servant----------5 Merchant----------6 Others(specify) ----------7	
109	What is your husband highest educational status?	Unable to read & write -------1 Able to read & write ----------2 Grade 1-8 ----------3 Grade 9-10+2----------4 10+2 completed & above----5	
110	What is your husband's current occupation?	Government employee--------1 Private employee----------2 Daily labor ----------3 Merchant ----------4 Others(specify)----------5	

Part 2 obstetric history

No	Questions	Coding categories	Skip to
201	How many children do you have?	_____	
202	Did you attend antenatal care (ANC) during your last Pregnancy?	Yes----------1 No----------2	If no skip to 204
203	How many visits you have had?	_____	
204	Have you ever been counseled about infant feeding options?	Yes----------1 No----------2	If no skip to Q 206
205	During which visit (more than one answer is possible)	ANC ----------1 Delivery ----------2 PNC ----------3 ART visit ----------4 Others ----------5	
206	Where did you get birth?	Health institution----------1 Home----------2	
207	What was your type of delivery?	SVD----------1 SVD with episiotomy-----2 CS----------3 forceps ----------4 vacuum ----------5 others (specify) ---------6	
208	Did you attend postnatal care (PNC)?	Yes----------1 No----------2	

Part 3 HIV disclosure

S.N	Questions	Coding categories	Skip to
301	When did you know your HIV Status?	before pregnancy----------1 during this pregnancy------2 during delivery----------3 after delivery ----------4 specify(others)----------5	
302	Have you disclosed your HIV status?	Yes----------1 No----------2	If no skip to 401
303	For whom you disclose your HIV status?	Husband----------1	

		sister/brother----------2 parents ----------3 friends ----------4 others(specify)----------5	

Part- 4.Feeding practice of HIV positive mothers

S.N	Questions	Coding categories	Skip to
401	Did you ever breastfed your child?	Yes----------1 No----------2	If no skip to q 405
402	When did you give breast to your child afterbirth?	Within first hour----------1 after first hour----------2	
403	Did your infant receive any thing to drink or eat before the first breast feeding?	Yes----------1 No----------2	
404	What food or fluid provided/ (more than one answer is possible don't read the choices probe for more)	Butter ----------1 Water ----------2 Tea ----------3 Water and sugar ----------4 Others (specify) _____5	
405	Have you ever given any foods/ fluids other than breast milk to your child until six months of age or if he/she is less than six months, up to now	Yes----------1 No----------2	If no skip to 407
406	What foods or fluids other than breast milk did the child receive before six months of age?	Water or tea Formula /powder milk ----------2 Cow milk ----------3 Porridge/ cereal based fluid-------4 Adult food ----------5 Soft drink ----------6 Others (specify)----------7	
407	Has anyone else (beside yourself) ever breastfed your infant	Yes----------1 No----------2	If no skip to q409
408	Why did the other person breast feed your child?	Mother ill/sick ----------1 Breast or nipple difficulty --------2 No enough milk ----------3 Had to go out /separated from the infant ---------- -4 Advised by husband/other family	

		work ----------5 Did not want to infect with HI---6 O7thers (specify)----------7	
409	Have you ever given the expressed breast milk to your child?	Yes----------1 No----------2	If no skip to q413
410	What kind of utensils you used to?	Bottle ----------1 Cup with spoon ----------2 Others specify ----------	
411	Have you treated the expressed milk with heat?	Yes----------1 No----------2	
412	Why did you express the milk?	To relive breast engorgement-----1 To relive pain due to coracle-----2 To heat treat before feeding------3 To separate from the infant-------4 To wean or stop breast feeding---5 Infant unable to suckle on breast feeding ----------6 Others (specify) ----------7	
413	What feeding options you have practiced? [don't read the options, but listen to the mothers response & categorize it under the given options]	Exclusive breastfeeding for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months ----------1 Exclusive replacement feeding for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months ----------2 Wet nursing for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months ----------3 Expressed milk for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months ----------4 Breast milk and foods------5 Other(specify)----------6	
414	What was your reason for the choice of your feeding option? [don't read the options, but listen to the mothers response & categorize it under the given options]	Thinking it is safe for the baby --------1 Thinking it is safe for the mother --------2 Can't afford the cost of	

