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INFANT FEEDING PRACTICE AND ASSOCIATED FACTORS AMONG HIVPOSETIVE MOTHERS ATTENDING ART SERVICE IN GOVERMENTAL HEALTH INSTITUTIONS OF WOLDIATOWN NORTH EAST ETHIOPIA

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MSC THESIS

INFANT FEEDING PRACTICE AND ASSOCIATED FACTORS AMONG HIVPOSETIVE MOTHERS ATTENDING ART SERVICE IN GOVERMENTAL HEALTH INSTITUTIONS OF WOLDIATOWN NORTH EAST ETHIOPIA

BY

TEGEGNE MESELE

OCT, 2022

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ASSESSMENT OF INFANT FEEDING PRACTICE AND ASSOCIATED FACTORS AMONG HIVPOSETIVE MOTHERS ATTENDING ART SERVICE IN GOVERMENTAL HEALTH INSTITUTIONS OF WOLDIA DISTINICT NORTH EAST ETHIOPIA

A Thesis Submitted in the Partial Fulfillment of the Requirements for the Degree of Master of Science in Applied human nutrition

Advisor: Worku Awoke (Associate Professor of Epidemiology)

OCT 2022

BAHIRDAR ETHIOPIA

DECLARATION

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

Name of the student: **Tegegne Mesele** Signature

Date of submission: 11/10/2013

Place: Bahir Dar, Ethiopia

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

Advisor's Name: Worku Awoke (Associate Professor of Epidemiology)

Signature 

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Approval of thesis for defense result

I hereby confirm that the changes required by the examiners have been carried out and incorporated in the final thesis.

Name of Student **Tegegne Mesele** Signature _____ Date 21/02/2018

As members of the board of examiners, we examined this thesis entitled "Infant feeding practice among HIV positive mothers in Woldiya town" by **Tegegne Mesele** We hereby certify that the thesis is accepted for fulfilling the requirements for the award of the degree of Masters of science in "APPLIED HUMAN NUTRITION.".

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ABSTRACT

Background: Infant and young child feeding is a cornerstone of care for childhood development. Optimal Infant feeding practice is one of the challenging issues on prevention of mother to child transmission of HIV particularly in developing countries due to the benefits and risks of exclusive breast feeding replacement and mixed feeding practice.

Objective: The aim of this study was to assess infant feeding practice and associated factors among HIV positive mothers attending ART service in governmental health institutions of Woldia town.

Methods: Institution based cross- sectional study was conducted in 3 health institutions which provides ART service in Woldia town from October to November 2021. Systematic sampling technique was used to select 316 mothers' infant pairs. The data were collected using interviewer administered-structured questionnaire. The data was checked, coded and entered to SPSS version 20 for analysis. Both bivariate and multivariable analyses were used to identify associated factors for infant feeding practice.

Result: The majority 79.4% practiced exclusive breast feeding up to six months of age. 9.5% and 11.1% of mothers practiced exclusive replacement feeding and mixed feeding, respectively. On Multivariable logistic regression model, Mother's educational status (AOR (95%CI: 12.39(2.605, 58.963), Attending ANC visit AOR (95%CI: 0.219(.068, 0.793), Attending PNC visit (AOR (95%CI: 3.92(1.47, 10.48) and Heard about recommended infant feeding (AOR (95%CI: 6.02(2.17, 5.224), were significant positive predictors of safe infant feeding practice.

Conclusion: The study revealed that majority 88.9% of the mothers practiced safe feeding. Mothers Educational status, Attending Antenatal Care follows up, Attending Post Natal Care and heard about recommended infant feeding were significantly associated with safe infant feeding practice.

Key words: infant practice, HIV positive mother

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LIST OF ABBREVIATIONS

AFASS	Acceptable, Feasible, Affordable, Sustainable, and Safe
AIDS	Acquired Immune Deficiency 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
HC	Health Center
HIV	Human Immune Deficiency Virus
IFO	Infant Feeding Options
MF	Mixed Feeding
MTCT	Mother to Child Transmission
PMTCT	Prevention of mother to Child Transmission
SNNP	Southern Nations, Nationalities, and peoples' Region
SSA	Sub Saharan Africa
UNAID	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

1. INTRODUCTION

Background of the Study

Infant feeding practice is the important modifiable factor influencing the health of children born from HIV-positive mothers. The first 2 years of life provides a critical window of opportunity to ensure children appropriate growth and development from generation to generation through optimal feeding(Negash et al, 2019). 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(WHO, 2007) .

Acquired immunodeficiency syndrome is a pattern of devastating infections caused by the human immunodeficiency virus (HIV). The main causes of HIV infection in children is mother-to-child transmission during pregnancy, labor, and delivery or after the child's birth during breast feeding. Without any interventions, 20-45% of infants had born with HIV-infection and with an estimated risk of 5-20% through breastfeeding (FMOH, 2016).

Mothers known to be HIV-infected and whose infants are HIV uninfected or of unknown HIV status should exclusively breastfeed their infants for the first 6 months of life, introducing an appropriate complementary foods thereafter and continue breastfeeding for 12 months (Koye DN, 2013).

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 (WHO, 2007).

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 be breast feed exclusively for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) 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 stopped once a nutritionally adequate and safe diet without breast milk can be provided (WHO, 2010a).

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 diarrhea, among non-breastfed infant (Endalew Gemechu Sendo, 2018).

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.

Globally, around 37.9 million people were living with HIV at the end of 2018 with 2.1 million people newly diagnosed. The sub-Saharan region is the most affected place in the world with 25.6 million people living with HIV (UNAIDS/WHO, 2015). Ethiopia has the largest population of HIV-infected children there are over 738,976 people living with HIV/AIDS in Ethiopia of these, 178,500 are children younger than 15 years of age (Teshale Ayele Mega, 2020).

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 pediatrics HIV infections (UNAIDS, 2016).

According to 2011 EDHS, the prevalence of mother to child transmission of HIV after the breast feeding period was 25% under six months (WHO, 2014). 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(Amdom G/Hiwot, 12 Dec 2014).

Infant feeding practice, particularly Unsafe (Mixed) breast-feeding during the first 3–6 months of life to infants born from HIV-positive mothers, is associated with a 4 to 10-fold greater risk of postnatal transmission compared to exclusive breast-feeding (Kevin M, 2010, Loudoun RE, 2010, Chetty T, 2010).

Infant feeding practices recommended to mothers known to be HIV-infected should support the greatest likelihood of HIV-free survival of their children without harming the health of mothers. To accomplish this, prioritization prevention of HIV transmission needs to be balanced with meeting the nutritional requirements and protection of infants against non-HIV morbidity and mortality(UNAIDS, 2008).

Despite the fact that breastfeeding brings considerable health benefits for infants and young children, HIV can be transmitted through breastfeeding from the infected mother to her child. The lessening of this transmission is one of the most critical public health problem tackling health-care professionals, researchers, health policy-makers and HIV-infected women in many areas of the world, particularly in developing countries (WHO, 2013).

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 MBF (mixed breast feeding) were practiced and assessed. However, there is still a gap in the assessment of infant feeding practice of HIV positive mother s receiving PMTCT in relation to HIV status of their children. Therefore, this study is proposed to fill this gap.

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Rationale of the Study

Currently, infant feeding practice and the risk of mother to child transmission of HIV infection with its determinant factors are the major public health problems among women receiving PMTCT due to unsafe infant feeding practice and poor access of infant feeding counseling with its options. For this reason, it is essential to ensure that infants are provided/fed/ with safe infant feeding.

On the best of my knowledge, no studies are found to determine overall safe infant feeding practice and to identify the determinants of infant feeding practice in the study area.

Objectives of the Study

General Objective

To assess infant feeding practices and its associated factors among HIV positive mothers attending ART service in Governmental Health institutions of woldia town, 2021.

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.

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 (WHO, 2010b).

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 woldia 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.

2. LITERATURE REVIEW

Role of Infant feeding practice

The 2010 WHO guidelines' recommendation for infant feeding options is that optimal breast feeding for HIV exposed infants is to breastfeed until 12 months of age with ARV prophylaxis for both the mother and infant or avoidance of breastfeeding. The other option recommended is that either practicing replacement feeding or heat treated expressed breast milk in the absence of ARV prophylaxis to increase child survival. It was then for the mothers to decide on the options**,**(WHO, 2013) .

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 (GodfreyNyongesaWapang'ana, 2013).

WHO guideline recommends that, to reduce the risk of the infant being infected, mothers with their infants are advised to take antiretroviral drugs throughout breastfeeding. Mothers are also recommended to exclusively breastfeed their infant for 6 months and after 6 months complementary foods should be introduced while continuing to breastfeed for up to a year (WHO, 2013b).

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 (Daniel., 2014).

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,(L. C. Ikeako H. U. Ezegwui, 2015b).

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. (Daniel, 2014).

A cross-sectional study conducted in Shashemene Town, Counseling on infant feeding option by health professional with [AOR = 4.5 (CI = 1.09, 18.74)] was found to be independent predictor of infant feeding practice. HIV positive mothers who were counseling on infant feeding were 4.5 times more likely to practice safe infant feeding as compared to their counterpart, (Ansha, 2020).

In the same year the study done in Tigray town with sample size of 217 in the year 2014 identified that majority (94.1%) of mothers experiencing safe feeding and 5.9% were practicing unsafe feeding (Amdom G/Hiwot*, 12 Dec 2014).

Factors Associated with infant feeding practice

Socio demographic characteristics

Socio demographic and economic factors affect house hold factors, maternal health and child health factors. Socio demographic characteristics including education status of caregiver, occupation and family size as enabling factors for safe feeding practices Maternal education has been found to be statistically associated with infant feeding practices, (SALaV, 2016).

A cross-sectional study done in Mekelle Town, Tigray Region, mother's attitude towards IFO and Receiving infant feeding education & counseling on infant feeding option during pregnancy in ANC were found to be significantly affected Infant feeding practice. Those HEIs born to mothers with unfavorable attitude towards Infant feeding options were 68.5% times less likely to practice Exclusive Breast feeding as compared to HEIs born to mothers with favorable attitude [AOR=.315(95%CI=.105-.944)]. (Yonas Girma, 2014).

