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APPLIED HUMAN NUTRITION

MSc THESIS

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BY

HABTAM BRHANEMESKEL

NOV, 2021

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

Advisor: Dr. KedirTeji Roba (PhD, Associate professor)

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NOV, 2021

BAHIR DAR, ETHIOPIA

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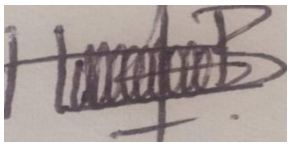
DECLARATION

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.



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Approval of thesis for defense result

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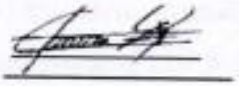
D/r Endale Amare (PhD)		08/03/2014
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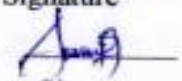
Adania Damtew(MSc)		10/03/2014
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ABSTRACT

Background: Nowadays Bottle-feeding has become a practice in developed countries and urban communities of developing countries. There is a current shift from traditional feeding practice towards shorter breastfeeding and introduction of bottle-feeding. Feeding bottles are associated with diarrheal disease morbidity and mortality as it is difficult to keep it clean especially in developing countries. There is no study conducted in Ethiopia showing Assessment of under nutrition and the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants and Its Comparison with Non bottle fed infants, hence this study will provide an insight to practitioners, researchers, and policy makers. Objective: To assess the under nutritional Status and the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants and its Comparison with Non bottle fed infants Aged 6-23 Months in Bole Sub City Health Centers, Addis Ababa, Ethiopia: Method: Institutional based case-control study was conducted from Nov 02-Nov 30, 2020 in Bole sub city health center, Addis Ababa Ethiopia. A total of 52 cases and 103 controls were studied. Four health centers were randomly selected from Bole sub city and 162 mothers who brought children to the health center were randomly selected and interviewed. Interviewer administered questionnaire was used to collect the data. Data were collected by trained data collectors using structured questionnaires at facility setting. Data was entered and analyzed using SPSS v20. Effects of bottle feeding were identified using multivariate analysis. Results: Among the total of 52 cases 53.8% were wasted as compared to controls, thus there were higher significant association between wasting and bottle feeding (AOR= 3.384, 95% C.I.: (1.330-8.60). Among other factors that were associated with bottle feeding, Mothers who delivered their child with Cesarean Section (AOR= 4.091, 95% C.I: 1.59, 10.52), Husbands who works in a governmental organizations (AOR= 5.032, 95% C.I: 1.866, 13.567) and diarrhea were associated with bottle feeding (AOR =3.471, 95% C.I.: 1.07, 11.16). Conclusion and Recommendation: This study has found that wasting, diarrheal infection; Mode of Delivery and Husband Occupation had significant association with Bottle feeding. Therefore, counseling should be VI given to mothers about the effect of bottle feeding and use of appropriate feeding to tackle under nutrition in children. Key Words: Bottle Feeding, Stunting, Wasting, and Underweight

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LIST OF ABBREVIATIONS/ACRONYMS

ANC	Antenatal Care
AOR	Adjusted Odds Ratio
BTF	Bottle Feeding Practice
COR	Crudes Odds Ratio
EBF	Exclusive Breast Feeding
EDHS	Ethiopian Demographic and Health survey
SRS	Simple Random Sampling
IYCF	Infant and young child feeding
LAZ	Length for Age Z-score
WAZ	Weight-For-Age Z-score
WHO	World Health Organization
WLZ	Weight For Length Z-score

1. INTRODUCTION

1.1. Background

Bottle feeding is defined as the act of giving an infant any food or drink, including breast milk, from a bottle with a nipple/teat, regardless of whether they are breast fed or not (NEOVITA Study Group, 2016). World Health Organization (WHO) recommends that bottle feeding should be avoided for infant and young child feeding since it has an impact on optimal breastfeeding, appropriate complementary feeding and bottles with a nipple are prone to contamination(Tadesse & Hirut, 2017).The bottle is used not only to give milk but all other types of fluids e.g. water, tea, juice etc. The semisolid cereals are also diluted as a drink to be given through the bottle. The adverse effects of bottle feeding are well known. They are more profound in the under developed world due to economic resources, lack of clean water, unhygienic surroundings and illiteracy amongst mothers. The prevalence of unsuitable and/or low-quality bottles and teats further aggravate the situation in developing countries. The hazards of bottles feeding include over dilution of milk with resultant malnutrition. There is increased susceptibly to diarrhea and other gastrointestinal Tract (GIT) infections, ear infection allergic tendency and dental caries(IBFAN, 2014; Ogbo *et al.*, 2015; The World Bank, 2012; UNICEF, 2008; WHO, 2013)

According to most researches the addressed reason for practicing bottle feeding is its easiness for feeding the child, insufficient breast milk, breast or nipple condition, child did not cry when they gave bottle(Regassa, 2014; Seid *et al.*, 2018; Sm K et al, 2013). The rate of bottle-feeding differs by country ranging from 15% in Nigeria(Ogbo *et al.*, 2015) to 64% in Iraq(IBFAN, 2014). Different reasons to practice bottle-feeding were mentioned by mothers such as mother's illness, breast-related health issues as well as perceived issues (i.e. perception of insufficiency of mother's milk)(Lokare & Hippargi, 2016; Zhang *et al.*, 2015).

Ethiopian Demographic and Health Survey 2016 indicated that 16% of 6–23 month's infants and young children and 9% of infants under- 6 months were fed using a bottle with a nipple. There seems also an increasing trend (13 to 16%) in bottle feeding practice in the country as reported in the two consecutive demographic and health surveys(EDHS, 2011, 2016). In general, a large

shift has been observed from breastfeeding to bottle feeding in the urban areas of developing countries (EDHS, 2011; Zelalem, 2015; Zhang *et al.*, 2015).

1.2. Statement of the problem

The first 1000 days of a child's life are particularly important, as optimal nutrition during this period lowers morbidity and mortality, reduces the risk of chronic diseases, and fosters better development overall(WHO, 2016). As World Health organization suggested optimal infant and young child feeding practices includes initiation of breast feeding within an hour of birth; exclusive breastfeeding for 6 months of age; introduce complementary feeding at 6 months while continuing breast-feeding up to 2 years or beyond. After 6 months of age, it is recommended that any liquids given to the child should be fed by cup rather than by bottle. However, breast milk substitutes are used commonly worldwide with bottle feeding which should be avoided due to its impact on optimal breastfeeding and appropriate complementary feeding. Also feeding bottles are associated with diarrheal disease morbidity and mortality as it is difficult to keep it clean(WHO, 2008a).

The feeding of newborn infants has important implications for immediate and future health especially in developing countries such as Ethiopia which have high rates of malnutrition, infectious diseases and mortality among children under the age of 5 years(Alemayehu *et al.*, 2009; Silva, 2005).In the world, suboptimal feeding of infant and infectious diseases contributes a 60% of total children death, of which two-third resulted from suboptimal breast feeding and developing world suboptimal breastfeeding contributes for 45% of neonatal infectious deaths, 30% of diarrheal deaths and 18% of acute respiratory deaths among under five children(Setegn *et al.*, 2012; WHO, 2008b).

Lack of appropriate breast feeding and complementary feeding practices leads to child malnutrition, many countries worldwide are experiencing a sharp increase in the prevalence of malnutrition and suffer from the double burden of both types of malnutrition(UNICEF, 2008). In 2012 about 99 million children under 5 years of age were underweight and 162 million stunted. At the same time, about 44 million children under 5 were overweight or obese. In the same year

67 percent of all Underweight children lived in Asia and 29% in Africa(The World Bank, 2012; UNICEF, 2008; WHO, 2013).

1.3. Rationale of the study

The Ethiopian Health Sector Development Program (HSDP) IV has been launched to improve the nutritional status of mothers and infants through enhanced outreach strategy with targeted supplementary food, health facility nutrition services, community-based nutrition, micronutrient interventions and essential nutrition actions/integrated infant and young feeding counseling services(FDREMOH, 2010). However, still malnutrition among infants is substantially high(EDHS, 2016). Thus, the purpose of this study was toassess undernutrition and the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants and Its Comparison with Non bottle fed infants Aged 6-23 Months.