		replacement food -------3 Have no time and skill for the preparation of replacement food ----------4 Fear of MTCT ----------5 Lack of knowledge on MTCT ----------6 No counseling was done on this issue----7 Advised by husband ----------8 Advised by other person --------9 Counseled by the health professional ---10 It is a norm of the society -----11 Lack of knowledge ----------12 Breast is insufficient for the infant ----13 Fear of stigma & discrimination ---------14 Others (specify----------15	
415	Have you ever practiced exclusive replacement feeding?	Yes----------1 No----------2	If no skip to q419
416	Why you prefer exclusive replacement feeding?	Fear of MTCT of HIV/AIDS ----1 No adequate milk in the breast ----------2 The mother fill sick at the time of delivery -----3 Low CD4 count ----------4 Others (specify) ----------5	
417	What kind of replacement food you are giving to your child?	Commercial infant formula ----1 Home prepared formula --------2 Fresh animal milk, full cream (Pasteurized or powdered milk). Ultrahigh temperature milk------3 Both alternatively----------4	
418	How frequent you prepared replaced milk to feed the child per day?	--------- times a day	
419	Have you started complementary food for your child?	Yes----------1 No----------2	If no skip to q501
420	At what age did you start complementary food?	_____ months	

Part 5-Assessment of knowledge of HIV positive mothers towards infant feeding

S.N	Questions	Coding categories	Skip to
501	Do you know HIV/AIDS can be transmitted from mother to child?	Yes----------1 No----------2	If no skip to q503
502	At which of the times it can be transmitted during (more than one answer is possible)	Pregnancy----------1 Delivery ----------2 Breast feeding ----------3	
503	Have you ever heard about infant feeding options recommended for HIV sero-positive mothers?	Yes----------1 No----------2	If no skip to q601
504	Where did you get the information (more than one answer is possible)	Health professional--------1 Others(specify) ----------2	
505	Do you know the recommended infant feeding practice of HIV sero-positive mothers?	Yes----------1 No----------2	If no skip to q601
506	What kind of infant feeding option recommended for HIV positive mothers? [don't read the options, but listen to the mothers response & categorize it under the given options]	Exclusive breastfeeding for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months------1 Exclusive replacement feeding for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months -------2 Wet nursing----------3 Expressed milk----------4 Breast milk and foods------5 Other(specify)---------- 6	

Part 6 –assessment of health condition of the mother

S.N	Questions	Coding category	Skip to
601	CD4 count (from the clients card)	During delivery _____ Current _____	
602	HIV disease progress (from the client's card)	Stage 1----------1 Stage 2----------2 Stage 3----------3 Stage 4----------4	

603	Have you ever encountered breast problem?	Yes----------1 No----------2	If no skip to q 605
604	Which of the breast problems you have encountered?	Engorgement----------1 Sore nipples ----------2 Cracked nipples----------3 Burning, tingling----------4 Others ----------5	
605	Any long term illness?	Yes----------1 No----------2	If no skip to q 701
606	If yes which disease	Tuberculosis ----------1 D.M.----------2 Cancer ----------3 Hypertension ----------4 Cardiac problem ----------5 Others ----------6	

Part 7- assessment of health condition of the child

S.N	Questions	Coding category	Skip to
701	Have the infant had mouth ulcer?	Yes----------1 No----------2	
702	Do you know the HIV status of your child?	Yes----------1 No----------2	If no skip to q 704
703	What is the HIV status of your child?	HIV negative----------1 HIV positive----------2	
704	Does your child ever been diseased?	Yes----------1 No----------2	If no skip to q801
705	What disease	----------	

Part 8 –assessment of counseling practice of health workers

S.N	Questions	Coding category	Skip to
801	Did the health care provider explain to you different feeding Options?	Yes----------1 No----------2	
802	Did the health care provider tell about advantages of breast feeding?	Yes----------1 No----------2	
803	Did the health care provider tell about disadvantages of breast feeding?	Yes----------1 No----------2	

804	Did the health care provider tell about advantage of replacement feeding?	Yes----------1 No----------2	
805	Did the health care provider tell about disadvantage of replacement feeding?	Yes----------1 No----------2	
806	Did the health care provider tell about risk of mixed feeding?	Yes----------1 No----------2	
807	Did the health care provider explain how to practice the chosen feeding options	Yes----------1 No----------2	

Now I have completed my questions thank you for your cooperation.

