

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES,
SCHOOL OF NURSING AND MIDWIFERY
POSTGRADUATE PROGRAM

**KNOWLEDGE, ATTITUDE AND PRACTICE ON KEY ESSENTIAL
NUTRITION ACTION MESSAGES AND ASSOCIATED FACTORS
AMONG MOTHERS OF CHILDREN BIRTH-24 MONTH IN WEREILU
WEREDA, SOUTH WOLLO ZONE, AMHARA, NORTHEAST ETHIOPIA,
2018**

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**A THESIS TO BE SUBMITTED TO THE SCHOOL OF NURSING AND
MIDWIFERY, COLLEGE OF HEALTH SCIENCES, ADDIS ABABA
UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTERS OF SCIENCE IN CHILD HEALTH
AND PEADIATRIC NURSING**

JUNE, 2018

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JUNE, 2018

ADDIS ABABA, ETHIOPIA

Acknowledgement

First I would like to thank Addis Ababa University, department of nursing and midwifery for provision of the opportunity to develop this thesis and for the financial support.

I am extremely grateful to my advisors Bereket Gebremichael (BSc, MSc) and Tewdros Tesfaye (BSc, MSc), who helped me from the beginning of the topic selection to the all stages of proposal development and to complete the research thesis with full compassion, interest, encouragement and constructive comments.

I would like thank the South Wollo Zone and Woreilu Wereda Administrative Health Office for their cooperation for giving information related to the general information about the stud area and study population.

My genuine gratitude also goes to MRS. RaJalakshmi Murugan (Asst.profesor, PHD fellow) for her unreserved effort in giving constructive comments for both in proposal and thesis development.

Finally, my deepest gratitude goes to data collectors, supervisors and study participants for their coopration to complete this thesis by devoting their time.

Acronyms and Abbreviations

ANC: Antenatal Care

EBF: Exclusive Breastfeeding

EDHS: Ethiopia Demographic Health Survey

ENA: Essential Nutrition Actions

IYCF: Infant and Young Child Feeding

KAP: Knowledge, Attitude and Practice

MCH: Maternal Child Health

PNC: Post Natal Care

SPSS : Statistical Package for Social Science

TIBF: Timely Initiation of Breast Feeding

TICF: Timely Initiation of Complimentary Feeding

UNICEF: United Nation Children Fund

USAID: United States Agency of International Development

WHO: World Health Organization

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Abstract

Background-The first 1000 days: the period from the start of a mother's pregnancy through her child's second birthday, is a critical window period. It is a time that the child's brain and body - develops rapidly. If children do not get the right nutrients during this period, the damage is often irreversible. An essential nutrition action is one of the most effective preventive actions for reducing nutrition related morbidity and mortality among young children. Nonetheless there is limited evidence regarding it.

Objective-The main aim of this study was to assess knowledge, attitude and practice of key essential nutrition action messages and associated factors among mothers of children birth – 24 month in Wereilu Wereda, South Wollo Zone, Northeast Ethiopia.

Methods - A community based cross-sectional study design was conducted on 563 mothers of children from birth up to 24 month in Wereilu Wereda from April 1–15, 2018. Multi stage sampling technique was employed. Structured, adapted and pre-tested questionnaire was used to collect the data through interviewing technique. The data was entered by using EPI-data Version 4.2 and exported to SPSS version 24.0 for analysis. Bivariate and multivariable logistic regression was carried out to asses' assosation between outcome and predictor variables.

Result: The prevalence of good knowledge, attitude and practice were 365(66.4%), 379(68.9%) and 256(46.5%) respectively. Independent predictors of good practice were: educational status of the mother and the father, monthly income, parity, place of birth, PNC follow-up, level of knowledge and level of attitude. Attitude were significantly affected by sex of the child, place of birth, ANC follow-up, PNC and level of knowledge. Knowledge were significantly associated with educational status of the mother, residence, ANC, PNC and nutrition information.

Conclusion and Recommendations: The practices of key ENA messages in the study area were found to be low; the knowledge and attitude were relatively higher than their practice. So it is better to improve access to information to the community on key ENA messages through trained health workers coupled with Medias.