2. OBJECTIVE

2.1. General objective

The main objective of this study was to assess the undernutritional Status and the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants and Its Comparison with Non bottle fed infants Aged 6-23 Monthsin Bole Sub City Health Centers, Addis Ababa, Ethiopia.

2.2. Specific objectives

- To determine the undernutritional Status of Bottle-Fed Infants aged 6-23 months.
- To determine the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants Aged 6-23 Months
- To Compare the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants with Non bottle fed infants Aged 6-23 Months
- To identify factors associated with bottle feeding

3. LITERATURE REVIEW

3.1. Bottle feeding practice

Bottle-feeding has become a practice in developed countries and urban communities of developing countries. Bottle feeding is discouraged at any age because it is usually associated with increased risk of illness, and especially diarrheal disease, because of the difficulty in sterilizing the nipples properly(Amsalu & Tigabu, 2008).However, higher prevalence of bottle-feeding was reported in various studies, for example in Yemen 55%(Masood, 2016) and in Iraq 64%(IBFAN, 2014). The prevalence of Bottle feeding for West Africa, East Africa, Central Africa and Southern Africa was 8.17%, 14.32%, 17.01% and 30.05% respectively(Issaka *et al.*). In Ethiopia EDHS 2016 states one child of every ten use a bottle with a nipple(EDHS, 2016) and According to other studies made in different parts of Ethiopia the prevalence of bottle feeding in Holeta(Tadesse & Hirut, 2017), Shashemene(MOH, 2015), and Agaro town Jimma Zone(Seid *et al.*, 2018) is 20.9%, 19.6% and 93.2% respectively.

3.2. Effect of bottle feeding on Undernutrition

Adequate nutrition is essential during childhood to ensure healthy growth, proper organ development and function, a strong immune system, and neurological and cognitive development. Children undernutrition continues to be a major public health problem in developing countries. Global data indicated that 60 million children are moderately malnourished while approximately 13 million children faced severe acute malnutrition. Globally, undernutrition contributes for more than one third of child deaths which can be prevented through public health interventions(Black RE *et al.*, 2008; Mandefro A *et al.*, 2015; Singer PA *et al.*, 2011).

In Ethiopia, undernutrition is a major public health problem that occurs throughout full year round because of long term household food insecurity. Undernutrition is the underlying cause for 57% of child deaths in the country. Different studies conducted in Ethiopia, including the national data, indicated high prevalence of undernutrition among children. The Data from Ethiopian Demographic and Health Survey (EDHS,2016) indicated that 38% of under-five

children were stunted while 24% and 10% were underweight and wasted respectively(EDHS, 2016).

With the decline in breastfeeding, there is a shift to bottle feeding which could be hazardous in that the bottle or the content can be contaminated and/or the baby gets inadequate supplement as a result of over dilution. These predispose young infants and children to diarrhea and/or malnutrition. According to a study conducted in Somali region and western part of Ethiopia. Bottle feeding is significantly associated with stunting (Shimelis *et al.*, 2019).

A study conducted at Rajasthan, India(Choudhary *et al.,* 2014)indicates bottle feeding was more commonly observed in Severely acute malnourished children. This study also in lines with a study conducted in Nairobi, Kenya which states bottle fed children are 1.6 times more likely to be wasted than non-bottle fed children (Muchina & Waithaka, 2010).

3.3. Factors associated with bottle feeding

3.3.1. Maternal and family related factors

Maternal age

A study made in central Ethiopia reports that mothers age interval of 15–24 years were 3.4 times more likely to practice bottle feeding than those who were greater than 35 years old(Tadesse & Hirut, 2017). In contrary to above study, a study made in Jimma Agaro shows no significant association between bottle feeding practices with age of the mother (Seid *et al.*, 2018).

Educational status of the mother

Some studies state maternal education level has a negative effect on the bottle feeding. Study in Jimma, Agaro town reported that the practice of bottle-feeding was higher among mothers with better educational background and higher monthly income(Seid *et al.,* 2018). Similar finding studied in the same country states that the practice of bottle-feeding is higher among mothers with educational background of 9^{th} grade and above(Fikadu *et al.,* 2003).

In contrary from the above studies, A study made in Kassala, Eastern Sudan reported that practice of bottle-feeding is lesser among mothers with educational background above secondary school(Hassan *et al.,* 2019).

Maternal Economic and Employment status

Maternal economical statues was recognized as one of the factors for bottle feeding practice, A study made in Agaro town, Jimma reports the practice of bottle feeding was significantly higher among salary paid employees and merchants. Similar other study shows bottle feeding practice is prevalent among families of higher socioeconomic status and among working mothers(MOH, 2015; Seid *et al.*, 2018).

According to the studies done in Mekele Town(Aregawi, 2000),Agaro Town Jimma(Seid *et al.*, 2018), Kenya(Elizabeth W *et al.*, 2015) and Pakistan (Shamim *et al.*, 2006) Mothers return to work is mainly reasons for initiation of bottle feeding practice. Mothers who are housewives have more time to breastfeed their children or to use alternative feeding methods than mothers who work outside their home.

Maternal marital status

The Maternal marital status affects the bottle feeding practice as the following studies indicated, Community based cross sectional study done in Jimma south west Ethiopia showed that the of bottle-feeding practice was found to be higher among single and divorced(Tadesse & Hirut, 2017).

In contrary, Study from central Ethiopia states that there is no association among maternal marital status and Bottle feeding practice(EDHS, 2005).

Residence of the mothers

Places that mothers resides had potential effects on the exclusive breast feeding practice, According to the study made in Nepal(Khanal *et al.*, 2016), Namibia (Berde, 2017), and kassalaSudan(Hassan *et al.*, 2019)revealed that infants born to families residing in urban areas were at higher risk of bottle-feeding to those mothers who resides in the rural area.

3.4. Obstetric and health facility related factors

According to a research done in Central Ethiopia Mothers who did not attend PNC follow up were 2.1 times more likely to practice bottle feeding than mothers who had attended PNC follow

up. Furthermore, mothers who did not receive health education/counseling on risks of bottle feeding were 2.2 times more likely to practice bottle feeding than those who had received health education/counseling(Tadesse & Hirut, 2017).

Similar to the above study, the prevalence of mothers who receive and did not receive breast feeding education is 32% and 50% respectively. The prevalence of bottle-feeding practice is less likely to be among the breastfeed educated mothers(Hassan *et al.*, 2019).