Annex 2: Amharic Questionnaire

አዲስ አበባ ዩንቨርሲቲ የድህረ-ምረቃ ት/ቤት ጤናና ህክምና ሳይንስ ኮሌጀ የነርሲንግ ት/ክፍል

ጤና ይስጥልኝ፡፡ ስሜ _____ይባላል፡፡የጤና ባለሙያ ነኝ :: አሁን እዚህ የተገኘሁት ከኤች አይቪ ጋር የሚኖሩ እናቶች የሕጻናት አመጋገብ ሁኔታን ተፅኖ የሚያደርጉትን ኤች አይ ቪ ከእናት ወደ ልጅ የመተላለፍ ሁኔታ ጋር በተያያዘ የሚጠናዉን ጥናት መረጃ ለመሰብሰብ ነዉ፡፡ጥናቱን የምታጠናዉ በአዲስ አበባ ዩኒቨርሲቲ በህፃናት ጤና ትምህርት ቤት ውስጥ የማስተርስ ተማሪ የሆነችዉ ፍቅር ታደሰ ናት፡፡ የጥናቱን ውጤት ለተጠቃሚዎች ማለትም ከኤች አይ ቪ ጋር ለሚኖሩ እናቶች ትክክለኛውን የአመጋገብ ዘዴ በመለየት ትክክለኛውን መረጃ እንዲያገኙ ይረዳል፡፡ የሚሰጡት መልስ ሙሉ በሙሉ ሚስጥራዊነቱ የተጠበቀ ነው፡፡ ስምዎ በዚህ ፎርም ላይ አይጻፍም፡፡ በምጠይቅዎት ጥያቄ መልስ የመመለሱ ሁኔታ ሙሉ በሙሉ በእርስዎ ፈቃደኝነት ላይ የተመሰረተ ነው፡፡ ነገር ግን የሚሰጡኝ መልስ ትክክልኛ መሆኑ ህብረተሰቡ ምን እንደሚገነዘብ፣ ምን እንደሚተገብር ለመረዳት ያስችለኛል፡፡ በእውነቱ ስለትብብርዎና ለጥናቱ ስለሚደርጉት አስተዋጽዖ በጣም ላመስግንዎት እወዳለሁ፡፡ ቃለ መጠይቁ ከ20-30 ደቂቃ አካባቢ ይፈጃል፡፡

ከዚህ በታች በፊርማ ተጠቃሽ ግለሰብ ስለጥናቱ አላማ በሚገባ ተረድቻለሁ፡፡ የምሰጠው መረጃም ለጥናቱ ተግባር ብቻ እንደሚውልና የምሰጠው መረጃም ሆነ ማንነቴ በሚስጥር እንደሚጠበቅ ተረድቻለሁ፡፡ በዚህም መሰረት በፍቃደኝነት በጥናቱ ለመሳተፍ ተስማምቻለሁ፡፡

ፊርማ ---------- ቀን ----------

ተጨማሪ መረጃ ማግኘት ከፈለጉና ጥዬቄ ካለዎት የጥናቱን ተመራማሪ ማግኘት ይችላሉ፡፡

ፍቅር ታደሰ ስልክ፡ 0918012338

ክፍል አንድ - ማህበራዊ ና ግላዊ መረጃ

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፉ
101	እድሜዎት ስንት ነዉ?	----------ዓመት	
102	የልጅሽ እድሜ ስንት ነው?	----------ወር/ዓመት	
103	የልጅሽ ፃታ	1. ወንድ 2. ሴት	
104	የጋብቻ ሁኔታ	1. ያላገባች 2. ያገባች 3. የፈታች 4. የሞተባት	
105	የትምህርት ደረጃሽ	1. መጻፍና ማንበብ የማትችል 2. 1-8ኛ ክፍል 3. 9-10+2 ክፍል 4. 10+2 እና ከዛ በላይ	
106	ሐይማኖትሽ	1. ኦርቶዶክስ ተዋህዶ 2. ካቶሊክ 3. ፕሮቴስታንት	