The other cross sectional study done in Bahir Dar Town, Attended PNC, time of initiation of first breast feeding after delivery and knowledge of MTCT during breast feeding were associated factors of infant feeding practice, and mothers knowledge towards the recommended infant feeding options and PMTCT were 81.1% less likely to practice safe feeding options, [AOR (95% CI): 0.189(0.042-0.855)] (Endalew Gemechu Sendo, 2017).

Counseling practices of health workers on infant feeding options recommended to HIV Positive women

Mothers who are HIV-infected should be counseled and get complete information about the risks and benefits of various infant feeding options and specific direction in selecting the option most likely to be suitable for them. And the mother's decision must be valued(FMOH, /23/03/2013)**.**

A study done in Kenya, Malawi, Botswana and Uganda, poor infant feeding counseling is a common finding across PMTCT programs even after training (SALaV, 2016).

The other study done in Tigray region in 2014, residence, occupational status, ANC visit and counseling on infant feeding options were found to be independently associated factors with the recommended way of infant feeding practice. Counseling on infant feeding options was 43.02 times more likely to have recommended way of infant feeding practice and ANC follow up and urban residence were 17.12 and 11.06 times more likely to have recommended way of infant feeding (Amdom G/Hiwot*, 12 Dec 2014).

Knowledge of Mothers about MTCT of HIVand Infant Feeding Practice

The mother's choice of infant feeding if she had been HIV infected is strongly associated with her PMTCT knowledge ($p < 0.001$), and HIV status of the infant is also associated with maternal knowledge of PMTCT ($p<0.05$) (Eli F, 2010).

Institution based Cross-sectional descriptive study done in South and north Wollo zone, There is a knowledge gap on MTCT of HIV/AIDS. Mothers who have insufficient knowledge of PMTCT were three times more likely to have HIV positive infants (AOR=3.35, 95%CI= (1.22, 9.15)] , (Yeshimebet Ali, 2015).

Place and Mode of Delivery

Feeding newborns with the first milk or colostrum is advised and other feeds excluding breast milk must be avoided. Colostrum's when compared to the mature milk it is three times richer in vitamin A and ten times richer in beta-carotene. Colostrum having high level of antibodies and vitamin A, antibodies, and some protective factors, it is considered as the infant's first vaccine (Fombong F.E., 2016).

Another study in Thailand shows that mode of delivery in HIV-infected pregnant women was one of the risk factors for MTCT of HIV. Operational and instrumental delivery had more than 5 times more likely to have HIV positive result of the infant than SVD, and this is due to contamination or direct contact of maternal blood with infant blood,(Claire T, 2004).

Institution based Cross-sectional descriptive study done in south and north wolo zone, shows that place of delivery was also found to be a significant factor for HIV status of the infants. Infants born at home were 5 times more likely to become HIV positive those who were born in health institution (AOR= 5.00, 95%CI = (1.45, 17.17)], or the transmission rate for mothers who deliver at home were 25.6 % as compared with 5.7% for whom deliver in health institution, (Yeshimebet Ali, 2015).

Maternal CD4 Count

Another study in South Africa shows that the risk of acquiring postnatal HIV in children at the age of 6 months was significantly associated with maternal CD4cell counts < 200 cells per μL. The estimated transmission rates of exclusively breastfed infants at 6 months whose mothers have CD4-cell counts less than 200 per μL or ≥200 cells per μL were 34% and 17%, respectively (Coovadia HM, 2007).

2.2.5 Disclosure of the status

A study conducted in DebreMarkos Referral Hospital showed that Mothers attending high school and above AOR = 5.3 [95% CI = 1.25-22.1], having antenatal care follow up AOR = 5.5 [95% CI = 1.5-20.16], being on anti-retro viral therapy AOR = 6.5 [95% CI = 1.88-22.51] and disclosure of HIV status AOR = 7.1 [95% CI = 1.26-39.76] were found to be factors associated with safe infant feeding practice , mothers who disclosed their HIV status with their spouses

were 7 times more likely to follow recommended feeding options than those who did not disclosed their HIV status.(Elias Bekele Wakwoya1, 2016).

According to the study done in SNNP, Ethiopia, large proportion (95.6%) of HIV positive mothers had disclosed their HIV-status, out of them, 131 (75%) had disclosed to their spouses. Concerning attitude of mothers towards recommended feeding options 94(51.4%) of them have favorable attitude(Mengistie, 2013).

A cross-sectional research conducted in Gondar Town health institutions, showed that disclosure of HIV status with their spouse, insufficient breast milk and occupational status were found to be independently associated factors with the safe way of infant feeding practice. Mothers who disclose their HIV status to spouse were 7.7 times more likely to have the recommended way of infant feeding practice. Disclosure of HIV status greatly influenced infant feeding options of HIV positive mothers when the partner was aware of the HIV status of the mother and involved in the decision(Muluye D, 2012)

.2.2.6 Maternal and Infant Health Conditions

The odds of infants being HIV positive were 6 times higher for mothers who had breast related problem than who had not. And another study also shows that maternal nipple bleeding increases the chance of HIV transmission. Maternal illness was also significant factor for HIV status of the infant. In this study the odds of infants being HIV positive were 4.6 times higher for those whose mothers had breast related problem than for those whose mothers had no such problem. Infant illness was found to be a significant predictor of HIV status in infants who have an illness during breast feeding period were 7 times more likely to become HIV positive than infants who did not have an illness (Maru Y, 2009).

Conceptual framework

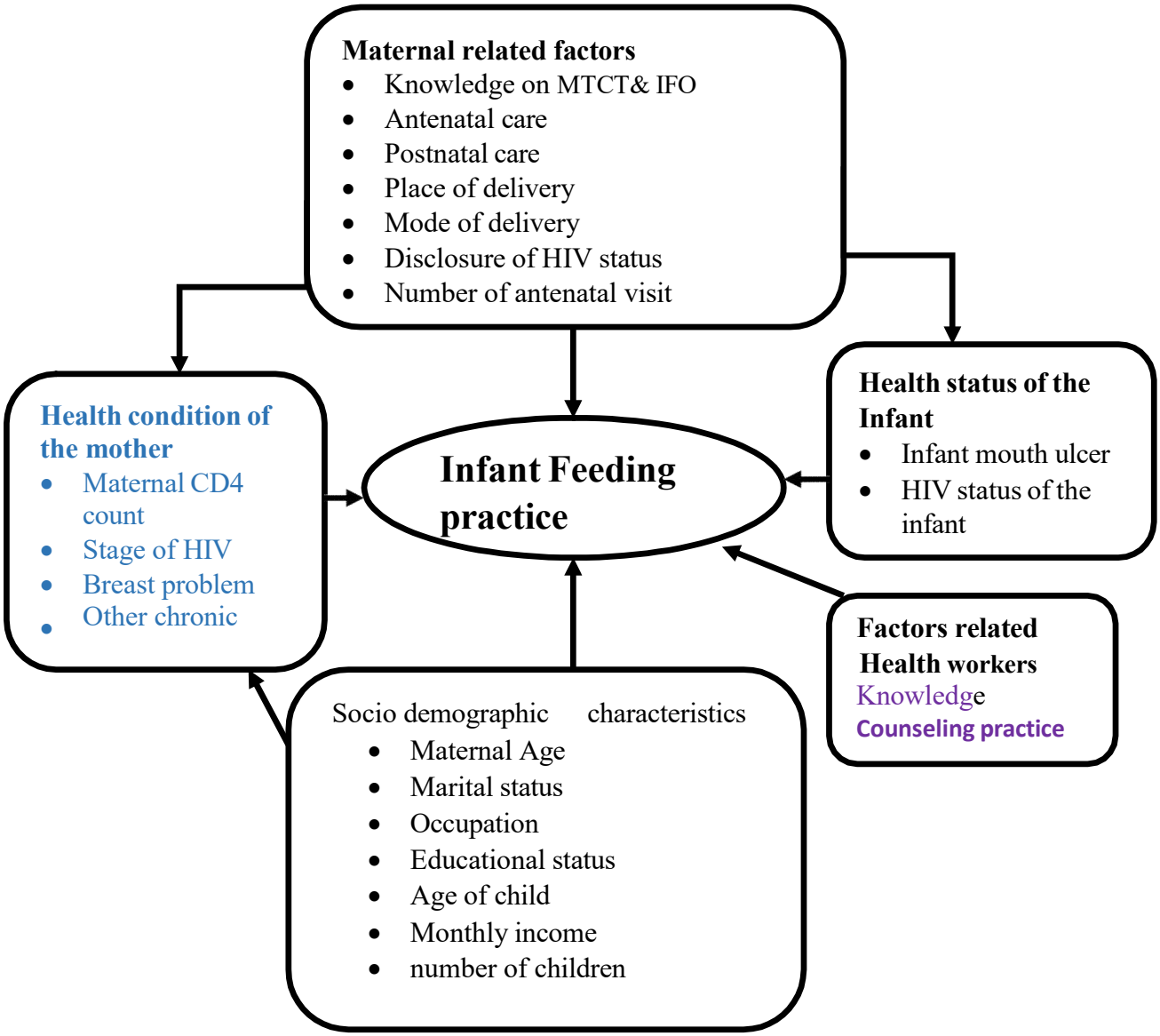

Figure 1.Conceptual frame work on factors associated with infant feeding practice in the context of HIV/AIDS (Daniel, 2014a).

3. METHODOLOGY

Study area and period

The study was conducted from October to November in woldia town ART service providing governmental health institutions. Woldia is located in North east part of Ethiopia which is the capital city of north wollo zonal town. It is located 360 km from Bahirdar, capital city of Amhara regional state and 521 km from Addis Ababa, capital city of Ethiopia.

According to Ethiopian Central Statistical Agency (2007), Woldia town has an estimated total population of 180,000 of whom 81750 were males and 98,250 were females. It has one governmental hospital and 2 health centers**.**

Study design

Institution based cross-sectional study was conducted.

Population

Source population

The source population was all mothers who have a child and attending ART services in health institutions of woldia town during the study period.

Study Population

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

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 three selected ART service providing governmental health institutions.

Eligibility criteria

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 October to November 2021.