CONCEPTUAL FRAMEWORK

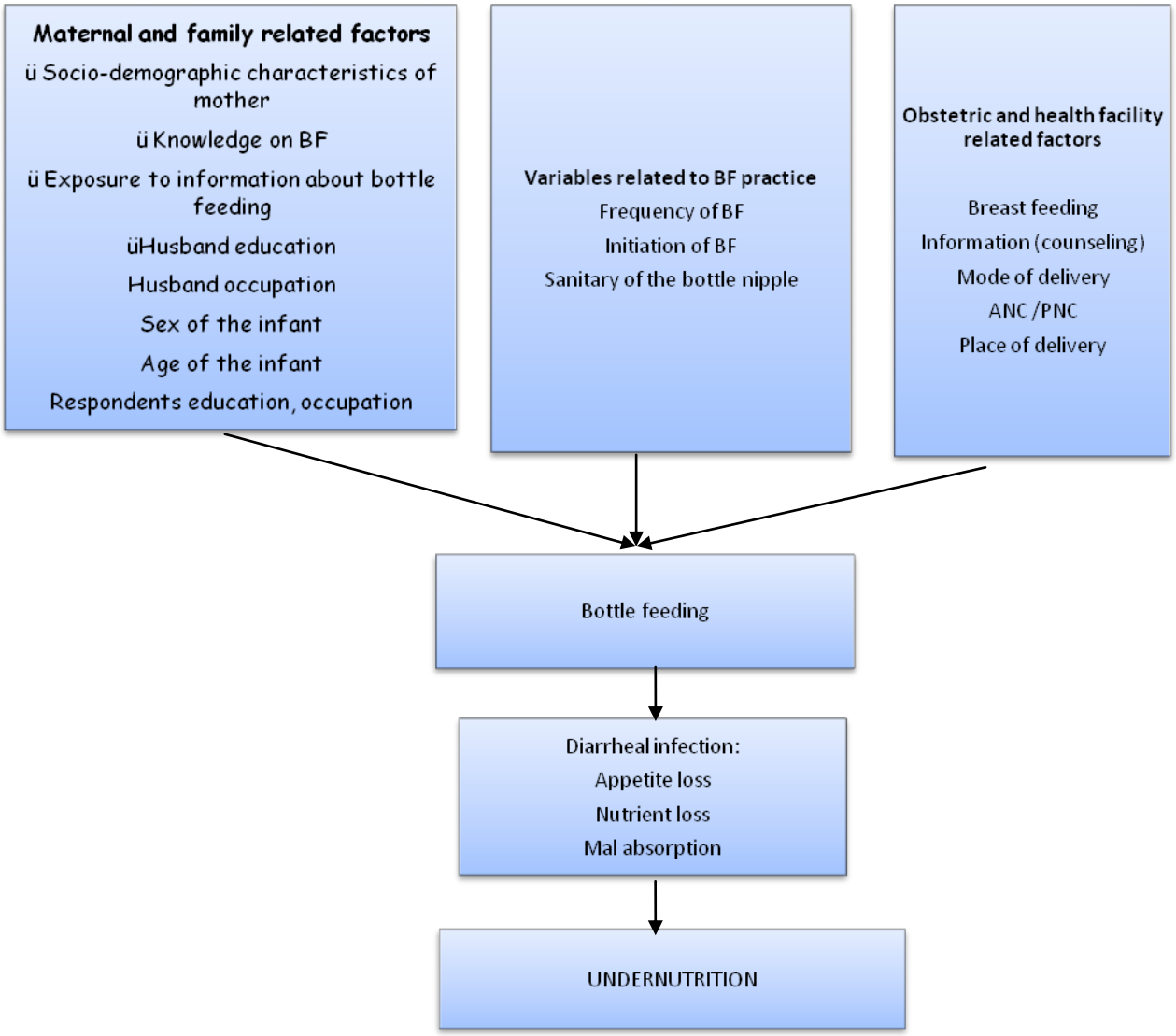

Figure 1: Schematic presentation of Undernutrition and the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants.

4. METHODS

4.1. Study Design and period

Institutional based unmatched Case Control study design was used. The study was conducted from Nov 02-Nov 30, 2020 at four randomly selected public health centers in Bole sub-city Addis Ababa, Ethiopia.

4.2. Study Area and Setting

The study area was Bole sub-city in Addis Ababa, Ethiopia. Bole sub-city is located in the North East of Addis Ababa. The total area of the sub-city was 122.08 km square, and 2694.1 people live in a one-kilometer square. Moreover, the sub city's total population was 328,900. There are 10 health centers in the Bole sub city providing different types of services for the community. Such as adult and under-five treatments, antenatal care (ANC) follow up, delivery, post-natal care (PNC), family planning immunization for under-five children, and also other emergency services.

4.3. The Source and Study Population

The source of population was all children aged 6-23 Months at the selected health centers. Study population was randomly selected children aged 6-23 Months at the selected health centers during the time of data collection.

4.4. Inclusion and Exclusion Criteria

4.4.1. **Inclusion Criteria**: All mothers who visited health facilities with infants aged 6 month to 23 months will include in the study

4.4.2. **Exclusion Criteria:** Health status of the Mothers and their children

4.5. Sampling Method and Sample Size Determination

The sample size was determined by considering the association between bottle feeding and stunting with the level of significance (α) = 0.05, the power of the test (1-β) = 80%, and the case to control ratio(r) = 1:2, OR = 3.83. It was calculated using Open Epi version 7 software. 10% non response rate and because it is a multistage sampling the final result is multiplied by 1.5.

95% CI and 80% power, case control ratio 1:2(Yirgu *et al.*, 2015). Finally the total sample size was 162.

4.6. Sampling Technique and Procedures

Bole sub-city was selected by the population's wealth status from the total 10 sub-cities in Addis Ababa. Four health centers were selected from the Bole sub-city by using simple random sampling technique in order to increase the level of data precision. In total 162 were interviewed randomly from all four health centers.

Schematic Presentation Of Sampling Strategy

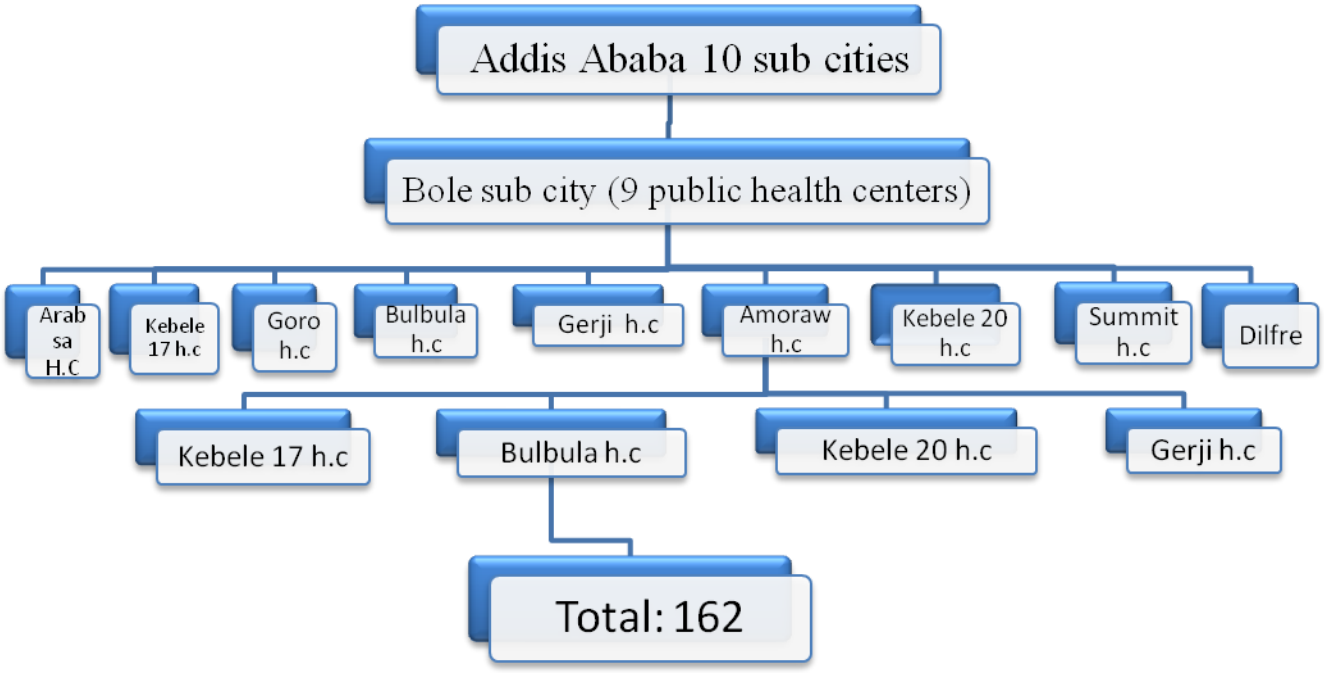

Figure2: schematic presentation of sampling strategy

4.7. Study variables

- **Dependent Variable:**
- Bottle feeding
- **Independent Variables**
  - *Infant related factors*: Pre-lacteal feeding status and Infant health.
  - *Maternal related factors***:** factors including Education of the mother, Occupation of the mother, exclusive breast feeding, and Mothers Knowledge on breastfeeding, mothers, Exposure to information about bottle-feeding.
  - *Obstetrics and facility related factors* **:**Including place of delivery**,** Breast feeding/bottle feeding information (counseling)**,** Mode of delivery**, ,**ANC **,**Postnatal care

Operational definition

- **Bottle feeding**:- the act of giving an infant any food or drink, including breast milk, from a bottle with a nipple/teat, regardless of whether they are breast fed or not.
- **Case:** indicates the proportion of children 6–23 months of age who were fed with a bottle.
- **Control:** indicates the proportion of children 6–23 months of age who didn't fed with a bottle.
- **Infant formula-**defined as a breast-milk substitute formulated industrially, prepared only for infants aged under six month.