		4. ሙስሊም 5. ሌላ ካለ ይጥቀሱ	
107	ብሄር	1. አማራ 2. ኦሮሞ 3. ትግሬ 4. ጉራጌ 5. ሌላ ካለ ይጥቀሱ	
108	ስራሽ	1. የመንግስት ሰራተኛ 2. የግል ሰራተኛ 3. የቀን ሰራተኛ 4. የቤት እመቤት 5. የቤት ሰራተኛ 6. ነጋዴ 7. ሌላ ካለ ይጥቀሱ	
109	የባለቤትሽ የትምህርት ደረጃ	1. መጻፍና ማንበብ የማይችል 2. መጻፍና ማንበብ የሚችል 3. 1-8ኛ ክፍል 4. 9-10+2 ክፍል 5. 10+2 እና ከዛ በላይ	
110	የባለቤትሽ ስራ	1. የመንግስት ሰራተኛ 2. የግል ሰራተኛ 3. የቀን ሰራተኛ 4. ነጋዴ 5. ሌላ ካለ ይጥቀሱ	

ክፍል ሁለት የፅንስና የወሊድ ሁኔታ

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፉ
201	ስንት ልጆች አሉሽ?	----------	
202	በመጨረሻዉ እርግዝናሽ ወቅት ቅድመ ወሊድ ክትትል ታደርጊ ነበር?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.204 ይለፉ
203	ስንት ጊዜ ክትትል አድርገሻል?	----------	
204	ስለ ልጅሽ የአመጋገብ አማራጮች ምክር አግኝተሽ ነበር?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.206 ይለፉ
205	በየትኛዉ የክትትል ወቅት (ከአንድ በላይ መምረጥ ይቻላል)	1. በቅድመ ወሊድ ክትትል ወቅት 2. በወሊድ ወቅት 3. በድህረ ወሊድ ክትትል ወቅት 4. የፀረ ኤች አይ ቪ መድሃኒት ክትትል ወቅት 5. ሌላ ካለ ይግለፁ----------	
206	የት ነበር የወለድሽዉ?	1. ጤና ተቋም 2. ቤት ዉስጥ	
207	የወሊድ አይነቱ ምን ነበር?	1. በማህጸን 2. በማህጸን ቀዶ ጥገና 3. በቀዶ ጥገና 4. በፎርሴፕስ በመታገዝ	

		5. በመሳብ (በቫኪዉም) 6. ሌላ ካለ ይግለፁ----------	
208	ድኅረ ወሊድ ክትትል አድርገሻል?	1. አወ 2. የለም	

ክፍል ሶስት : የኤች. አይ. ቪ .ዉጤቱን ግልፅ ስለማድረግ

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፉ
301	መቸ ነዉ ኤች.አይ.ቪ በደምሽ ዉስጥ መኖሩን ያወቅሽዉ?	1. ከእርግዝና በፊት 2. በዚህ እርግዝና ወቅት 3. ስወልድ 4. ከወለድኩ በኋላ 5. ሌላ ካለ ይግለፁ----------	
302	ኤች.አይ.ቪ በደምሽ ዉስጥ መኖሩን ለሰዉ ተናግረሻል?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ. 401 ይለፉ
303	ኤች.አይ.ቪ በደምሽ ዉስጥ መኖሩን ለማን ነዉ የተናገርሽዉ?	1. ለባለቤቴ 2. ለእህቴ/ለወንድሜ 3. ለቤተሰቦቼ 4. ለጓደኞቼ 5. ሌላ ካለ ይግለፁ----------	