Exclusion Criteria: Mothers who were having hearing problem and severely sick at the time of data collection and unable to respond were excluded.

3. 5. Sample Size Determination

Sample size for first objective

Sample size were determined by using single population proportion formula at 95% confidence level and 5% margin of error as well as the prevalence of infant feeding practice 75.2%. Hence,

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

Where: n = required sample size

Zα/2 = critical value for normal distribution at 95% confidence interval which equals to 1.96

P = 75.2% [Prevalence of EBF, MF, and ERF were 75.2%, 13.9%, and 10.9 % respectively, from the research done in the same title in Bahirdar, 2017] (Endalew Gemechu Sendo, 2018).

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

Non-response rate = 10%

$$n = \frac{(1.96)^2\,\{0.752\,(1-0.752)\}}{(0.05)^2} = 287$$

n =287 again so with adjustment for non-response (10% contingency) 287+29=316

The total sample size were 316 HIV positive mother with a child less than 1 year of age who have follow-up and present on the time of data collection in 3 selected ART service providing governmental institutions.

Sample size for second objective For this objective; a two population proportion formula was used to determine the sample size by using Sample size calculator for two proportion test with the following assumption Confidence level: 95%, Power: 80% and proportions of two factors.

Mothers who take post-natal care follow up and who could not take complementary feeding advice were considered as the factors of appropriate complementary feeding from study conducted at Feres Bet had 22.2% and 34.2% respectively (Bewket Zeleke, 2017).

The sample size was calculated using Epi info 7.1.4.0 in the following (Table 3.1).

Table 3.1 Sample size determination of a study on infant feeding practice and associated factors in woldia town 2021

Objective	Factor Considered	Proportion	Sample Size	Total
Factors associated with infant feeding practice	1. Mothers who take post-natal cared follow up(Bewket Zeleke, 2017)	22.2%	197	296
	2. Mothers who could not take complementary feeding advice (Bewket Zeleke, 2017)	34.2%	99	

The required sample size for this particular study was decided by taking the maximum number of HIV positive mothers either from the first objective or the second objectives. So the sample size was from objective one that is the greater number of HIV positive mothers which is 316 HIV positive mothers taken as sample data for this study.

3.5. Sampling technique

The government health institutions were primarily selected on the basis of the availability of the services and adequate client flow at the time of the study. From all the Government health institutions 2 Health Centers & one Hospital were selected since they are actively providing ART service. 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) was determined by dividing population size, by required sample size, n. HIV positive mother's card number from appointment book was the sampling frame. Then every 2 interval the sample were selected. Then all mothers with less than one year infants attending ART at the selected Health institutions.

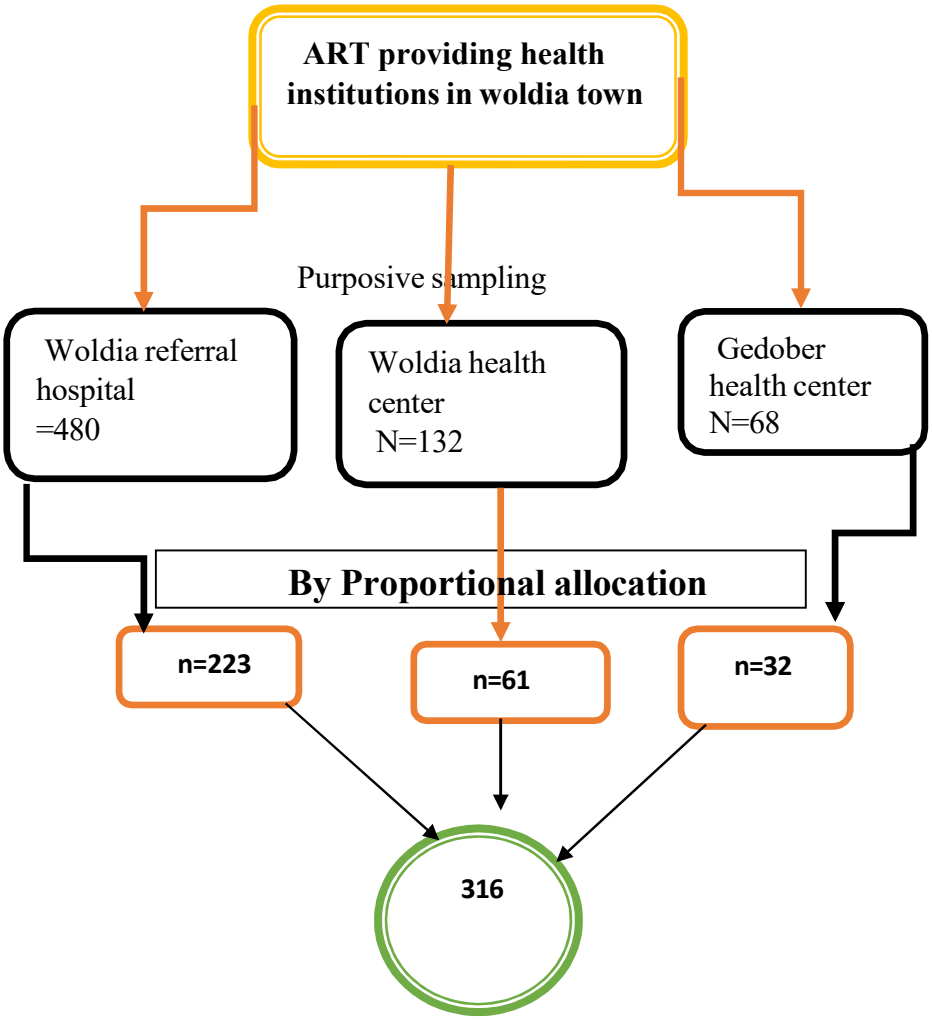

Figure 2: schematic presentation of sampling procedure for a study had done on infant feeding practices of HIV positive mothers attending ART service in Governmental institutions Woldia town 2022.

3.6 Study Variables

Dependent variable

The Dependent variable was infant feeding practices measured on a binary scale; Safe and unsafe infant feeding practice.

Measurement of dependent variable

Safe (Exclusive breast feeding or Exclusivereplacement feeding) and unsafe (Mixed breast feeding)

Independent variables

The independent variables considered in the study include:

Socio-demographic factors :-(mother's age, occupational status of (father and mother), educational status of (father and mother), family income, Child age).

Maternal related factors :(Knowledge on MTCT and IFO, 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 characteristics: (knowledge, counseling practice).

3.7. Operational Definitions

Infant feeding practices: are set of recommendations for appropriate feeding of newborn 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(WHO, 2010b, Endalew Gemechu Sendo, 2018).

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 infant's breast milk only including expressed breast milk no other food or drink even water, 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(Muluye D WD, 2012).

Exclusive replacement feeding -.The process of feeding a child with formula or other nonhuman milk or any home prepared fluid (a diet that provides all the nutrients to the infant's needs) for the infants who is not receiving breast milk until the child is fully fed on family foods (a, 2016).

Mixed breast feeding - Breastfeeding with the addition of fluids, solid feeds and non-human milks in the first 6 months of age.(Muluye D WD, 2012, a, 2016).

Data collection procedures

Training of data collectors and supervisors

A team of 4 data collectors and 1 supervisor were trained. A two-day training course was held to appraise the field staff on the objectives, methodology, relevance of the study, confidentiality of information, respondent's right, about pre-test, informed consent and techniques of interview. The principal investigator followed structured guidelines and facilitated training of research assistants. Emphasis was put on the proper identification of respondents and eligible child and on

questionnaire administration to correctly record responses. English language translated to Amharic language using online software. The translated questionnaire reviewed by research assistants during the training.

Data Collection Tools

Data was collected by research assistants in a face-to-face interview during health institutions ART service visit from mothers who had less than 12 months age children using structured questionnaire. A structured questionnaire was prepared in English language and translated in to local language Amharic and then translated back to English to check for consistency.

Pre-Testing of Tools

A preliminary study was conducted to Pre-test was done on 5 % of the samples in kobo Hospital before the actual survey and important modification was made on the basis of the findings. Assessment was done to test the content and approach of the questionnaire. A feedback meeting was held to identify and adjust areas in the questionnaire that were difficult or not give valid data.

Data Quality Control

All questioners were checked by supervisors daily for completeness and the principal investigator monitor the overall quality of data collection. The collected data was kept in the form of file in secure place where one didn‘t access it except the investigator; confidentiality was insured by avoiding recording names or any personal identifiers. Besides this, the investigators carefully entered and thoroughly cleaned the data before the commencement of the analysis

Data Processing and Analysis

The completeness of the questionnaire was checked before data entry and the data were coded, entered and stored and analyzed using Statistical Package for Social Sciences (SPSS version 20). Data entry was made by the principal investigator.

The descriptive analysis such as proportions, percentages, frequency distribution and measures of central tendency were used to present the information. Bivariate and multivariable analysis using logistic regression was done. Association between dependent and independent variables was assessed by using logistic regression. The variables that showed an association with the

outcome variable at the bivariate analysis with p value <0.25 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

Ethical consideration

Ethical clearance was obtained from Bahir Dar University ethical review committee. Official letter of permission from the department was submitted to Woldia 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.

After getting permission from the District Health Officer, permission and support letters were written to the respective Hospital and Health center where data was been collected. Informed verbal consent was obtained from study participants in their local language explaining the purpose of the study, potential risk and benefits and the right to refuse or withdraw from the study prior to the commencement of data collection.

Furthermore, the confidentiality of the information collected was assured for each participant. To ensure the confidentiality of the participants, their name and other identifying information was never attached to their answers. All codes and data were kept in a locker room or password protected computer. Data access was limited to the principal investigator and researchers working directly on the research. Participation in the study did not involve any hazard or risks.

4. RESULT

Socio demographic characteristics

A total of 316 HIV positive mothers having infants aged less than 12 months from three ART service providing health centers and one hospital under woldia town were included in the study making the response rate of 100%. The mean age of mothers and infants were (32.77± 4.44) years and (8.02 ± 2.9) months, respectively. 52.5% of mothers had female child and majority of the mothers, 97.8% were married. One hundred twenty nine 40.8% of the mothers were 1-8 grade attended and 60(19 %) of the respondents were unable to read and write. Concerning their religion, ethnicity and occupation, majority 61.1% of respondents were Orthodox Christian,98.4% Amhara and 32.9% Housewife, respectively 38.6 % of the respondent had >2000 in Ethiopia Birr monthly income. (See table 4.1 below).