Key words: Essential Nutrition Actions, Practice, Attitude, Knowledge, Wereilu, Ethiopia

1. Introduction

1.1 Background

Malnutrition in all its forms either directly or indirectly is responsible for approximately half of all deaths worldwide and it is still a leading cause of death of young children (1). Malnutrition is one of the most serious public health problems in developing countries, where inadequate access to food and nutrients, poor care for mothers and children, inadequate health services and unhealthy environments are common(2).

Good nutrition during the first 1,000-days period can have a profound impact on a child's capability to grow, learn and climb out of poverty. It also benefits society, by boosting productivity and improving economic prospects for families and communities as well(3, 4).Ensuring a child gets enough nutrition during this window period can also help the child to more effectively fight off disease and even earn more as an adult(3, 5).

ENA is an approach to expand the coverage of seven affordable and evidence-based nutrition actions to improve the nutritional status of women and children, particularly those less than two years of age. ENA is an integrated package of preventive nutritional actions encompassing infant and young child feeding (IYCF), micronutrients and the nutrition of woman(5, 6).

The seven ENAs are: Exclusive breastfeeding for children 0-5 months ,Adequate complementary feeding for children 6-23 months with continued breastfeeding for at least 24 months , Adequate nutritional care of the sick children , Adequate nutrition for women during pregnancy and lactation, Prevention of vitamin A deficiency for women and children , Prevention of anemia for women and children , and Prevention of iodine deficiency for all members of the household (7).

The ENA framework is the operational framework which reflects a life cycle approach with action oriented protocols promoting specific nutrition messages and support at critical points during pregnancy and the first 2 years of life ;these “lifesaving” actions can be delivered in remote, impoverished places by well-trained and well-equipped local health workers (5). World Health Organization (WHO), United Nations Children Fund (UNICEF), and United States Agency of International Development (USAID) recommends ENA to be applicable and every infant and child has the right to good nutrition according to the convention of the rights of the children. Government of Ethiopia is trying to implement this recommendation and the program is an integral part of the national health program. Pregnancy to age of 24 months of child is the critical window of opportunity for delivery of essential nutrition interventions (2). The key contact points of ENA to deliver information at health institutions are: Pregnancy (antenatal care), delivery and early neonatal consultations , postnatal and family planning (FP) contacts, immunization contact , well child visits, including growth monitoring and promotion , and sick child visits (5).

Universal coverage of essential nutrition actions could prevent more than 2 million mother and child death each year. Nearly 1 million lives could be saved merely by breastfeeding. Unfortunately, more than half of the world’s children do not have access to these lifesaving actions (4). Children who get the right nutrition in their first 1,000 days are 10 times more likely to overcome life-threatening childhood diseases and have healthier families of their own (7). Therefore, it is critical to break the inter-generational cycle of malnutrition by implementing the seven essential nutrition actions during the first 1000 days (6).

1.2 Statement of the problem

Globally significant progress against hunger and poverty has been achieved in the last decades. Despite this fact more than 170 million children do not have the opportunity to achieve their full potential because of poor nutrition in the earliest months of life (4, 5). The devastating impact of under nutrition spans generations, as poorly nourished women are more likely to suffer difficult pregnancies and give birth to undernourished children (4).

Worldwide, more than a third of child deaths and above 10% of the disease burden are due to maternal and child under nutrition(8). Every year 7.6 million children die before they reach the age of 5 almost all in developing countries and malnutrition is an underlying cause of more than a third (35 percent) of these deaths(2). Children under age 2 are especially vulnerable, and the negative effects of malnutrition at this age are largely irreversible (4).

The poor practice of seven essential nutrition actions contributes to about one fourth (25%) of nutrition related morbidity and mortality(5). Suboptimal IYCF practices alone increase the risk of infant and child morbidity and mortality by up to five-fold. Maternal under nutrition is estimated to account for 20% of childhood stunting(2). Many children are born undernourished because their mothers are undernourished; As much as 50% of all children stunting occurs in utero (1). About 31% reduction of giving birth to SGA infants is seen when pregnant women are provided with balanced nutrition(9).