ክፍል አራት፡ የህፃናት አመጋገብ ሁኔታ

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፉ
401	ልጅሽን ጡት ታጠቢዋለሽ?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.405 ይለፉ
402	ከወለድሽ በኋላ መቼ ነዉ ለልጅሽ ጡት ያስጀመርሽዉ?	1. በአንድ ሰዓት ዉስጥ 2. ከአንድ ሰዓት በኋላ	
403	ለልጅሽ በመጀመሪያ ጡት ከማጥባትሽ በፊት ሌላ ምግብ ወይም መጠጥ ሰጥተሽዉ ነበር?	1. አወ 2. የለም	
404	ምን አይነት ምግብ ወይም መጠጥ ነዉ የሰጠሽዉ? (ከአንድ በላ መምረጥ ይቻላል)	1. ቆቤ 2. ዉሃ 3. ሻይ 4. ዉሃና ስኳር 5. ሌላ ካለ ይግለፁ----------	
405	ለልጅሽ እስከ 6 ወሩ ጊዜ ድረስ ከጡትሽ ወተት ዉጭ ሌላ ምግብ ወይም መጠጥ ሰጥተሽዉ ነበር ወይም 6 ወር ካልሞላዉ እስከ አሁን ድረስ?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.407 ይለፉ
406	ከ6 ወሩ በፊት ከጡት ዉጭ ምን አይነት ምግብ ወይም መጠጥ ነበር የሰጠሽዉ?	1. ዉሃና ሻይ 2. የዱቄት ወተት 3. የላም ወተት	

	(ከአንድ በላይ መምረጥ ይቻላል)	4. ገንፎ 5. የትልቅ ሰዉ ምግብ 6. ለስላሳ መጠጥ 7. ሌላ ካለ ይግለፁ----------	
407	ከእርስዎ ዉጭ ለልጅሽ ጡት የሚያጠባ ሰዉ ነበር?	1. አዎ 2. የለም	የለም ከሆነ ወደ ጥ.409 ይለፉ
408	ለምንድን ነዉ ሌላ ሰዉ ልጅሽን ጡት የሚያጠባዉ?	1. እናቲቱ ስለታመመች 2. የጡት ችግር 3. የእናቲቱ ጡት በቂ ወተት ስለሌለዉ 4. ከልጁ ለመለየት 5. በባል ወይም በዘመድ ምክር 6. የስራ ሁኔታ 7. ኤች.አይ.ቪ ኤድስን ላለማስተላለፍ 8. ሌላ ካለ ይግለፁ----------	
409	ልጅሽ 6 ወር ከመሙላቱ በፊት ጡትሽን እያለብሽ ትሰጭዉ ነበር?	1. አዎ 2. የለም	የለም ከሆነ ወደ ጥ.413 ይለፉ
410	ያለብሽዉን የጡት ወተት ለልጅሽ የምትሰጭዉ በምንድን ነዉ?	1. በጡጦ 2. በኩባያ 3. ሌላ ካለ ይግለፁ----------	
411	ያለብሽዉን የጡት ወተት በሙቀት አክመሽ / አፍልተሽ ታዉቂያለሽ?	1. አዎ 2. የለም	
412	ለምንድን ነዉ ጡትሽን የምታልቢዉ?	1. የጡቷን ህመም ለማስታገስ 2. የቆሰለ የጡቷን ጫፍ ለማስታገስ 3. ከመመገቡ በፊት ለማሞቅ 4. ከልጁ ጋር አብሮ ላለመዋል 5. የጡት ወተቱን ለማቆም 6. ልጁ መጥባት ስላልቻለ 7. ሌላ ካለ ይግለፁ----------	
413	የትኛዉን የህፃን የአመጋገብ ዘዴ ተጠቅመዉ ያዉቃሉ? (አማራጮቹ አይነበቡም)	1. እስከ 6 ወር ድረስ ጡት ብቻ ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 2. ጡትን የሚተካ ወተት እስከ 6 ወር ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 3. እስከ 6 ወር የሌላ እናት ወተት በማትባት ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 4. እስከ 6 ወር ድረስ የታለበ የጡት ወተት ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 5. የጡት ወተትና ተጨማሪ ምግብ 6. ሌላ ካለ ይግለፁ----------	
414	ለመረጡት የአመጋገብ ዘዴ ምክንያቱ ምንድን ነዉ?	1. ለህፃኑ ምቹ ነዉ ብሎ በማሰብ 2. ለእናት ምቹ ነዉ ብሎ በማሰብ 3. የጡት ወተትን የሚተካ ወተት ለመግዛት አቅም ስለሌለኝ 4. የጡት ወተትን የሚተካ ወተት	