Table 4.1 socio demographic characteristics of HIV positive mothers in three health facilities in woldia town, 2021, (n= 316)

Characteristics	Category	Frequency (%)
Age of the mother	≤ 24	27 (8.5)
	25-34	157(49.7)
	≥ 35	132(41.8)
Age of the child	≤ 6 months	144(45.6)
	7-11.9months	172(54.4)
Sex of the child	Male	150(47.5)
	female	166(52.5)
No_ of children	≤3 children	178(56.3)
	≥4 children	138(43.7)
Residence	Rural	144(45.6)
	Urban	172(54.4)
Marital status	Single	2 (0.6)
	Married	309(97.8)
	Divorced	3 (0.9)
	Widowed	2 (0.6)
Mother's education	Un write and read	60 (19)
	write and read	37(11.7)
	Primary school	129(40.8)
	Secondary school	74(23.4)
	Diploma and above	16 (5.1)
Religion	Muslim	112(35.4)
	Orthodox	193(61.1)
	Protestant	6(1.9)

	catholic	5(1.6)
Ethnic group	Amhara	311(98.4)
	Tigre	4(1.3)
	Oromo	1(0.3)
mother occupation	Housewife	104 (32.9)
	Merchant	59(18.7)
	farmer	97(30.7)
	daily labor	46(14.6)
	Government employee	10(3.2)
Husband's education	Unwritten and read	36(11.7)
	written and read	32(10.4)
	Primary School	100(32.4)
	Secondary School	83(26.9)
	Diploma and above	58(18.1)
husbands occupation	Government employee	61(19.7)
	Farmer	109(35.3)
	private employee	66(21.4)
	Merchant	58(18.8)
	daily labor	15(4.9)
Monthly income	<1000	95 (30.1)
	1000-2000	99 (31.3)
	>2000	122 (38.6)

4. 2.Obstetric history

Almost all 94.6 % of them attended ANC follow up in the last pregnancy and the majority of mothers were counseled on infant feeding options, of which, 88.92% and 96.5% were counseled during, PNC and ART visits respectively. Almost all of the mothers (99.1%) delivered at the health institutions and 94.9% had normal delivery. Most of 66.5% the mothers knew their HIV status before this pregnancy and 82.9% of the mothers disclosed their HIV status out of which, majority of mothers,86.3 disclosed to their husband, 11.1% disclosed to their parents, and 2.7 % to their friends. (See table 4.2 below).

Table4.2 Obstetric history of HIV positive mothers attending ART services at 3 health institutions in woldia town, 2021(n=316)

Characteristics	Category	Frequency (%)
Attending ANC	Yes	299(94.6)

	No	17(5.4)
Attending PNC	Yes	281(88.92)
	No	35(11.07)
Counseled on infant feeding during ART visits	Yes	30(96.5)
	No	11(3.5)
Place of delivery	Health institution	313(99.1)
	Home	3(0.9)
Mode of delivery	Normal	300(94.9)
	Instrumental	16(5.1)
The time HIV status is known	Before pregnancy	209(66.5)
	During this pregnancy	99(31)
	During delivery	8(2.5)
Disclosed your HIV status	Yes	262(82.9)
	No	54(17.1)
For whom your HIV status disclosed	Husband	226(86.3)
	Parents	29(11.1)
	Friend	7(2.7)
	Other	1(0.3)

Feeding practice of HIV positive mothers

Most of the mothers 90.5% had ever breast fed their infant, out of them 91.6% gave breast milk within first hour of the child's birth, while 4.2% children receive food or drink before the first breast, some of the infants 3.2%were given foods/fluids other than breast milk until six months of age.

From the mothers who practiced mixed (unsafe) feeding, the majority 65.7% gave a reason that their breast milk is insufficient for the infant and 14.3% had stated that they practiced this method because of lack of knowledge.

The majority 79.4% practiced exclusive breast feeding up to six months of age and 63.9%, practiced the feeding option they decided thinking it is safe for the baby, while 9.5% of the respondents practiced exclusive replacement feeding. The reason for making this feeding option for 66.7% of them was that fear of MTCT of HIV/AIDS.

A total of 78.8%of the mothers started complementary food for their child, 85.9% of the mothers who started at the age of 6 months, while the rest 14.1% started before the age of 6 months. (See table4.4 below.

Table 4.3 Infant feeding practice of HIV positive mothers attending ART services at 3 health institutions in woldia town, 2021, (n=316)

Characteristics	Category	Frequency (%)
Ever breast feed	yes	286(90.5)
	No	30 (9.5)
Time of first initiation of breast milk	Within first hour	283(91.6)
	After hour	26(8.4)
Infant received any food or fluid before breast milk	Yes	10(3.2)
	no	299(96.8)
What type of food or fluid was provided	Milk powder	5(50)
	Sugar and water solution	3(30)
	Butter	2(20)
Ever expressed breast milk	Yes	15(4.7)
	No	301(95.3)
Why you express	Infant unable to suck	7(46.7)
	To separate from the infant	6(40)
	Due to breast pain	2(13.3)
Feeding options you practiced	Exclusive breast feeding	251(79.4)
	Exclusive replacement feeding	30(9.5)
	Mixed feeding	35(11.1)
Reason for the feeding option	Thinking it is safe for the baby	202(63.9)
	Can't afford the cost of R.F	79(25.0)
	Fear of MTCT	19(6.0)
	Lack of knowledge on MTCT	8(2.5)
	Health professional counseling	3(0.9)
	No counseling was done	3(0.9)
	Advised by husband	2(0.6)
Practiced replacement feeding	yes	30(9.5)
	No	286(90.5)
Reason for choosing replacement feeding	Fear of MTCT of HIV	20(66.7)
	I have get advice health professionals	7(23.3)
	Mothers sick during delivery	3(10.0)
Frequency of replacement feeding per day (n=30)	<8 times	3(10.0)
	>8 times	27(90.0)
Started complementary feeding (n=316)	Yes	249(78.8)
	no	67(21.2)
Age complementary feeding started (n=249) Attending PNC visit	<6 months	35(14.1)
	≥6months	214(85.9)
Reason to start CF before 6 month	Breast milk is insufficient for the infant	23(65.7)
	Lack of knowledge	5(14.3)
	Advised by husband	4(11.4)
	Infant perceived unwell	2(5.7)
	Fear of stigma & discrimination	1(2.9)
Feeding practice	Safe feeding	281(88.9)
	unsafe feeding	35(11.1)

Knowledge of HIV positive mothers towards infant feeding options

Almost all 312 (98.7%) of the mothers knew that HIV could be transmitted from mother to child, Out of which 110 (34.8), 117 (37%) and 89 (28.2%) mothers were answered that it could be transmitted during pregnancy, delivery, and breast feeding, respectively.

The majority 298(94.3%) of them heard about infant feeding options recommended for HIV positive mothers, of which, 291 (97.7) heard from health professionals. (See table 4 below).

Table 4.4: Awareness of HIV positive mothers on recommended infant feeding options and MTCT of HIV, who attending ART services at 3 health institutions in woldia town,

Characters	**Category**	**Frequency (%)**
Knowledge on MTCT HIV(316)	Yes	312(98.7)
	No	4(1.3)
During when (312)	During pregnancy	110(34.8)
	During delivery	117(37)
	During breast feeding	89(28.2)
Heard about recommended infant feeding options for HIV positive mothers (316)	Yes	298(94.3)
	No	18(5.7)
Heard from	Health professional	291 (97.7)
	Mass media	4 (1.3)
	Nabors	3(1.0)
Knowledge on recommended infant feeding options for HIV positive mothers (n=228)	EBF & start CF from 6 months	215(68)
	ERF &CF start from 6 months	77(24.4)
	Expressed milk	14(4.4)
	Mixed feeding	10(3.2)

Mothers and infant health condition

More than half of 57.9 % of mothers had >500 cell/mm3 CD4 count whereas 3(0.9 %) of mothers' CD4 count were less than 200cell/mm3.

Out of the 316 respondents, 14.9% encountered health problems; the problems mentioned were breast nipple problems in 23.4%. And the rest 76.6% had non breast related health problems.

Almost all 87% mothers were on stage 1 of HIV disease progress and 28.8% mothers knew the HIV status of their child. Only 2(1.3%) of them were positive As a result of maternal illnesses, 38.3 % reported to change their infant feeding practices from EBF to mixed feeding during their illness time.

Table 4.5 .Mother and infant's health condition related findings

Characters	Category	Frequency (%)
CD4 count (cell/mm3)	<200	3(0.9)
	200-500	130(41.1)
	>500	183(57.9)
Disease progress	Stage 1	275(87)
	Stage 2	30(9.5)
	Stage3	9(2.8)
	Stage4	2(0.6)
Have you ever encountered breast problem	yes	47(14.9)
	No	269(85.1)
	Engorgement	22(46.8)
Type of maternal illness	Burning, tingling	18(38.3)
	Sore nipples	4(8.5)
	Cracked nipples	3(6.4)
Change of feeding style during illness	Yes	18(38.3)
	No	29(61.7)
Infant's mouth ulcer	Yes	9(2.8)
	No	307(97.2)
Do you know HIV status of your child	yes	91(28.8)
	No	225(71.2)
HIV status of your child	Negative	89(97.8)
	Positive	2(2.2)

Counseling practice of health workers

Almost all 96.8% of the mothers answered that the health worker explained to them the different feeding options. 314(99.4%) of mothers answered the health care providers told them about

advantages of breast feeding, and 307(97.2%) stated that they were counseled on advantage and disadvantages of replacement feeding.

Regarding the safety of the feeding options, 306(96.8%) of the mothers were informed about the risk of mixed feeding, and 231(73.1%) of the mothers stated that the health care provider explained about how to practice the chosen feeding choice. (See table 4.7 below)

Table 4.6: Counseling practice of health workers on infant feeding options among HIV positive mothers attending ART services at 3 health institutions in Woldia town, 2021.