Food Consumption Score: is a score calculated using the frequency of consumption of different food groups consumed by a household during the 7 days before the survey(WFP, 2008)

	Food Items (Examples)	Food groups (definitive)	Weight (definitive)
1	Maize, Maize porridge, rice, sorghum, millet pasta, bread and other cereals Cassava, peas, potatoes, sweet potatoes, other tubers, plantains	Main staples	2
2	Beans, peas, groundnuts and cashew nuts	Pulses	3
3	Vegetables, leaves	Vegetables	1
4	Fruits	Fruit	1
5	Beef, goat, poultry, pork, eggs and fish	Meat and fish	4
6	Milk, yogurt, and other dairy	Milk	4
7	Sugar and sugar products, honey	Sugar	0.5
8	Oils, fats and butter	Oil	0.5

9	Spices, tea, coffee, salt, fish power, small amount of milk in a tea	Condiments	0

- Once the FCS is calculated, the thrush holds for the FCGs should be determined based on the frequency of the scores and the knowledge of the consumption behavior in that country/region.

FCS	Profiles
0-21	Poor
21.5-35	Borderline
>35	Acceptable

4.8. Data Collection Tools And Procedure

Data was collected by using Pre-tested questionnaire. The study was conducted by using a structured interview administered questionnaire. Three data collectors and one supervisor with previous experience of data collection were recruited to participate in data collection. Data collectors were responsible to interview the mothers, take anthropometric results of the children, record the result in a consistent manner and finally data was submitted to supervisors as scheduled. The association between Length-for-age Z-scores (LAZ), weight-for-Length Z-scores (WLZ) was examined separately in each age group. Multivariate analyses ware performed to control for socio demographic and economic factors.

Physical measurement:- Length (to the nearest 0.1 cm) was measured without shoes using the Pediatric Length Board, weight (to the nearest 0.1 kg) was measured without shoes and in light clothing using a portable electronic scale, both length and weight was measured at seven target points twice to increase the reliability.

4.9. Data Quality Control and Management

The data collectors and supervisors was trained for 1 day on basic data collection skills.The Amharic version of the questionnaire was tested on 5% of the sample, who have similar characteristics with the study participant but not participate in the study. All data collectors and supervisors will participate on pre testing and standardization of the questionnaires. Problems highlighted during the pre-testing was corrected before the start of the actual survey.Each

question was properly coded; Continuous supervision was done during pre-test and data collection period by the investigator and supervisors.Completeness and consistency of recording on the questionnaire sheets were evaluated by supervisors at the end of each working day so that correction measures was taken for the next times.

4.10. Data Processing and Analysis

After ensuring the completeness of the questionnaire the data was checked, cleaned and all complete data was entered to SPSS version 20 and analysis was done. Descriptive and summary statistics were used to describe and present the data. The association between single explanatory variable and dependent variable was examined through bivariate analysis, by computing odds ratio at 95% confidence level. Multivariable Binary logistic regression was done to identify factors associated with bottle feeding practice and to control confounding variables. Crude and adjusted odds ratio with 95% Confidence Interval was calculated. For all statistical significance tests between each independent and dependent variables, significance level was fixed at $P<0.05$. The nutritional status indicators, weight-for-length (WLZ), length-for-age (LAZ) and weight-for-age (WAZ) were compared with reference data from World Health Organization standards Children below-2 standard deviations (−2SD) of the WHO median for WLZ, LAZ, and WAZ were considered wasted, stunted or underweight respectively.

4.11. Ethical Consideration

Ethical clearance was obtained from Addis Ababa Public Health Research and Emergency Management Directorate. Then an official letter submitted to the Bole sub-city health office followed by each of the four health centers. The health center's disease prevention and control accepted the research work. The purpose and importance of the study were explained to the study participants or taking body measurements and also they were informed about the possibility to refuse participation at any time of data collection.Confidentiality of the data was assured and kept anonymously; code number was assigned to the study participants without mentioning their name.

4.12. Dissemination And Utilization Of Results

The finding of this study will be presented to the Bahirdar Institute of Technology, Applied Human Nutrition Department, and Community and other governmental and Non-governmental organizations to take appropriate interventions based on recommendation. Information obtained from the survey will be translates to local language and used for Nutrition interventions and efforts will be made to publish the findings in journals.

5. RESULTS AND DISCUSSION

5.1. RESULTS

5.1.1. Socio Demographic Characteristics

Seven of the sampled Mothers were unwilling to participate in the study making a response rate of 95.6 %.A total of 155mothers who have children from 6-23 months were analyzed. Table 1 &2 shows the frequency distribution of cases and controls. Total number of children among cases and controls were 28 (53.8%) and 56 (54.4%). Majority of the mothers' marital status was married (42, 80.8%) and (97, 94.3%) among cases and controls, respectively. The maternal educational status was (42, 40.8%) among controls and(22, 42.3%) among cases.Majority of Mothers from the controls (45,43.7%) were house wives compared to cases (17, 27.9%).

Table 1: Socio-demographic characteristics of mothers and children aged 6-23 months, Bole sub-city, Addis Ababa Ethiopia, 2020

Socio demographic factor		Case Number (percent %)	Control Number (percent %)
Age of mother	15-24	7(13.5%)	12(11.7%)
	25-34	31(59.6%)	75(72.8%)
	>=35	14(26.9%)	16(15.5%)
Age of father	15-24	-	-
	25-34	21(50%)	41(42.3%)
	>=35	21(50%)	56(57.7%)
Marital status	Married	42(80.8%)	97(94.2%)
	divorced	5(9.6%)	1(1%)
	single	2(3.8%)	3(2.9%)
	widow	3(5.8%)	2(1.94%)
Maternal Education	Unable to read and write	12(23.1%)	0(0.00%)
	Read and write only	5(9.6%)	10(9.7%)
	Primary education	0(0.00%)	31(30.1%)
	Secondary education	13(25%)	20(19.4%)
	College diploma and above	22(42.3%)	42(40.8%)
Husband Education	Unable to read and write	8(19%)	0(0.00%)
	Read and write only	1(2.4%)	5(5.2%)
	Primary education	0(0.00%)	24(24.7%)
	Secondary education	11(26.2%)	27(27.8%)
	College diploma and above	22(52.4%)	41(42.3%)

Maternal Occupation	Governmental	24(46.2%)	31(30.1%)
	House wives	17(32.6%)	45(43.7%)
	Own business	6(33.3%)	12(11.7%)
	Private employed	5(25%)	15(14.5%)
Husband Occupation	Governmental	22(52.4%)	19(19.6%)
	Own business	9(21.4%)	33(34%)
	Private employed	11(26.2%)	45(46.4%)
Number of children	One	27(51.9%)	48(46.6%)
	Two	11(21.2%)	36(34.9%)
	Three	10(19.2%)	17(16.5%)
	Four and above	4(7.7%)	2(1.9%)
Sex of the child	Male	24(46.2%)	47(45.6%)
	Female	28(53.8%)	56(54.4%)
Age of the child	8 months	2(3.8%)	1(33.3%)
	9 months	24(46.1%)	57(70.4%)
	12 months	1(1.9%)	0(0.00%)
	13 months	19(36.5%)	41(68.3%)
	14 months	2(3.8%)	0(0.00%)
	15 months	3(5.8%)	2(4%)
	16 months	1(1.9%)	2(66.7%)

5.1.2. Obstetric And Health Facility Related Characteristics

Among cases 45 (86.5%) received breast feeding within one hour of birth and among controls 80 (78.6%) received within one hour of birth. Prelacteals were given more in both cases (35, 67.3%) and controls (47, 45.6%). Most commonly used prelacteals were Animal Milk and water. Among cases 32% of them cleaned their bottle with boiling and the remaining68% of cases clean their bottle by rinsing it with soap and water. Among cases 32 of them clean their bottle every fed and only 19 of them fed their child with bottle 4 times per day. When we look into the frequency of stool per day it more common to have greater 3 stool per day in case groups 38(73.1%) as compared to controls 47 (45.6%). Among cases 28 (53.8%) are planning to continue bottle feeding their child until the baby discontinues while the rest said after a year. (Table 2)

Table 2: Obstetric and health facility related characteristics of mothers and children aged 6-23 months, Bole sub-city, Addis Ababa Ethiopia, 2020

Obstetric and health facility related factors	Case Number (Percent (%))	Control Number (Percent (%))