		ለመግዛት ጊዜና እዉቀት ስለሌለኝ 5. ከእናት ወደ ልጅ የኤችአይቪ ቫይረስ እንዳይተላለፍ በመፍራት 6. ከእናት ወደ ልጅ የኤችአይቪ ቫይረስ እንደሚተላለፍ ግንዛቤ ስለሌለኝ 7. በዚህ ዙሪያ ምንም አይነት የምክር አገልግሎት ስላላገኘሁ 8. በባሌ ምክር 9. ከሌላ ሰዉ ምክር ስላገኘሁ 10. ከጤና ባለሙያ ምክር ስላገኘሁ 11. በአካባቢዉ የተለመደ ስለሆነ 12. የግንዛቤ እጥረት 13. የእናት ጡት ወተት ለህፃኑ በቂ ስላልሆነ 14. መገለልና መድሎን በመፍራት 15. ሌላ ካለ ይግለፁ----------	
415	የእናት ጡት ወተትን የሚተካ ወተት ልጅሽን ለመመገብ ተጠቅመሽ ታዉቂያለሽ?	1. አዎ 2. የለም	የለም ከሆነ ወደ ጥ.419 ይለፉ
416	ለምን የእናት ጡት ወተትን የሚተካ ወተት ለልጅሽ መረጥሽ?	1. ከእናት ወደ ልጅ የኤችአይቪ ቫይረስ እንዳይተላለፍ በመፍራት 2. የእናት ጡት ወተት ለህፃኑ በቂ ስላልሆነ 3. በወሊድ ሰዓት እናት ታማ ስለነበር 4. አነስተኛ የCD4 ቁጥር 5. ሌላ ካለ ይግለፁ----------	
417	ምን አይነት የእናት ጡት ወተትን የሚተካ ወተት ለልጅሽ ትሰጭዋለሽ?	1. ገበያ የሚገዛ የህፃናት ወተት 2. ቤት ዉስጥ የሚዘጋጅ ወተት (የከብት/የሚገዛ የዱቄት ወተት) 3. ሁለቱንም በማቀያየር 4. ሌላ ካለ ይግለፁ----------	
418	በቀን ምን ያህል ጊዜ ያዘጋጀሽዉን ወተት ለልጅሽ ትሰጭዋለሽ?	---------- ጊዜ	
419	ለልጅሽ ከጡት ተጨማሪ ምግብ ጀምረሽለታል?	1. አዎ 2. የለም	የለም ከሆነ ወደ ጥ.501 ይለፉ
420	መቼ ላይ ነዉ የጀመርሽለት	----------ወሩ	

ክፍል 5 የግንዛቤ ዳሰሳ ጥያቄዎች

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፉ
501	ኤች.አይ.ቪ ኤድስ ከእናት ወደ ልጅ እንደሚተላለፍ ያዉቃሉ?	1. አዎ 2. የለም	የለም ከሆነ ወደ ጥ.503 ይለፉ
502	ኤች.አይ.ቪ ኤድስ ከእናት ወደ ልጅ የሚተላለፈዉ መቼ ነዉ?	1. በእርግዝና ወቅት 2. በወሊድ ወቅት 3. ጡት በማጥባት ወቅት	

503	ስለ ህፃናት አመጋገብ ዘዴወች ሰምተዉ ያዉቃሉ?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.601 ይለፉ
504	ከየት ነበር የሰሙት?	1. ከጤና ባለሙያ 2. ከጤና ባለሙያ ዉጭ	
505	ኤች.አይ.ቪ ኤድስ በደሟ ዉስጥ ያለባት እናት ምን አይነት የህፃናት አመጋገብ ዘዴ ይመከራል?	1. እስከ 6 ወር ድረስ ጡት ብቻ ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 2. ጡትን የሚተካ ወተት እስከ 6 ወር ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 3. እስከ 6 ወር የሌላ እናት ወተት በማትባት ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 4. እስከ 6 ወር ድረስ የታለበ የጡት ወተት ከዛም ተጨማሪ ምግብ ከ6 ወር ጀምሮ 5. የጡት ወተትና ተጨማሪ ምግብ 6. ሌላ ካለ ይግለፁ----------	