Variables	category	Frequency **(%)**
Health care provider explain to you different feeding Options	Yes	306(96.8)
	No	10(3.2)
Health care provider tell about advantages of breast feeding	Yes	314(99.4)
	No	2(0.6)
Health care provider tell about advantage and disadvantage of replacement feeding	Yes	307(97.2)
	No	9(2.8)
Health care provider tell about risk of mixed feeding	Yes	306(96.8)
	No	10(3.2)
Health care provider explain how to practice the chosen feeding options	Yes	231(73.1)
	No	85(26.9)

4.8 Factors Associated with Infant Feeding Practice

The Bivariate logistic regression analysis showed that maternal education status, mother occupation, attending ANC visit, attending PNC visit, Counseling on infant feeding options during ART visits, Ever breast feed, Age complementary food started, heard about recommended infant feeding and being counseled by health workers on risk of mixed feeding were statistically associated with infant feeding practice (see Table 4.8

Table 4.7 Results of bivariate logistic regression showing determinants of feeding practice of HIV positive mothers attending ART service at 3 health institutions in woldia town, 2021,N=316

	Infant feeding practice	**OR (95% CI)**

variables	Categories	Unsafe	Safe	P	COR (95% CI)
Age of the child	≤ 6 months	20	47	0.374	1.31(0.42, 1.39)
	7-11.9months	61	188	0.000	1
Mother's education	Un write and read	5	11	0.066	6.88(0.92,12.87)
	write and read only	6	31	0.223	2.93(0.6, 9.26)
	Primary school	9	65	0.003*	2.09(1.92, 24.64)
	Secondary school	7	53	0.066	1.997(.94, 11.65)
	Diploma and above	8	121	0.144	1
mother occupation	Housewife	4	6	0.011*	7.42(1.51, 26.01)
	Merchant	7	39	0.022*	1.997(1.29, 26.95)
	farmer	6	53	0.007	1.26(1.73, 31.85)
	daily labor	10	94	0.086	1.18(.83, 16.64)
	Government employee	8	89	0.530	1
husbands occupation	Farmer	10	53	0.723	3.58(0.38,4.11)
	Merchant	4	27	0.704	2.81(0.23,2.74)
	Private employee	13	109	0.251	2.27(0.48,16.49)
	daily labor	3	50	0.259	1.14(0.52,11.85)
	Government employee	2	38	0.000	1
Monthly income	<1000	14	85	0.581	1.79 (.51, 3.270)
	1000-2000	13	109	0.433	1.29 (.32, 1.622)
	>2000	8	87	0.000	1
Attending ANC	Yes	29	270	0.005*	0.196 (.068,0.572)
	No	6	11	0.006	1
Attending PNC	Yes	9	26	0.003*	3.39 (1.43,8.013)
	No	26	255	0.000	1
Counseled on infant feeding during ART visits	Yes	31	275	0.000	0.169 (.045,0.632)
	No	4	6	0.008*	1
Place of delivery	Health institution	33	278	0.254	0.18 (0.36, 6.45)
	Home	2	3	0.657	1
Mode of delivery	Normal	5	11	0.014*	4.09(1.33,12.57)
	instrumental	30	270	0.144	1
The time HIV status is known	Before pregnancy	2	6	0.139	3.54(.67, 18.82)
	During this pregnancy	15	84	0.470	1.89(.34, 10.14)
	After delivery	18	191	0.178	1
Ever breast feed	yes	33	276	0.159*	.299(0.56,1.602)
	No	2	5	0.000	1
Time of first initiation of breast milk	Within first hour	4	22	0.351	1.72 (0.55,5.35)
	After hour	27	255	0.002	1
Practiced replacement feeding	yes	33	253	0.425	1.83 (0.125, 2.40)
	No	2	28	0.000	1
Heard about recommended infant feeding.	Yes	7	11	0.001*	6.13(1.59,3.454)
	No	28	270	0.000	1

Had you been counseled by health workers on risk of mixed feeding	Yes	30	268	0.028	0.29(0.097, 0.87)
	no	5	13	.000	1

* = P <0.25

On multivariable logistic regression analyses after adjusting, mother's educational status, attending Antenatal Care visit, attending Post Natal Care ,Heard about recommended infant feeding, were significantly associated with safe infant feeding practice.

Mothers who had educational level of Primary school and above were 12.39 times more likely to practice safe feeding than those who were unable to read and write.

Mothers who attend Post Natal Care follow up; those who did not attend Post Natal Care were 3.92 times more likely to practice unsafe feeding.

Mothers who do not heard about recommended infant feeding practice were 6 times more likely to practice unsafe feeding compared with those who heard about recommended feeding practice.

Mothers who do not ANC follow up were more likely to practice unsafe feeding compared with those who had ANC follow up.

Table.4.8.Bivariate and multivariable logistic regression model predicting the infant feeding practice of HIV positive mothers attending ART service at 3 health institutions Woldia town

Variables	Category	Bivariate			Multivariable	
		Unsafe	Safe	COR(95%CI)	P	AOR(95%CI
Mother's educational status	Can't read &write	5	11	6.88(0.92,12.87)	.060	4.54(0.937, 21.960)
	write and read-only	6	31	2.93(0.6, 9.26)	.073	4.915(0.860, 28.097)
	Primary school	9	65	2.09(1.92, 24.64)	.002*	12.393(2.605,58.963)
	Secondary school	7	53	1.997(.94, 11.65)	.015*	6.676(1.444, 30.856)
	Diploma above	8	121	1		1
Attending ANC visit	Yes	6	11	5.07 (.068, 0.572)	.003**	0.219(.068, 0.793)
	No	29	270	1		1
Attending PNC visit	Yes	9	26	3.39 (1.434,8.013)	.006**	3.92(1.47,10.48)
	No	26	255	1		1
Heard, about recommended infant feeding	Yes	7	11	6.13(1.59,3.454)	.000**	6.02(2.17, 5.224)
	No	28	270	1		1

5. DISCUSSION

In this study, the prevalence of safe infant feeding practice was 88.9 % with (95% CI: 85.4 – 92.1).This result was higher than reports from previous studies; DebreMarkos (85.8%),Addis Ababa,(30.6%), Nigeria (74.1%), (Elias Bekele Wakwoya1, 2016, Yitaysh maru, 2009, L. C.Ikeako H.U.Ezegwui,2015a). This may be due to mothers thinking safe feeding practice for the baby and majority of the respondents were counseled by health professionals and attended ANC & PNC visits very well.

This may due to practices change with time and the presence of different nutrition intervention program by nongovernmental organization in the study areas; sustainable under nutrition reduction in Ethiopia (SURE) program was working in the study area starting from 2015 on nutrition by integrating heath and agriculture, which was funded by nongovernmental organization child investment fund foundation working with the collaboration of Ethiopian government.

This study result was smaller than a study in Bahirdar (89.1%) Jigjiga Town (93.6%), Shashemene Town (89.1%), Mekele (93.7%), Gondar (89.5%), **(** Endalew Gemechu Sendo, 2017, Lema Mideksa1, 12 Dec, 2019, Ansha, 2020, Yonas Girma1, Muluye D WD, 2012**)**.

In this study, the proportion of mothers practicing EBF (79.4%) for the first 6 months of age was comparatively higher than the findings reported from DebreMarkos (77.1 %) Bahirdar (75.2%) Addis Ababa, (30.6%), southern nations, nationalities, and peoples' region (56.3%), **(**Elias Bekele Wakwoya1, 2016, Endalew Gemechu Sendo, 2017, Yitaysh maru, 2009;, Belachew T, 2007, Astewaya Mengstie, 2015b**)**. This may be due to mothers thinking EBF is safe for the baby and majority of the respondents were counseled by health professionals. However, it is lower than the study done in Jigjiga Town (93.6%), Mekele (90%), Shashemene (96.6%) and Gondar (83.3%) [(Yonas Girma1, Lema Mideksa1, 12 Dec, 2019, Muluye D, 2012).

Mothers who use exclusive replacement feeding from this study were 9.5%. This finding was higher than compared to a study done in South Africa (1%), Mekelle (3.4%), Debre-Markos (8.5%), Shashemene (2.7%), southern nations, nationalities, and peoples' region (8.1%), and

Kenya (0.4%), [(Ghuman MR M, 2009, © Elias Bekele Wakwoya 05/08/2016 , Dereje bayissa demissie, 2016, Yonas Girma, 2014, Wapang', 2013, Astewaya Mengstie, 2015b)].

The main reason why mothers practice exclusive replacement feeding was fear of MTCT of HIV (66.7%) 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%), (Usman Aishat, 2015:, Muleshe, 2011, Yitaysh maru, 2009; Yeshimebet Ali, 2015).

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.

The rate of Unsafe feeding in the present study was 11,1 % which is much lower than a study done in DebreMarkos (14.2%), Gulele sub-city, Addis Ababa(23.3%), South Africa (30.5%), Kenya (42.2%), SNNPR (35.6%), and Ghana (40%), (Elias Bekele Wakwoya1, 2016, Negash et al, 2019, Astewaya Mengstie, 2015a, Ellis, 2013, Joshua Mose omwenga, 2016, SALaV, 2011).

The reason may be in this study majority of the respondents counseled about different safe infant feeding options during ANC, delivery, PNC, and ART follow up.

Findings of this study showed that Mother Education, Attending ANC visit, Attending PNC visit and Heard about recommended infant feeding, were the main determinants of infant feeding practice. Maternal Education was one of positive factor of safe infant feeding practices.

Mothers who completed primary school were 12.39 times more likely to practice safe infant feeding than those mothers who were unable to read and write. This might be due to the fact that; as mothers are educated their decision making power increases and this helps them to practice the safe infant feeding option irrespective of the pressure from partner, family and society as compared to those mothers who were uneducated.

Additionally, those mothers have more access of health service through having repeated contact with health facilities, communication media, and education can change the status of mothers so that they might have confidence and capacity to make decisions about their child feeding practice.