Place of Delivery	Government hospital	15(28.8%)	39(37.9%)
	Health center	25(48.1%)	51(49.5%)
	Private clinic	12(23.1%)	13(12.6%)
Number of ANC follow up	Once	11(21.2%)	10(9.7%)
	Twice	15(28.8%)	18(17.5%)
	Three times	26(50.0%)	24(23.3%)
	Four times and above	0(0.00%)	51(49.5%)
Mode of delivery	Vaginally	23 (44.2%)	81(78.6)
	Caesarian section	29 (55.7%)	22(21.4%)
Time of breastfeeding Initiation	immediately with in the 1st hr		
	1hr up - 1sday	45(86.5%)	80(78.6%)
	After 1st days -3 days	7(13.4%)	7(6.8%)
	After 3 days	0(0.0%)	14(13.6%)
		0(100%)	2(1.9%)
Exposure of bottle formation to the mother	Yes	48(92.3%)	79(76.7%)
	No	4(7.7%)	24(23.3%)
Have you ever fed your child in the first 6 month	Yes	35(67.3%)	47(45.6%)
	No	17(32.7%)	56(54.4%)
What was the initiated other than breast milk	Never	0 (0.0%)	52(50.5%)
	fresh animal milk	39 (75%)	0(0%)
	infant formula milk	13 (25%)	6(5.8%)
	plain water	0 (0.0%)	25(24.3%)
	powdered milk	0 (0.0%)	3(2.9%)
	other	0 (0.0%)	17(16.5%)
Illness the last six months	Never	22(42.3%)	52(50.5%)
	Pneumonia	2(3.8%)	12(11.7%)
	Allergy	4(7.7%)	15(14.6%)
	Diarrhea	22(42.3%)	10(9.7%)
	Cold and flu	2(3.8%)	6(5.8%)
	Asthma	0(0.00%)	8(7.8%)
Frequency of infection	Never	11(21.2%)	49(47.6%)
	Once in a month	15(28.8%)	36(35%)
	Twice in a month	18(34.6%)	13(12.6%)
	Twice in a week	8(15.4%)	5(4.9%)
Frequency stool	Greater than 3 stool per day	38(73.1%)	47(45.6%)
	Less than 3 stool per day	14(26.9%)	56(54.6%)
Frequency of bottle feeding per day	Once	3(5.8%)	0(0.0%)
	Twice	16(31.4%)	0(0.0%)
	Three times	24(47.1%)	0(0.0%)
	Four times	8(15.7%)	0(0.0%)

Frequency of cleaning the bottle per day	Daily Twice Every fed	8(15.7%) 32(62.7%) 11(21.6%)	0(0.0%) 0(0.0%) 0(0.0%)
Bottle cleaning Method	Boiling Rinsing with soap and water	32(62.7%) 19(37.3%)	0(0.0%) 0(0.0%)
Additional food offered with the bottle	cow milk expressed breast milk	42(82.4%) 9(17.6%)	0(0.0%) 0(0.0%)
How long are you plan the bottle feeding	until the baby discontinues up to a year	54.9(100%) 45.1(100%)	0(0.0%) 0(0.0%)
Wasting	Wasting Normal	28(53.8%) 24(46.2%)	30(29.1%) 73(70.9%)
Stunting	Stunting Normal	28(53.8%) 24(46.2%)	41(39.8%) 62(60.2%)
Underweight	Underweight Normal	18(34.6%) 34(65.4%)	31(30.1%) 72(69.9%)
Food consumption score	Acceptable Borderline Poor	17(32.7%) 28(53.8%) 7(13.5%)	52(50.5%) 31(30.1%) 20(19.4%)

5.1.3. Association between Child Bottle Feeding Practice and Maternal, Child and Socio Demographic Characteristics

Based on the bivariate analysis, among the maternal, child and socio demographic variables the marital status, Age of mother, Husband occupation and Number of children were significantly associated with practice of Bottle feeding at 95% Confidence Interval, Crudes Odds Ratio, P<0.05. The odds of practice of bottle feeding among mothers with age group 25-34 years was 0.472 times (COR= 0.472, 95% C.I.: 0.206- 1.084)less likely to practice bottle feeding when compared to mothers with age group >35 years. According to this study husband's who worked at Governmental organization was 4.737 times more likely to practice bottle feeding than private employed husbands (COR= 4.737, 95% C.I.: 1.924-11.660).

5.1.4. Association between Child Bottle Feeding Practice, Obstetric and Health Related Factor

Based on the bivariate analysis, among the maternal, child and socio demographic variables the Mode of delivery, illness in the past 6 months, frequency of infection, frequency of stool, Wasting, stunting and food consumption score were significantly associated with practice of Bottle feeding at 95% CI, P<0.05.Mothers who delivered their child with caesarian section were 4.642 times more likely to practice bottle feeding than who delivered vaginally. Diarrhea, stunting and wasting were more common among the bottle fed groups (COR: 5.200, 95% C.I.: 2.117-12.770), (COR: 1.764, 95% C.I.: 0.900- 3.458) and (COR: 2.839, 95% C.I.: 4.422 - 5.667) respectively than the control group. (Table 4)

5.1.5. Factors Independently Associated With Bottle Feeding Practice

Multivariable logistic regression analysis indicated that, mothers who delivered their child with Caesarian section were 4.091 times more likely to practice bottle feeding than mothers who delivered their child vaginally (AOR= 4.091, 95% C.I.: 1.590,10.529).Bottlefeeding was three times (AOR =3.471, 95% C.I.: 1.079, 11.163) more to likely cause Diarrhea and 2 times to cause wasting(AOR = 3.384, C.I.: 1.330, 8.609) as compared to not feeding bottle. Regarding husband occupation husbands' who worked in Governmental organization were 5 times more likely to practice bottle feeding than privately employed (AOR: 5.032 95% C.I.: (1.866, 13.567). (Table 4).

Table 3: Bivariate and Multivariate logistic regression analysis of Assessment of Undernutrition and the Prevalence of Infections, Allergy and Diarrhea among Bottle Fed Infants and Its Comparison with Non bottle fed infants Aged 6-23 Monthsin Bole Sub-City Health Centers, Addis Ababa, Ethiopia:

Obstetric and health facility related factors		Bottle feeding practice				
		Case	Control	COR (95% CI)	AOR (95% CI)	Pvalue
Age of the mother (years)	15-24	7(13.5%)	12(11.7%)	0.667(0.206,2.161)	1.467(0.344,6.265)	0.60
	25-34	31(59.6%)	75(72.8%)	0.472(0.206,1.084)*	0.551(0.181,1.679)	0.29
	Above 35	14(26.9%)	16(15.5%)	1		
Husband Occupation	Governmental	22(52.4%)	19(19.6%)	4.737(1.924-11.660)*	5.032(1.866,13.567)**	0.001
	Own	9(21.4%)	33(34%)			
		11(26.2%)	45(46.4%)	1.116(0.415,2.999)	1.153(0.393,3.380)	0.796

	business			1	1	
	Private employed					
Number of Children	One	27(51.9%)	48(46.6%)	1	1	
	Two	11(21.2%)	36(34.9%)	0.543(0.238, 1.238)*	0.550(0.204,1.487)	0.23
	Three	10(19.2%)	17(16.5%)	1.046(0.420,2.604)	1.725(0.575,5.172)	0.33
	Four and Above	4(7.7%)	2(1.9%)	3.556(0.611,20.701)*	1.405(0.199,9.906)	0.73
Mode of Delivery	Vaginally	23 (44.2%)	81(78.6)	1	1	
	Caesarian section	29 (55.7%)	22(21.4%)	0.215(0.105,0.444)*	4.091(1.590,10.529)**	0.003
Illness the last six months	Never	22(42.3%)	52(50.5%)	1	1	0.16
	Pneumonia	2(3.8%)	12(11.7%)	0.394(0.081,1.908)	0.610(0.099,3.743)	0.59
	Allergy	4(7.7%)	15(14.6%)	0.630(0.188,2.114)	0.419(0.101,1.746)	0.23
	Diarrhea	22(42.3%)	10(9.7%)	5.200(2.117,12.770)*	3.471(1.079,11.163)**	0.03
	Cold and flu	2(3.8%)	6(5.8%)			
	Asthma	0(0.00%)	8(7.8%)	0.788(0.147,4.211)	0.813(0.126,5.254)	0.82
frequency of stool	>3 stool per day	38(73.1%)	47(45.6%)	0.000	0.000	
	<3 stool per day	14(26.9%)	56(54.6%)	3.234(1.566,6.678)*	1.8333(0.687,4.888)	
				1	1	
Frequency of infection	Never	11(21.2%)	49(47.6%)	1	1	
	Once in a month	15(28.8%)	36(35%)	0.140(0.038,0.512)*	3.146(0.920,10.758)	0.06
	Twice in a month	18(34.6%)	13(12.6%)	0.260(0.073,0.927)*	3.591(0.933,13.825)	0.06
	Twice in a week	8(15.4%)	5(4.9%)	0.865(0.230,3.250)	3.981(0.684,23.155)	0.12
Wasting	Wasting	28(53.8%)	30(29.1%)	2.839(1.422,5.667)*	3.384(1.330,8.609)**	0.01
	Normal	24(46.2%)	73(70.9%)	1	1	
Stunting	Stunting	28(53.8%)	41(39.8%)	1.764(0.900,3.458)*	1.515(0.615,3.731)	0.36
	Normal	24(46.2%)	62(60.2%)	1	1	
Food consumption score	Acceptable	17(32.7%)	52(50.5%)	1	1	0.62
	Borderline	28(53.8%)	31(30.1%)	2.763(1.306,5.843)*	2.531(0.883,7.252)	0.84
	Poor	7(13.5%)	20(19.4%)	1.071(0.386,2.969)	0.525(0.142,1.943)	0.33