Micro-nutrients like iron, vitamin A and iodine deficiency can greatly determine the mortality and morbidity burden of mothers and young children. Globally, almost 50% of pregnant women are anemic(5). Infants and children under the age of five are at risk of developing iron deficiency anemia because of their increased requirements for rapid growth (5, 10). Iron deficiency, with or without anemia, may have important health consequences for young children, including increased peri-natal mortality, delayed mental and physical development, negative behavioral consequences, and impaired physical performance. Among the deficiencies of vitamins and minerals examined globally, the largest disease burdens were attributed to vitamin A deficiencies. Globally, nearly two billion people are affected by Iodine Deficiency(ID)(11).

In developing countries, approximately 25–50% of infant mortality is attributed to suboptimal IYCF practices(12, 13).Furthermore, the highest prevalence of ID is documented in Africa (42%) (14, 15).Iodine-deficient children perform poorly in school, suffered from learning disabilities and lower intelligent quotient (IQ) (16, 17).In low-income and middle-income countries, only some mothers (range 6–28%)gave additional liquids/fluids to their children during illness (18).Studies indicated that feeding restrictions during common childhood illnesses were frequent in many developing countries(19) .

Ethiopia remains in an unstable situation regarding the practice of the seven essential nutrition actions; of which young children under nutrition being on the top. The 2016 Ethiopia Demographic Health Survey (EDHS) report revealed that 38 % of under 5 children are stunted while 18 % of them are severely stunted (20). The Ethiopian government developed and implemented the IYCF guideline since 2004 to optimize national IYCF practices. However, the IYCF practice remains below the WHO standard (21);only 58% of infants exclusively breastfed and only 7% of young children given optimal complementary feeding. In addition nine percent of infants less than six months of age use a bottle to feed (20). Of the African countries, the largest burden of micronutrient deficiency is found in Ethiopia ,according to which 39.9% of children are iodine deficient (22). Only 23.3% of the household used adequately iodized salt (23). In Ethiopia one in every six women in the reproductive age group (17 per cent) is affected by anemia(24, 25). In addition , an estimated 33.9% national prevalence of subclinical vitamin A deficiencies was observed in children age birth-24 month in Ethiopia (26).

Furthermore, in Amhara region the optimal feeding practice is low where the practice of timely initiation of breast feeding, minimum meal frequency and minimum dietary diversity is 38% ,34% and 2.1% respectively(25). According to EDHS 2016 the prevalence of stunting in Amhara region was high (46 percent)(27). This poor practice of essential nutrition action has contributed for significant number of malnutrition among children. As far as the literature review and researchers knowledge is concerned, only few studies has been done on the practice of ENA in health care providers and incorporation of ENA approach into public health program has been studied(70,71).Therefore the purpose of this study is to assess the knowledge, attitude and practice on key ENA messages and associated factors among mothers of children from birth up to 2 yrs old age.

1.3 Significance of the Study

If implemented effectively from conception and up to 24 months of age, the key ENA messages could reduce nutrition-related mortality and disease burden by 25% (5).

- Thus; this study will identify the gap on the KAP of key ENA messages and associated factors and will help the Wereda Health office administrative bodies and other governmental and non-government organizations in formulating strategies to increase the KAP of mothers and to play an active role in working factors affecting KAP of mothers on key ENA messages.
- It also provide data for health professionals to develop health education programs to improve feeding practice of the target groups; from conception up to 2 years old in the study area.
- Furthermore, this study will be used as a literature for further researches on ENA and related topics.

2 Literature Review

2.1 Essential Nutrition Actions

The Essential Nutrition Actions (ENA) framework was established with the support of USAID and has been implemented across Africa and Asia since 1997(3, 5).ENA prevents maternal ,infant and young children under nutrition ,which causes 45% of all deaths of children younger than 5 years, representing more than 3 million deaths each year (2).The Ethiopian Federal Ministry of health (FMoH) adopted ENA approach and involved it in child survival strategy in 2004 (3, 5). According to a study done in Ambo District, West Shoa Zone, Ethiopia according the prevalence of good ENA knowledge, good attitude towards ENA and good practice of ENA were 39%, 32% and 28.7% respectively (82).