HIV positive mothers who did not attended Postnatal care services were 3.9 times more likely to practice unsafe infant feeding practice as compared to their counter parts, This might be due to; HIV positive mothers who had Postnatal Care follow up had a high chance of obtaining counseling on safe infant feeding options as compared to mothers who had no Postnatal Care follow up. Postnatal care is a good platform for educating and advising mothers about feeding of children.

Mothers who do not heard about recommended infant feeding practice were 6 times more likely to practice unsafe feeding compared with those who heard about recommended feeding.

Mothers who do not Antenatal Care follow up were more likely to practice unsafe infant feeding practice compared with those who had Antenatal care follow up.

Limitation of the study

The study did not measure the quality of infant feeding practice in Governmental Health institutions level. Due to resource and time constraints did not observe feeding practice their child and follow.

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6. CONCLUSION

The study revealed that majority 88.9% of the mothers practiced safe feeding. This could be an advised way of infant feeding practice by World Health Organization and Ethiopia Minister of Health. The results indicate Mothers Educational status Attending Antenatal Care follows up, Attending Post Natal Care and heard about recommended infant feeding were significantly associated with infant feeding practice.

7. Recommendation

- ART service providing health institutions in Woldia 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
- Mother to mother support group advice/service makes a great change on infant feeding practice in relation to prevention of MTCT of HIV.
- Further research should be conducted by including more study sites to allow a more robust analysis.

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ANNEX

Annex 1. Information sheet and informed consent

Name of investigator: Tegegne Mesele

Name of the organization: Bahir Dar University, Institute Of Technology, School Of Chemical And Food Engineering.

Funding organization: my Self

Introduction: The information sheet and consent form prepared by the investigator with the aim of explaining the research project that you are asked to join by the group of research investigators. The main aim of this research project is to assess infant feeding practice and associated factor among HIV positive mothers of children aged less than one years attending ART service in governmental health institutions of woldia town, north east Ethiopia. Decision on your involvement will be made by you and only you. The investigator includes 5 data collectors, one supervisors and one advisor from Bahirdar University.

Purpose: The main aim of this study is to assess infant feeding practice and associated factor among HIV positive mothers of children aged less than one year's attending ART service in governmental health institutions of woldia town, north east Ethiopia and recommend possible interventions based on the finding.

Procedure: To assess the prevalence of infant feeding practice and associated factors among HIV positive mothers of children aged less than one year you are invited to participate in the project. If you are willing to participate in this project you need to understand and sign the agreement form. Then you will be requested to give response to some questions that will take few minutes (about 15 minutes). All the responses given by you will be kept confidentially by using coding system whereby no one will have access to your response.

Risk: By participating in this study you may feel that it has some discomfort especially on wasting your time (10-15 mints) to respond questions but this may not be too much as you are one of the member of the communities, your response will help as important input to determine the infant feeding practice and associated factors among HIV positive mothers of children aged

less than one years. However there is no physical or psychological risk expected being involved in the study

Benefits: If you participate in this study, you may not gain direct benefit but your participation will help us to assess infant feeding practice and associated factors among HIV positive mothers of children aged less than one year and to take measures based on the finding.

Confidentiality: Information about you will be collected without your name but a cod number assigned to it will be stored in a file and kept locked .Your personal information will only be used for the purpose of the study. Your response will be aggregated to yield summary data, but your individual response will not be reported.

Participation: You have to know that your participation is largely based on your willingness and approval. There are questions to be answered by you. You are expected to answer all of the questions but you have the right to say ―no and not participate in the study (you can choose not to respond to some or all of the questions). You have also a full right to withdrawal from this study at any time you wish without losing any of your right and without any penalty.

Person to contact: This research project will be reviewed and approved by the ethical committee of Bahir Dar University. If you want to know more information ask any questions at any time you went, you can contact with the following address.

1. Work Awoke (associated professor) Advisor from University of Bahirdar

Tel. +251963827845

2. Tegegne Meese, Investigator, Tel. +251 921975656

Email- tegegnemesele23@gmail.com

Are you willing to participate in the study?

Yes _____then continue No _____thanks and move to the next study subject

Annex 2. English version of questionnaire

	Questions and Explanations	Alternatives/answers/
Part 1 Socio Demographic Characteristics of HIV positive mothers participant		
1	How old are you?	----------years
2	What is the age of your child?	---------- month
3	Sex of the child?	1/Male 2/Female
4	How many children do you have?	----------
5	Place of residence	1. Rural 2. Urban
6	What is your current marital status?	1. Single 2. Married 3. Divorced 4. Widowed
7	What is your current Education status?	1. Un write and read 2. Primary school 3. Secondary school 4. Diploma and above
8	What is your religion?	1. Muslim 2. Orthodox 3. Protestant 4. Catholic
9	What is your ethnicity?	1. Amhara 2. Tigre 3. Oromo
10	What is your occupation	1. Government employee 2. Housewife 3. Private employee 4. Merchant 5. daily labor
11	What is your husband Education status	1. Un write and read 2. Primary school 3.Secondary school 4.Diploma and above
12	What is your husband occupation	1. Government employee 2. farmer 3. Private employee 4. Merchant 5. daily labor
13	What is your family monthly income?	---------- Birr

	Part 2: Infant feeding practice of HIV positive related question		Skip to
14	Did you ever breast feed your child?	1. yes 2. No	If no skip to q 18
15	When did you give breast to your child afterbirth?	1. With first hour 2. After first hour	
16	Did your infant receive any thing to drink or eat before the first breast feeding?	1. yes 2. no	
17	What food or fluid provided/ (more than one answer is possible don't read the choices probe for more	1. Milk powder 2. Water and Sugar 3. Butter	
18	Have you ever given the expressed breast milk to your child?	1. yes 2. no	
19	Why did you express the milk?	1. Infant unable to suck 2.To separate from the infant 3.Due to breast pain	
20	What feeding options you have practiced? [don't read the options, but listen to the mothers response & categorize it under the given options	1.Exclusivebreastfeeding 2.Exclusivereplaement feeding 3. Mixed feeding.	
21	What was your reason for the choice of your feeding option?	1.Thinking it is safe for the baby 2. Can't afford the cost of replacement food 3. Fear of MTCT 4. Breast is insufficient for the infant 5. Others specify	
22	Have you ever practiced exclusive replacement feeding?	1. Yes 2.No	If no skip to q26
23	Reason for choosing replacement feeding?	1.Fear of MTCT of HIV AIDS Mother sick during delivery 2.No adequate milk in the breast 3.Others specify	
24	What kind of replacement food you are giving to your child?	1.Commercial infant formula 2.Fresh animal milk, full 3.Others specify	
25	Do you know how many times feed your child per day?	- --------times a day	
26	Have you started complementary food for your child?	1.yes 2. no	If no skip to q29

27	When did you start giving him/her CF foods?	1. <6 months 2. = 6 months 3. >6 months
28	If Q-27 < 6 month, Why start, mixed feeding before 6 months of age?	1. Due to insufficient of breast milk 2.Lack of knowledge on MTCT 3. Advised by husband 4. infant perceived unwell 5.Fear of stigma & discrimination 6.Others(specify)---------
	Part 3 Obstetric history related questions	
29	Did you attend antenatal care follow-up during your last pregnancy?	1.yes 2.no
30	Have you ever been counseled about infant feeding options?	1.yes 2.no
31	During which visit (more than one answer is possible	1.ANC 2.PNC 3.ART 4. others
32	Where did you birth this child?	1. Health institution 2. Home
33	What was the mode of delivery?	1. Normal 2.spontaneous delivery CS Delivery
34	Did you attend postnatal care at a health facility after delivering	1. yes 2. no

Part 4. knowledge about MTCT of HIV, PMTCT and infant feeding practice related

35	Do you know HIV/AIDS can be transmitted from mother to child?	1.yes 2.no	If no skip to q36
36	At which of the times it can be transmitted during (more than one answer is possible)	1.During pregnancy 2. During delivery 3.During breast feeding 4.Other specify	
37	Have you ever heard about infant feeding options recommended for HIV positive mothers?	1.yes 2.no	If no skip to q41
38	Where did you get the information (more than one answer is possible)	1.Health professional 2. Others(specify	
39	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	1. Breastfeeding for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months. 2. Exclusive replacement feeding for the first 6 months followed by complementary feeding in addition to the breast feeding starting from 6 months 3.Breast milk and foods 4.Other(specify)----	

Part 5 Maternal and infant Health condition related questions			Skip to
	Maternal CD4 count after delivery within the recent 6 month	Look and record CD4 count from mother card ---------	
41	HIV disease progress (from the client's card	Stage1 ---------- 1 Stage2----------2 Stag3- - - - - - - - - - - - - - -3 Stage4---------- -4	
42	Have you ever encountered breast problem	1. yes 2.No	
43	Did you change the way you feed your child during that time	1. yes 2. No	
44	Have the infant had mouth ulcer?	1. Yes 2. No	
45	Do you know the HIV status of your child?	1. Yes 2. No	If no skip to q 47
46	What is the HIV status of your child?	1. HIV negative 2. HIV positive	

Part 6 assessment of counseling practice of health workers

47	Did the health care provider explain to you different feeding Options?	1.Yes 2. No
48	Did the health care provider tell about advantages of breast feeding?	1 Yes 2.No
49	Did the health care provider tell about advantage and disadvantage of replacement feeding?	1. Yes 2 No
50	Did the health care provider tell about risk of mixed feeding?	1. Yes 2. No
51	Did the health care provider explain how to practice the chosen feeding options?	1. Yes 2. No

Annex 3 የመረጃእናየስምምነትፎርም

ርእስ፡በአማራብሄራዊክሌሊዊመንግስትበሰሜንወልዘንበወሌዱያከተማስርበሚገኙሆስፒታሌእናጤና ጣቢያዎችኤችአይቪፖዘቲቭበሆኑእናቶችየተወሰደከአንዴአመትበታችየሆኑህጻናትሊይየስነ-ምግብአመጋገብትግበራተፅኖወችእናተያያይዥነትያሊቸውነገሮችንመዲሰስ።