* Statistically significant at p value <0.2
* *statistically significant at p value <0.05

5.2. DISCUSSION

In this study, we aimed to identify the Effects of bottle feeding on the under nutritional status of children in Bole sub city Health center Addis Ababa, Ethiopia. The findings of this study revealed that diarrheal infection was found to be significantly associated with Bottle feeding. Accordingly, the risk of Diarrheal infection was higher among Cases as compared to Controls. This finding is consistent with the findings of earlier studies conducted in India which states bottle fed children were 1.27times more likely to have diarrhea as compare to children who were not bottle-fed(Bawankule *et al.*, 2019). This result was also similar to the study conducted in southern Ethiopia which states the odds of getting diarrhea in bottle fed children was about one and a half times greater than the odds among children who were not bottle fed(Wanzahun & Bezatu, 2013). This might be from the difficulty of sterilizing the nipples properly.

In the present study, Wasting was also found to be significant among bottle fed children. This finding is consistent with a case control study conducted at Rajasthan, India(Choudhary *et al.*, 2014)which indicates bottle feeding was more commonly observed in Severely acute malnourished children than the control groups. This study also in lines with a study conducted in Nairobi, Kenya which states bottle fed children are 1.6 times more likely to be wasted than non-bottle fed children (Muchina & Waithaka, 2010). The reason might bepoor hygiene associated with the bottle and infections caused by contamination of bottle, leading to secondary malnutrition.

In this study stunting was significantly associated in the bivariate analysis with bottle feeding although it was not significant in the multivariate analysis. On the contrary according to study conducted in Somali region, Ethiopia Bottle feeding was associated with increased odds of stunting)(Yirgu *et al.*, 2015). Similarly, study conducted in western Ethiopia, which indicates bottle feeding is significantly associated with stunting (Shimelis *et al.*, 2019) the difference might came from the location difference.

In this study, Mothers who delivered their child with Cesarean Section were 4 times less likely to practice bottle feeding than mothers who delivered their child vaginally Similarly, study conducted in Indonesia indicates that Cesarean delivery were significantly associated with the

use of bottle feeding (Nasrul et al, 2020). The reason might be cesarean birth can cause breast feeding to be delayed compared to a vaginal birth.

Regarding husband occupation husbands' who worked in Governmental organization was more likely to practice bottle feeding than privately employed. There is no similar research that supports this study but the reason might come from the income of the parents in which they can easily afford bottles. It needs future study to find out the reason.

6. STRENGTHS ANDLIMITATIONS OF THE STUDY

Strength

This study tried to assess the effects of bottle feeding on the under nutritional status of children from 6- 23 months of age. There was no similar study conducted in Ethiopia. Moreover, the finding could be generalized for the source population.

Limitation

The most difficult limitation of this study comes from the retrospectiveness of the study. Since the study is a case control study, there could be a potential for recall bias but we tried to minimize this error by asking multiple questions.

7. CONCLUSION AND RECOMMENDATION

7.1. Conclusion

This study has found that wasting, diarrheal infection; Mode of Delivery and Husband Occupation were significant association with Bottle feeding. An intervention and prevention measure that could reduce the practice of feeding should be taken by the concerned bodies.

7.2. Recommendations

For the health sectors: - Counseling on IYCF including the risks associated with bottle feeding should be given to the mothers during ANC follow up.

- Encouraging and strengthening appropriate feeding methods after 6 months of age.
- Encouraging vaginal delivery than Cesarean delivery

Other sectors:

- Further community based intervention studies be conducted on a larger scale to broaden the understanding obtained from this initial study.

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9. Annex

9.1. Annex I: English version Questionnaire

Hello, my name is _____. I am working with Habtam B/Meskel who come from Bahir Dar University, Institute of technology for conducting graduate research entitled 'Effects Of Bottle Feeding On Under Nutrition Among Mothers Who Have Children Aged 6-23 Months In Bole Sub City Health Centers, Addis Ababa, Ethiopia''. You were randomly selected for this interview without any particular criteria.This study is, therefore, part of the requirements for the fulfillment of the MSc program she is enrolled in.

I will ask you some questions about you and will measure your child's height and weight. The interview will take just 10 minutes. You will not get any harm by participating in this interview. Your participation will have great role for success of this work and for future researches and programs. Your participation in this interview is voluntarily. You have full right to withdraw the interview any time you get bored. The information we collect from you will be entirely be confidential. The data I collect will be used only for purpose of this research and your name and personality not be identified in the report. Finally, I would like to assure that there is no any risk that would be happens by involving in the study.

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 you can ask questions any time. Your contact for any question is:

1. HabtamBmeskel (BSc Applied Human Nutrition) Tell. O9 -22-99-76-85 or 09-46-68-96-91 Email: ricoelink@gmail.com

2. KedirTejiroba (PHD) at Haromaya University, Ethiopia) Health at Bahir Dar University, School of public Health , P. O. Box: 79, Mob +251-918146608 Email: kedir.t.roba@gmail.com

3. D/r MesfinWogayehu (PhD) (Department of Applied Human Nutrition Bahir Dar University) Mob +11-31-91-36, E-mail: mesfinwogayehu@hotmail.com

Please let me know if anything I have stated is not clear and I will be happy to explain it further to ensure you understand.

I have been informed about the purpose and use of this particular research. After all these I understood and:

1. I agree to participate in this research voluntarily ☐
2. I didn't agree to participate in this research ☐

Thank you in advance for your cooperation to the study!

1: case ----------

2: control ----------

Part 1: Demographic and socio-economic characteristics

Participant ID: _ _ _ Woreda no: _____ Health center name: _____

S/n	Questions	Choice for response (circle the right answer)
1	Age of the mother	
2	Age of the father	
3	Marital status	Married ----------1 Divorced ----------2 Single---------- 3 Widowed---------- 4
4	Maternal Educational	Unable to read and write----------1 Read and write only ----------2 Primary education ----------3 Secondary education----------4 College diploma and above----------5
5	Husband education	Unable to read and write----------1 Read and write only ----------2 Illiterate ----------3 Primary education ----------4 Secondary education----------5 College diploma and above----------6
6	Mother occupation	Government employed----------1 Private employed----------2 Own business----------3 Other----------4
7	husband occupation	Government employed----------1 Private employed----------2 Own business----------3 Other----------4
8	Housing condition	Rent----------1 Own----------2 Dependent----------3

Part Two: Obstetric conditions

9	Number of children	One ----------1 Two ----------2 Three ----------3 Four ----------4
10	ANC follow up.	Yes ----------1 No----------2
11	Place of ANC follow up	Private clinic ----------1 Government Hospital----------2

		Health center ----------3
12	Number of ANC follow-up	Once ----------1 2 times ----------2 3 times ----------3 4 times and above----------4
13	Place of delivery	Home ----------1 Private clinic ----------2 Government Hospital ----------3 Health center ----------4 Health post----------5
14	Mode of delivery for the last child	Vaginally/Normal ----------1 Caesarean section----------2
15	Postnatal service	Yes ----------1 No ----------2
16	Bf and CPF counseling during PNC	Yes ----------1 No----------2
17	Do you breastfeed your child?	Yes ----------1 No----------2
18	Time of Breast-feeding Initiation	immediately with in the 1st hr----------1 1hr up - 1sday----------2 After 1st days -3 days----------3 After 3 days----------4
19	Exposure of Bottle-feeding information to the mothers.	Yes ----------1 No ----------2