ክፍል ስድስት ፡ የእናቲቱን ጤና በተመለከተ

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፍ
601	የCD4 መጠን (ከካርድ)	1. በወሊድ ወቅት --------- 2. በአሁን ወቅት ----------	
602	የኤች .አይ.ቪ ቫይረስ ያለበት የስርጭት ደረጃ (በወሊድ ወቅት) (ከካርድ)	ደረጃ----------	
603	የጡት ህመም ወይም ችግር አጋጥሞወት ያዉቃሉ?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.605 ይለፉ
604	የትኛዉ የጡት ችግር ነበር የገጠመወት?	1. የጡት እብጠት 2. የጡት ጫፍ መቁሰል 3. የጡት ጫፍ መሰንጠቅ 4. የጡት ማቃጠልና መጠዝጠዝ 5. ሌላ ካለ ይጥቀሱ---------	
605	ለረጅም ጊዜ የሚቆይ በሽታ አለብሽ	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.701 ይለፉ
606	ካለበወት የትኛዉ	1. የሳምባ በሽታ 2. የስኳር በሽታ 3. ካንሰር 4. የደም ግፊት 5. የልብ ችግር 6. ሌላ ካለ ይጥቀሱ---------	

ክፍል ሰባት፡ የህፃኑን የጤና ሁኔታ የሚመለከት መጠይቅ

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፍ
701	ህፃኑ አፉ አካባቢ ቆስሎበት ያዉቃል?	1. አወ 2. የለም	
702	የልጅዎን ኤች.አይ.ቪ ዉጤት ያዉቃሉ?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.704 ይለፉ

703	የልጅዎ ኤች.አይ.ቪ ዉጤት ምንድን ነዉ?	1. ኔጋቲቭ 2. ፖዘቲቭ	
704	ልጅዎ ታሞ ያዉቃል?	1. አወ 2. የለም	የለም ከሆነ ወደ ጥ.801 ይለፉ
705	ምን አይነት በሽታ ነበር?	----------	

ክፍል ስምንት፡ ኤች.አይ.ቪ ቫይረስ በደሟ ዉስጥ ላለች እናት የምክር አገልግሎት ሰጭወን በተመለከተ የሚጠየቅ

ተ.ቁ	ጥያቄ	ኮድ	ወደ ጥያቄ ቁጥር ይለፍ
801	የጤና ባለሙያ ከ6 ወር በታች ላሉ ህፃናት የተለያዩ የአመጋገብ ዘዴወች እንዳሉ ነግሮወታል?	ı. አወ 2. የለም	
802	የጤና ባለሙያዉ ከ6 ወር በታች ላሉ ህፃናት ስለ ጡት ማጥባት ጥቅም ነግሮወታል?	1. አወ 2. የለም	
803	የጤና ባለሙያዉ ከ6 ወር በታች ላሉ ህፃናት ስለ ጡት ማጥባት ጉዳት ነግሮወታል?	1. አወ 2. የለም	
804	የጤና ባለሙያዉ ከ6 ወር በታች ላሉ ህፃናት ስለ እናት ጡት ወተትን የሚተካ ወተት ጥቅም ነግሮወታል?	1. አወ 2. የለም	
805	የጤና ባለሙያዉ ከ6 ወር በታች ላሉ ህፃናት ስለ እናት ጡት ወተትን የሚተካ ወተት ጉዳት ነግሮወታል?	1. አወ 2. የለም	
806	የጤና ባለሙያዉ ከ6 ወር በታች ላሉ ህፃናት ከእናት ጡት ወተት ጋር ምግብ ወይም መጠጥ ቀላቅሎ የመስጠትን ጉዳት ነግሮወት ነበር?	1. አወ 2. የለም	
807	የጤና ባለሙያዉ ከ6 ወር በታች ላሉ ህፃናት የተመረጡትን የህፃናት አመጋገብ ዘዴ እንዴት እንደሚመግቡ ነግሮወት ነበር?	1. አወ 2. የለም	

አሁን ጥያቄየን ጨርሻለሁ ስለትብብረወት አመሰግናለሁ፡፡

Annex 3: Declaration

I declare that this research paper titled as infant feeding practice and associated factors among HIV positive mothers attending ART service in governmental health institutions of Bahir Dar town is my original work and has not been presented for master's degree in this or another university and that all sources of materials used for this paper have been fully acknowledged.

Name of investigator: _____ signature:_____ date :

This thesis work has been submitted for examination with my approval as university advisor.

Name of advisor's

1. Name of principal advisor: _____
   Signature: _____Date _____
2. Name of co-advisor:_____
   Signature: _____ Date _____