የተመራማሪውስም፡ተገኘመሰሇ

የዴርጅቱስም፡በባህርዲርዩንቨርስቲቴክኖሌጅኢንስቲትዉትኬሚካሌእናምግብምህንዴስናትምህርትክ ፌሌ

ወጪውንየሚሸፌነው፡ግሇሰብ

መግቢያ፡ይህየመረጃናየውሌስምምነትየተዘጋጀበትአሊማበምርምርፕሮጀክቱእርስዎእንዱሳተፈበፕሮ ጀክቱአባሊትበሚጠየቁበትወቅትስሇፕሮጀክቱመረጃበማግኘትእንዱብራራሌትነው፡የፕሮጀክቱዋናአሊ ማበአማራብሄራዊክሌሊዊመንግስትበሰሜንወልዘንበወሌዱያከተማስርበሚገኙትሆስፒታሌእናጤናጣ ቢያዎችኤችአይቪፖዘቲቭየሆኑእናቶችእናከአንዴአመትበታችበሆኑህጻናትሊይአግባብነትያሇውየስነ ምግብአመጋገብትግበራ፡ተፅኖዎችእናተያያዥነትያሊቸውነገሮችንመዲሰስሲሆንበጥናቱየመሳተፌምሇ ነያሇመሳተፌውሳኔውበእርሶናበእርሶዎብቻየሚወሰንነው።ይህአጥኚቡዴንበሆስፒታሌእናበጤናጣቢያ ዎችሊይየሚሰሩአምስትመረጃአሰባሳቢዎችሁሇትየበሊይተቆጣጣሪዎችአንዴዋናዉየጥናቱአጥኚእናአ ንዴየባህርዲርዩንቨርሰቲመምህር(አሶሼትዴ ፕሮፋሰር) ወርቁን በአማካሪነትያካተተነው።

የጥናትፕሮጀክቱየሚካሄዴበትምክንያት

የጥናቱዋናአሊማ፡-

በአማራብሄራዊክሌሊዊመንግስትበሰሜንወልዘንበወሌዱያከተማስርበሚገኙትሆስፒታሌእናጤናጣቢ ያዎችኤችአይቪፖዘቲቭየሆኑእናቶችእናከአንዴአመትበታችበሆኑህጻናትሊይአግባብነትያሇውየስነም ግብአመጋገብትግበራእናተፅኖዎችመዲሰስሲሆንበሚገኘውምየጥናትውጤትችግሩንሇመቅረፌየሚያስ ችለትንስሌቶችማመሊከትይሆናሌ።

አተገባበር:ከ1ቀንእስከ12ወርባለህጻናትየእናቶችእናአግባብነትያሇውየስነምግብአመጋገብትግበራተያያ ይዥነትያሊቸውነገሮችሇማጥናትእርሶዎበፕሮጀክቱተሳታፉእንዱሆኑተጋብዘዋሌ።በፕሮጀክቱሇመሳ ተፌፇቃዯኛከሆኑእናመሰማናሇን።ከዚያምበመረጃሰብሳቢዎችጥቂትዯቂቃዎች(20ዯቂቃ)

ሇሚወስደጥያቄዎችመሌስእንዱሰጡበአክብሮትይጠየቃለ፣ሇእያንዲንደጥያቄሇሚሰጡትምሊሽማን ምበማያገኘውመሇያቁጥርሚስጥራዊነቱየተጠበቀይሆናሌ።ሉገጥምየሚችሌችግር/አሇመመቸት:

በዚህጥናትበመሳተፌዎመጠነኛአሇመመቸትማሇትምየሰአትብክነት (15-20ዯቂቃዎች) ሉሰማዎት ይችሊሌ።ቢሆንምግንየህብረተሰቡአካሌእንዯመሆነዎመጠንናየሚሰጡትመረጃከ1ቀንእስከ12 ወር

ባሇየእናቶችእናህጻናትአግባብነትያሇውየስነምግብአመጋገብትግበራተያያይዝነትያሊቸውነገሮችሊይሉ ከሰቱየሚችለየስነምግብችግርናተያያዝነትያሊቸውንነገሮችሇማጥናትእንዯግብአትስሇሚጠቅምየሚያ ጠፈትጊዜብዙሊይሆንይችሊሌ።ስሇሆነምበምርምርፕሮጀክቱበመካፇሇዎየሚዯርስብዎአካሊዊምሆነስነ ሌቦናዊችግርየሇም።

ጥቅሞች:ከዚህጥናትእርስዎበቀጥታተጠቃሚሊይሆኑይችሊለ።በተጨማሪምየእርሶዎመሳተፌከ1 ቀንእስከ12
ወርባለህጻናትእናኤችአቪፖዘቲቭእናቶችአግባብነትያሇውየስነምግብአመጋገብትግበራተያያይዝነትያ ሊቸውነገሮችሊይሉከሰቱየሚችለየስነምግብችግርናተያያዝነትያሊቸውንነገሮችሇማጥናትናበጥናቱም ውጤትመሰረትአስፇሊጊውንየማስተካካያእርምጃሇመውሰዴከፌተኛእገዛያዯርጋሌ።ስሇተሳትፍ: በጥናቱሇመሳተፌዎየእርሶሙለፌቃዯኝነትወሳኝነው።ሇሚጠየቁትጥያቄዎችሁለይመሌሳለብዬተስ ፊአዯርጋሇሁ።ነገርግንከሚጠየቁትጥያቄዎችሇተወሰኑትአሉያሇሁሇምመሌስያሇመመሇስመብትአሇዎ ት።እንዱሁምያሇምንምመብትመጓዯሌበፇሇጉትሰአትጥናቱንየማቋረጥሙለመብትአሇዎት።

ረጅአካሊት:ይህየምርምርፕሮጀክትበባህርዲርዩንቨርስቲታርሞናተከሌሶይጸዴቃሌ።ተጨማሪመረጃካስ ፇሇግዎትናማንኛውንምጥያቄበማንኛውምሰአትናጊዜመጠየቅከፇሇጉበሚከተሇትአዴራሻዎችየፇሇጉ ትንአካሌማነጋገርይችሊለ።

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በጥናቱተሳታፉሇመሆንፌቃዯኛኖትአዎ _____ አዎከሆነይቀጥለ

አይዯሇሁም _____ አመስግናሇሁወዯሚቀጥሇውተሳታፉይሂደ

ክፍልአንድ፤ማህራዊ፣ኢኮኖያዊእናቤተሰብንየሚመለከቱመጠይቆች

ተቁ	ቃሆመጠይቅ	አማራጮች/መሌስ	አስተያየት
1	ስንትአመተዎነው?	------ዓመትነዉ	
2	የሌጀዎዕዴሜስንትነው ?	1/--- ቀን 2/---ሳምንት 3/---ወር	
3	የሌጀዎፆታምንዴንነው ?	1.ወንዴ 2.ሴት	
4	የሌጀችሽ ብዛት ስንት ነው?	1. ከ3ያነሱ 2. ከ3የበሇጡ	
5	የመኖሪቦታዎ የት ነው ?	1.ገጠር 2.ከተማ	
6	አሁን ያለበት የትዲር ሁነታ ምን ይመስሊሌ?	1.ያሊገባች 2. ያገባች 3.የተፊታች 4.ባሎየሞተባት	መሌሰዎያገ ባችከሆነወዯ ፡ጥያቄቁጥር 11ና12ይሇፈ
7	የትምርትዯረጃሽ/ዎምንያህሌነው	1.ማንበብናመፃፌ፡የማይችሌ 2.ማንበብናመፃፌየሚችሌ 3.1-8ከፌሌ 4. 8-12 ክፌሌ 5.ዱፕልማእናከዚያበሊይ	
8	ሀይማኖትሽ/ዎምንዴንነው?	1.ሙስሉም 2.ኦርቶድክስ 3.ፕሮቴስታንት 4.ካቶሉክ 5.ላሊካሇይገሇጽ--------	
9	ቢሄርሽ/ዎምንዴንነው?	1.አማራ 2.ትግሬ 3.ኦሮሞ 4.ላሊካሇይጠቀስ-----	
10	አሁን የሚሰሩት ስራ ምንዴን ነው?	1. መንግስትሠራተኛ 2. የቤትእመቤት 3. የግሌሰራተኛ 4. የቀንሠራተኛ 5. ነጋዳ 6. ገበሬ 7. ላሊካሇይጠቀስ	
11	የባሇቤተዎከፌተኛየትም/ትዯረጃስንትነዉ?	1.ማንበብናመፃፌየማይችሌ 2.ማንበብናመፃፌየሚችሌ 3.1-8ከፌሌ 4.8-12 ክፌሌ	

		5.ዴፕልማናከዚያበሊይ	
12	የባሇቤትሽ/ዎስራምንዴንነው?	1.መንግስትሠራተኛ 2.የግሌስራየሚሰራ 3.የቀንሠራተኛ 4.የንግዴስራ 5.ገበሬ 6.ላሊካሇይጠቀስ	
13	የቤተሰበዎአጠቃሊይወርሀዊገቢስንትነዉ?	------በኢትዮጲያብር	

ክፌሌሁሇት፡- የህፃናትአመጋገብሁኔታጋርተዛማጅነትያሊቸዉጥያቄዎች

14	ሌጀዎንጡትአጥብተውያውቃለ?	1.አዎ 2.የሇም	
15	መሌሰዎ:አዎ:ከሆነመጀመሪያሇሌጀዎጡትያ ጠቡትከወሇደከምንያህሌጊዜብኋሊነበር?	1.በመጀመሪያዉአንዴሰዓትዉሰጥ 2.ከአአንዴሰዓትበኋሊ	
16	ሌጀዎመጀመሪያጡትከሞጥባቱበፉትማንኛ ውምየሚጠጣወይምየሚበሊምግብወሰዲሌ?	1.አዎ 2.የሇም	
17	መሌሰዎአዎከሆነምንአይነትምግብወይስመ ጠጥሰጠተዉታ ?	1.ፍርሙሉወተት 2.ዉሃእናስኳር 3.ቅቤ 4.ላልችካለይጠቀሱ	
18	ሌጅሽ6ወርከመሙሊቱበፉትጡትሽንእያሇብሽ ትሰጭዉነበር?	1.አዎ 2.የሇም	የሇምከሆነወ ዯጥያቄቁጥ ር 20ይሇፌ
19	ሇምንዴንነዉጡትሽንየምታሌቢዉ?	1.ሌጁመጥባትስሊሌቻሇ 2.ከሌጁጋርአብሮሇመዋሌጊዜስሇላሇችኝ 3.የጡቴንህመምሇማስታገስ	
20	የትኛዉንየህፃንየአመጋገብዘዳተጠቅመዉያ ዉቃለ? (አማራጮቹ አይነበቡም)	1.እስከ6ወርዴረስጡትብቻከዛም ተጨማሪምግብከ6 ወር ጀምሮ 2.ጡትንየሚተካወተትእስከ 6ወርከዛምተጨማሪምግብከ6 ወርጀምሮ 3.የጡትወተትናተጨማሪምግብ 4. ላሊካሇይግሇፁ----------	
21	ሇመረጡትየአመጋገብዘዳምክንያቱምንዴንነ ዉ?	1.ሇህፃኑምቹነዉ ብየ በማሰብ 2.የጡትወተትንየሚተካ ወተትሇመግዛትአቅም ስሇላሇኝ 3.ከእናትወዯሌጅሌጅየኤች.አይ. ቪቫይረስእንዲይተሊሇፌበመፌራ	