Part Three: Child feeding practice

20	Have you ever fed your infant other food/liquid in addition to breast milk for first 6 months?	Yes ----------1 No ----------2
21	If yes, what was other food/liquid that your infant fed in addition to breast milk?	Plan water……1 Juice……..2 Soup……...3 powdered milk other than infant formula milk……4 Fresh animal milk……..5 Infant formula milk……6 Tea……7 Other liquid specify_____
22	Did your child had an illness during the last six months?	Allergy ----------1 Diarrhea ----------2 Allergy----------3 Pneumonia ----------4 Cold and flu ----------5

		Asthma ----------6 Never ----------7
23	How frequently did the child have an infection?	twice in a month ----------1 once in a month ----------2 twice in a week ----------3 once in a week ----------4 Never ----------5
24	How is the frequency of stool of the child?	>3 stool per day <3 stool per day
25	Is the child currently on bottle feeding	Yes ----------1 No ----------2
26	Reason to start bottle feeding	Mother return to work----------1 Inadequate breast milk----------2 Availability of formula milk----------3 Mother ill----------4
27	How many times child bottle feeding per day	Two ----------1 Three----------2 Four ----------3 Five ----------4
28	How many times do you have clean the bottle per day	Every feed----------1 Two times per day----------2 Once daily----------3 Every six hours----------4
29	How do you keep clean the bottle	Boiling----------1 Rising with a water and soap----------2 Only rising the water----------3
30	Did you offer additional food with the bottle feeding	Yes----------1 No----------2
31	What kind of fluid are you offering to the baby with the bottle feeding	Cow milk ----------1 Formula milk ----------2 Expressed breast milk----------3
32	How long did you offer the bottle feeding	Up to 1 year----------1 Until the baby discontinuous----------2

Part four: Household food consumption score

"In the past 7 days, how often have you eaten	0 Never	1 <1/wk	2 1-2/wk	3 often 3-6/wk	4 Always Every day
Any foodmade from grains—injera, teff, millet, sorghum, maize, rice, wheat, bread, biscuits, or any other grain product—or any food made from tubers—potatoes, sweet potatoes, carrots, or other foods made from roots or tubers?					
Any pulses (beans, lentils, peas)?					
Any vegetables?					
Any fruits?					
Any meat: beef, lamb, goat, fish, chicken, or, liver,					

kidney, or other organ meats?					
Any eggs					
Any dairy products—milk, cheese, yogurt (not including butter)?					
Any sugar or honey?					
Any oil, fat, or butter?					

Part 4. Secondary data (data which collected from the health center under five opdand EPI)

Sex of the child	**age**	**Weight/kg**	**Length/cm**
1			
2			
3			
4			
5			
6			

9.2. Annex II: Amharic version Questionnaire

ባህርዳር ዩኒቨርሲቲ ቴክኖሎጂ ኢንስቲትዩት

ኬሚካልና ምግብ ምህንድስና ፋካልቲ

የአፕላይድ ስነ-ምግብ ትም/ት ክፍል

የጥናቱ አላማ መግለጫና የስምምነት ቅፅ

በአማረኛ የተዘጋጀ መጠይቅ

ጤና ይስጥልኝ ስሜ_____ይባላል ከወ/ሪት ሀብታም ብ/መስቀል ጋር በመረጃ ሰብሳቢነት እየሰራሁ ሲሆን ይህ ጥናት በባ/ዳር፤ቴክኖሎጂ ኢንስቲትዩት በድህረምረቃ ፕሮግራም የሁለተኛ ድግሪዋን በአፕላይድ ስርአተ -ምግብ መስክ ለመመረቅ ከሚያስፈልጓት መስፈርቶች አንዱና ዋነኛው ነው። ጥናቱን የምታካሂደው በቦሌ ክ/ከተማ ጤና ጣብያ በሚገኙ ከ 6-23 ወር ባሉ ህጻናት ላይ ሲሆን በጡጦ መመገብ በስነ-ምግብ ሁኔታ ላይ ያለውን ተፅዕኖ እና ከሱ ጋር ተያያዥነት ያላቸውን ማህበራዊ ሁኔታቸዎች ለማወቅ ነው። ስለዚህ ስለ እርስዎ ጠቅላላ ሁኔታ ጥያቄ እንጠይቅዎታለን። በተጨማሪም ልጅዎን ክብደትና ቁመት እንለካለን፤ የህክምና ታሪክዎን ከሆሰፒታል ካርድ ላይ እንወስዳለን። በዚህ መጠይቅ ላይ የርሶ ተሳትፎ በሙሉ ፈቃደኝነት ላይ የተመሰረተ ሲሆን በየትኛውም ጊዜ መጠይቁን የማቋረጥ ሙሉ መብት አለዎት።ይህ መጠይቅ 10 ደቂቃዎችን ይወስዳል:: በዚህ ጥናት ከእርሶ የሚገኘውን መረጃ ሚስጥራዊነቱን መጠበቅ ዋናው ስራችን ሲሆን ከርሶ የተሰበሰቡት መረጃዎች ለማንም ሰው የማይሰጡና ለጥናቱ አላማ ብቻ የሚውሉ ይሆናሉ። ስምዎ በሪፖርት ውስጥ አይገለጽም።ከርሶ የተሟላ መረጃ እንዲኖረን እንፈልጋለን፤ነገርግን ለመመለስ የማይፈልጉት ጥያቄ ካለ አለመመለስ ይችላሉ::በመጨረሻም በዚህ ጥናት በመሳተፈዎ ምንም አይነት ጉዳት አይደርስበዎትም።ጥናቱን በተመለከተ የትኛውም አይነት ጥያቄ ካለዎት ጥያቄዎትን ለመመለስ ዝግጁ ነኝ።

ለበለጠመረጃ፡

1. ሀብታም ብ/መስቀል፡ ስልክ ቁጥር 09 -22-99-76-85 or 09-46-68-96-91 የኢሜይል አድራሻ፡ ricoelink@gmail.com
2. ከድር ተጂ ሮባ (ዶ/ር)፡ ስልክ ቁጥር+251-918146608 የኢሜይል አድራሻ፡ kedir.t.roba@gmail.com

3. መስፍን ወጋየሁ (ዶ/ር) ፡ስልክ ቁጥር+251-911-31-91-36 የኢሜይል አድራሻ፡ mesfinwogayehu@hotmail.com

የጥናቱ አላማና ጥቅም ተረድቸዋለሁ በመሆኑም ማንኛውም የምሰጠው መረጃ ለዚህ ጥናት ብቻ እንደሚውል እና ማንነቴ የማይገለጽ መሆኑን ስለተረዳው በዚህ ጥናት ላይ ለመሳተፍ፡:

1. በፈቃደኝነት ተስማምቻለሁ ☐

2. አልተስማማሁም ☐

በፍቃደኝነት ስለሚያደርጉት አስተዋጽኦ በቅድሚያ እናመሰግናለን !!!