		ት 4.ከእናትወዮሌጅሌጅየኤች.አይ.ቪቫይረስእንዮሚተሊሆፌግንዛቤስሆላሆኝ 5.ከጤናባሆሙያምክርስሊገኘሁ 6.የእናትጡትወተትሆህፃኑበቂስሊሌሆነ 7. ላሊካሆይግሆፁ--------	
22	ሌጀወን:ሆመመገብ:የእናት፣ጡትወተት:የሚተካ፣ምግብ:አሆማምዮውያውቃለ?(ሌጁ፣ትሌቅከሆነሆመጀመሪያዎቹ6ወራት)	1.አዎ 2.የሆም	የሆምከሆነወዮጥያቄቁጥር 24ይሆፌ
23	መሌሰዎአዎከሆነሆምንየእናትጡትወተትንየሚተካወተትሆሌጅሽመረጥሽ?	1.ሌጇኤችአቪእንዲይተሊሆፌበትበመፌራት 2.በወሉዴምክኒያትታምሜስሆነበር 3.ጤናባሆሞያዎቹስሆመከሩኝ 4. ላሊካሆይጠቀስ	
24	ምንአይነትየእናትጡትወተትንየሚተካወተትሆሌጅሽትሰጭዋሆሽ?	1.ገበያየሚገዛየህፃናትወተት 2.ቤትዉስጥየሚዘጋጅወተት 3. ሁሆቱንም በማቀያየር 4. ላሊካሆይግሆፁ----------	
25	በቀንምንያህሌጊዜያዘጋጀሽዉንወተትሆሌጅሽትሰጭዋሆሽ?	- ---------- ጊዜ	
26	ሆሌጅሽከጡትተጨማሪምግብጀምረሽሆታሌ?	1.አዎ 2.የሆም	የሆምከሆነወዮጥ.28ይሆፈ
27	መሌሰዎአዎ፣ከሆነሆሌጀዎበስንት፣ወር:ተጨማሪ:ምግብጀመሩሆት(ሊት) ?	1.ስዴስትወርሳይሞሊዉ 2.ከ6 ወርጀምሮ 3.ላሊካሆይግሆፁ----------	
28	መሌሰዎ6፣ወር፣ሳይሞሊዉ:ከሆነ፣ሆምንከ6ወር፣ቀዴመዉ:ጀመሩ?	1.ጡትየማጠባበትጊዜስሊሌነበረኝ 2.ጡቴወተትስላሆሆዉ 3. ላሊምክኒያትካሆይጠቀስ	
27	የአመጋገብ:ሌምምዴሽ/ስሌትሽ/እንዮትነዉ?	1.ስራቱንየጠበቀአመጋገብነዉ 2.ስራቱንያሌጠበቀአመጋገብነዉ	

ክፌሌሦስት፡-የፅንስናየወሉዴሁኔታበተመሆከተየተዘጋጀመጠይቅ

29	በመጨረሻዉእርግዝናሽወቅትቅዴመወሉዴክትትሌታዮርጊነበር?	1. አዎ 2. የሆም	
30	ስሆሌጅሽየአመጋገብአማራጮችምክርአግኝተሽነበር?	1. አዎ 2. የሆም	የሆምከሆነወዮጥ.32ይሆ

			ፈ
31	በየትኛዉየክትትሌወቅት(ከአንዴበሉይመምረጥይቻሊሌ ?	1.በቅዴመወሉዴክትትሌወት 2. በወሉዴወቅት 3.በዴህረወሉዴክትትሌወቅት 4የፀረኤችአይቪመዴሃኒትክትትሌወቅት 5. ላሊካሇይግሇፁ----------	
32	ሌጅዎን፡የት፡ወሇደት?	1.በመንግስትየጤናማዕከሌ 2. በቤትውስጥ 3. ላሊካሇ (ጥቀሺ	
33	ሌጅዎንየወሇደትበምንመሌኩነበር?	1.በማህፀንበኩሌያሇምንምመሣሪያ 2.በሆዳበኩሌየቀድጥገናተዯርጎሌኝ 3.በማህፀንቀድጥገና 4. ላሊካሇ (ጥቀሺ)---------	
34	ከወሇደበኋሊየህክምናክትትሌአዱርገዉነብር?	1.አዎ 2.የሇም	
ክፌሌአራት :- የግንዛቤዲሰሳጥያቄዎች			
35	ኤች.አይ.ቪኤዴስከእናትወዯሌጅሌጅእንዯሚተሊሇፌያዉቃለ?	1.አዎ 2.የሇም	የሇምከሆነወዯጥ.37ይሇፈ
36	መሌሰዎአዎከሆነ፡ኤች.አይ.ቪኤዴስከእናትወዯሌጅየሚተሊሇፇዉመቼነዉ?	1. በእርግዝናወቅት 2. በወሉዴወቅት 3. ጡትበማጥባትወቅት 5. ላሊካሇይጠቀስ	
37	ስሇህፃናትአመጋገብዘዳወችሰምተዉያዉቃለ ?	1. አዎ 2. የሇም	የሇምከሆነወዯጥ.39ይሇፈ
38	መሌሰዎ፡አዎ፡ከሆነ፡ከየት፡ነው፡የሰሙት?	1. ከጤናባሇሙያ 2. ከጤናባሇሙያዉጭ	
39	ኤች.አይ.ቪኤዴስበዯሚዉስጥያሇባትእናትምንአይነትየህፃናትአመጋገብዘዳይመከራሌ?	1.እስከ6ወርዴረስ ጡትብቻከዛም ተጨማሪምግብከ6ወርጀምሮ 2.ጡትንየሚተካወተትእስከ6ወርከዛምተጨማሪምግብከ6 ወርጀምሮ 3.የጡትወተትናተጨማሪምግብ 4. ላሊካሇይግሇፁ----------	

ክፈሌአምስት፡- ከጤናሁኔታጋርየተያያዙጥያቄዎች

40	ከወሉዴበኋሊበቅርብጊዜየተሰራየእናትዮዋ cd4count(ከ6 ወርወዴህ) ስንትነው?	የእናትዮዋንካርዴ በማትየሚሞሊ--------- መሌሰዎ	
41	የኤች.አይ.ቪቫይረስያሇበትየስርጭትዯረጃ (በወሉዴወቅት) (ከካርዴ ታይቶ የሚሞሊ)	ዯረጃ----------	
42	የጡትህመምወይምችግርአጋጥሞወትያዉቃሌ?	1. አዎ 2.የሇም	የሇምከሆነወዯጥ.44 ይሆፈ
43	መሌሰዎአዎከሆነየትኛዉየጡትችግርነበርየገጠመ ወት?	1.የጡትእብጠት 2.የጡትጫፌመቁሰሌ 3.የጡትጫፌመሰንጠቅ 4.የጡትማቃጠሌናመጠዝጠ ዝ 5.ላሊካሇይጥቀሱ--	
44	ህፃኑ አፈ አካባቢ ቆስልበት ያዉቃሌ?	1.አዎ 2.የሇም	
45	ሌጀዎ ኤችአቪ በዯሙ ዉስጥ መኖር አሇመኖሩን ያዉቃለ?	1.አዎ 2.የሇም	የሇምከሆነወዯጥ.47 ይሆፈ
46	መሌሰዎአዎከሆነሌጀዎፖዘቲቭነውወስነጋቲብ ?	1.ፖዘቲቭ 2.ነጋቲቭ	

ክፈሌስዴት፡ኤች.አይ.ቪቫይረስ በዯሚ ዉስጥ ሊሇች እናት የምክርአገሌግልት ሰጭዉን በተመሇከተ የሚጠየቅ

ተ.ቁ	ጥያቄ	ኮዴ
47.	የጤናባሇሙያ ከ6ወር በታች ሊለ ህፃናት የተሇያዩ የአመጋገብ ዘዳወች እንዲሇ ነግሮዎታሌ?	1. አዎ 2. የሇም
48.	የጤናባሇሙያዉ ከ6ወር በታች ሊለ ህፃናት ስሇጡት ማጥባት ጥቅም ነግሮወታሌ?	1. አዎ 2. የሇም
49.	የጤናባሇሙያዉ ከ6ወር በታች ሊለ ህፃናት ስሇ እናት ጡት ወተትን የሚተካ ወተት ጥቅም እና ጉዲት ነግሮወታሌ?	1. አዎ 2. የሇም
50.	የጤናባሇሙያዉከ6ወርበታች ሊለ ህፃናት ከእናት ጡት ወተት ጋር ምግብ ወይም መጠጥ ቀሊቅሌ የመስጠትን ጉዲት ነግሮወት ነበር?	1. አዎ 2. የሇም
51	የጤና ባሇሙያዉከ6ወርበታችሊለ ህፃናት የተመረጡትን የህፃናት አመጋገብ ዘዳ እንዳት እንዯሚመግቡ ነግሮወት ነበር?	1. አዎ 2. የሇም

አሁን መጠይቁን ጨርሰናሌ ሇትብብረዎ በጣም እናመሰግናሇን።