መለያቁጥር፡_ _ _ወረዳ_ _ _የጤና ተቋሙ ስም_ _ _

ሀ. ማህበራዊ እና አካባቢያዊ ሁኔታን የሚመለከቱ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	አማራጮች/ መልስመስጫ	አስተያየት
1	የእናት እድሜ ስንት ነው ?	_ _ _	
2	የአባት እድሜ ስንት ነው?	_ _ _	
3	የጋብቻ ሁኔታዎ	1. ያገባ /ያገባች (አብረውየሚኖሩ) 2. ያላገባ /ያላገባች 3. የፈታ/የፈታች 4. ባለቤትዎ በህይወት የሌለ/ች	
4	የእናት የትምህርት ደረጃ	1. መፃፍ እና ማንበብ የማትችል 2. መፃፍ እና ማንበብ ብቻ 3. የመጀመሪያ ደረጃ ትም/ቱን ያጠናቀች (1-8) 4. የ2ኛ ደረጃ ትም/ቱን ያጠናቀች (9-12) 5. የኮሌጅ ዲፕሎማና ከዛ በላይ	
5	የአባት የትምህርት ደረጃ	1. መፃፍ እና ማንበብ የማይችል 2. መፃፍ እና ማንበብ ብቻ 3. የመጀመሪያ ደረጃ ትም/ቱን ያጠናቀቀ (1-8) 4. የ2ኛ ደረጃ ትም/ቱን ያጠናቀቀ (9-12) 5. የኮሌጅ ዲፕሎማና ከዛ በላይ	
6	ስራዎ ምንድንነው?	1. ስራ የለኝም / የቤት እመቤት 2. የመንግስት ሰራተኛ 3. የግል ተቀጣሪ/ ሰራተኛ	

		4. የግል ስራ 5. ሌላ ካለ (በስም ይለዩ)_____	
7	የባለቤትዎ ስራ ምንድንነው?	1. ስራ የለውም 2. የመንግስት ሰራተኛ 3. የግል ተቀጣሪ/ ሰራተኛ 4. የግል ስራ 5. ሌላ ካለ(በስም ይለዩ)_____	
8	የቤትዎ ሁኔታ እንዴት ነው?	1. የኪራይ ቤት 2. የግል ቤት 3. ጥገኛ 4. ሌላ ካለ (በስም ይለዩ)_____	

ለ. የጤና ሁኔታን የተመለከቱ ጥያቄዎች

9	ስንት ልጆች አሉዎት?	1. አንድ 2. ሁለት 3. ሶሰት 4. አራት 5. አምስትና ከዛ በላይ	
10	የቅድመ ወሊድ ክትትል አድርገው ያውቃሉ?	1. አዎ 2. አላውቅም	አላውቅም ከሆነ ወደ ጥያቄ ቁጥር 15 ይለፉ
11	የቅድመ ወሊድ ክትትል ያደረጉት የት ነው?	1. የግል ክሊኒክ 2. የመንግስት ሆሰፒታል 3. ጤና ጣብያ	
12	ስንት ጊዜ የቅድመ ወሊድ ክትትል አድርገዋል?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት ጊዜ 4. አራት ጊዜ እና ከዛ በላይ	
13	የት ነው የወለዱት?	1. ቤት 2. የግል ክሊኒክ 3. የመንግስት ሆሰፒታል 4. ጤናጣብያ	
14	የመጨረሻ ልጅዎን እንዴት ነው የወለዱት?	1. በምጥ 2. በቀዶ ጥገና	
15	የድህረ ወሊድ አገልግሎት አግኝተዋል?	1. አዎ 2. አላገኘሁም	አላገኘሁም ከሆነ ወደ ጥያቄ ቁጥር 19 ይለፉ

16	በድህረ ወሊድ አገልግሎት ጊዜ ስለጡት ማጥባት እና ተጨማሪ ምግብ አዘገጃጀት ምክር አግኝተዋል?	1. አዎ 2. አላገኘሁም	
17	ጡት ያጠባሉ?	1. አዎ 2. አላጠባም	አላጠባም ከሆነ ወደ ጥያቄ ቁጥር 21 ይለፉ
18	ጡት ማጥባት የጀመሩት መቼ ነው?	1. በወለዱ በ 1 ሰዓት ውስጥ 2. ከ1 ሰዓት- 1 ቀን 3. ከ1 ቀን በኋላ እሰክ 3 ቀን ድረስ 4. ከ3 ቀንበኋላ	
19	በጡጦ ስለመመገብ ጥቅምና ጉዳቶች ሰምተው ያውቃሉ?	1. አዎ 2. አላውቅም	

ሐ. የህፃኑንአመጋገብሁኔታዎችንየተመለከቱጥያቄዎች

20	በመጀመሪያዎቹ 6 ወራት ዉስጥ ለልጅዎ ከጡት ወተት በተጨማሪ ሌላ ምግብ ሰጥተዉት ያዉቃሉ?	አዎ ----------1 አላዉቅም --------2	
21	መልሱ አዎ ከሆነ ምን አይነት ተጨማሪ ምግብ ነዉ የተመገበዉ/ችው?	ዉሀ.....1 ጁስ.....2 ሾርባ.....3 የዱቄት ወተት.....4 የላም ወተት.....5 የፎርሙላ ወተት.....6 ሻይ.....7 ሌላ ተጨማሪ ምግብ.....8	
22	ባለፉት 6 ወራት ውስጥ ልጅዎ ያጋጠመው/ማት ህመም ነበር?	እለርጂ ----------1 ተቅማጥ ----------2 የሳምባ ምች----------3 ብርድ እና ጉንፋን----------4 አስም----------5 በፍጹም----------6	
23	በየስንት ጊዜው ነበር የታመመው/ችው?	በወር ሁለት ጊዜ ----------1 በወር አንድ ጊዜ ----------2 በሳምንት ሁለት ጊዜ ---------3 በሳምንት አንድ ጊዜ ----------4 ታሞ አያውቅም ----------5	

24	ልጅዎ በቀን ምን ያህል ጊዜ ሰገራ ይጠቀማል/ለች	>3 ሰገራበቀን <3 ሰገራበቀን	
25	ልጅዎን በጡጦ ይመግባሉ?	1. አዎ 2. አልመግብም	
26	ልጅዎን በጡጦ መመገብ የጀመሩት ለምንድንነው?	1. ወደ ስራ ስለተመለስኩ 2. የጡት ወተቱ በቂ ስላልነበር 3. የቆርቆሮ ወተት በቅርቡ ስላገኘሁ 4. በህመም ምክንያት 5. ሌላ ካለ ይግለፁ---------	
27	በቀን ምን ያህል ጊዜ ልጅዎን በጡጦ ይመግባሉ?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሶስት ጊዜ 4. አራት ጊዜ 5. አምስት ጊዜ እና ከዛበላይ	
28	በቀን ምንያህል ጊዜ ጡጦውን ያጥቡታል?	1. በመገብኩ ቁጥር 2. በቀን ሁለት ጊዜ 3. በቀን አንድ ጊዜ 4. በየ 6 ሰዓትልዩነት	
29	በምንድነው ጡጦውን የሚያጥቡት?	1. በውሃ በመቀቀል 2. በውሃ እና በሳሙና 3. በውሃማለቅለቅብቻ	
30	በጡጦው ተጨማሪ ምግብ ይሰጣሉ?	1. አዎ 2. አልሰጥም	
31	በጡጦው ምንአይነት ምግቦችን/ ፈሳሾችን ይሰጣሉ?	1. የላም ወተት 2. የህጻናት የቆርቆሮ ወተት 3. የታለበ የጡት ወተት	
32	በጡጦ መመገብ የሚያቆሙት መቼ ነው?	1. እስከ 1 አመትድረስ 2. ልጁ መጥባቱን እስኪተው ድረስ	

ሙ. <u>የቤተሰቡ የምግብ ፍጆታ መጠን</u>

ባለፉት 7 ቀናት ውስጥ ምን ያህል ጊዜ ተመግበዋል?	0 በፍጹም	1 <1 ሳምንት በታች	2 2 ሳምንት	3 በብዛት ከ 3-6/ ሳምንት	4 ሁልጊዜ በየቀኑ

ከጥራጥሬ የተሰራ ምግብ- እንጀራ፣ ጤፍ፣ ገብስ፣አጃ፣ስንዴ፣ዳቦ፣ብስኩት፣በቆሎ ወይም ሌላ አይነት የጥራጥሬ ምርት የስራስር ዘር፡-ድንች፣ ስኳር ድንች፣ ካሮት፣ ወይም ሌላ አይነት የስራስር ዘር					
የባቄላ መሳይ ጥራጥሬዎች፡- ባቄላ፣ምስር፣አተር					
አትክልት					
ፍራፍሬዎች					
ስጋ፡ የበሬ ስጋ፣ የፍየል ስጋ፣አሳ፣የዶሮ ስጋ፣ጉበት፣ ኩላሊት ወይም ሌላ					
እንቁላል					
የወተት ተዋጽኦ (ወተት፣አይብ፣እርጎ (ቅቤን ሳይጨምር)					
ስኳር ወይም ማር					
ዘይት ወይም ቅቤ					

ሙ. ከህጻኑ የህክምን ማህደር ላይ የሚሞላ ጥያቄ

ጾታ	እድሜ	ክብደት (በኪግ)	ቁመት (በሴ.ሜ)