2.1.1 Exclusive breast feeding

Is giving only breast milk to infant allowing oral rehydration salts (ORS), drops, syrups, (vitamins, minerals, medicines) and nothing else usually done to an infant from 0 to six months old.

The 2016 EDHS In Ethiopia, revealed that 58 percent of infants less than 6 months are exclusively breastfed, 17 percent of infants 0-5 months consume plain water, 5 percent, each, consume non milk liquids or other milk, and 11 percent consume complementary foods in addition to breast milk (30).A community based cross-sectional study among 423 mothers in Bahir Dar City revealed that prevalence of exclusive breastfeeding practice was 113 (84%). Sixty (15%) mothers gave prelacteal feeds and, 96 (23%) mothers used a bottle to feed (31).Another community based cross-sectional study conducted among 346 mothers in Azezo District, showed the practice of EBFwere 79 % (32). A research done in southern Ethiopia revealed that of mothers who had breastfed, 83.7% mothers started breastfeeding within one hour after birth(33) this practice is higher than study finding in Oromia Region 56.7%((71) , and Al Hassa-Soudi Arabia(72).Regarding TIBF, within the first hour after delivery. Study in Southern Ethiopia (33) and Bahir Dar (31).However, this finding is higher than previous study findings in Ethiopia (73), Tanzania (74)and in India (75).Concerning bottle feeding study finding in India shows that it's prevalence was 23% in (76).

Regarding Attitude towards EBF a cross-sectional studyon KAP South Indian Hospital twenty five percentage of mothers felt that colostrums is bad (34).A research done Somali Region

,Eastern Ethiopia 82% of respondents believed that a newborn should be given butter, sugar and water for the first six months(35).Another similar community based cross-sectional research done in Gondar revealed that 88.95% of the respondents had good attitude towards EBF and 65.74% agree that colostrum should not be discarded and (37.3%) mothers were considered bottle feeding is dangerous(36).

Similar study in Mizan Aman town indicated about 89.5 % had a positive attitude, but only 59.3 % believed that only EBF is enough for child up to six month. (37).Another cross-sectional research done Benchi maji zone shows most mothers had positive attitude (69.4%) about colostrums feeding and 72.46% agreed that colostrums is good milk for body growth and mental development for newborn(38).

Regarding knowledge a cross sectional community based study done in Gondar showed that a majority of mothers has known the importance of EBF and have good attitude, though, poor practice to EBF postpartum among urban mothers (39).

2.1.2 Complementary feeding

Timely initiation of complimentary breast feeding is the proportion of infants aged 6-8 months who started additional solid or semi-solid or soft foods along with breast milk.

The prevalence of TICF is 63.6% in Egypt(40), 57% in Nigeria (41),39.2% and in Pakistan(42) this finding is higher than the previous study findings in Ethiopia (77) and in India (76). A cross-sectional research done in Nepalese, USA revealed that while 76.6% received the minimum meal frequency, only 30.4% children received the minimum dietary diversity, and 26.5% received an acceptable diet(43).A research done in India revealed that the prevalence of TICF(Timely Initiation of Complimentary Feeding) was 55%, among children aged 6–23 months, minimum dietary diversity rate was 15.2%, minimum meal frequency 69.8% and minimum acceptable diet 9.2% (78).

A community-based cross sectional study among 778 respondents in Ghana showed that of the children aged 6–23 months; 57.3 % met the minimum meal frequency, 35.3 % received minimum dietary diversity (≥ 4 food groups), 25.2 % had received minimum acceptable diet and only 14.3 % received appropriate complementary feeding(45).According to a community-based

cross-sectional among 428 mothers in Northern Ethiopia only 10.75% (95% CI = 8.07, 13.95) children aged 6-23 months received appropriate complementary feeding(46).

Regarding knowledge about complimentary feeding from cross-sectional researches done in Addis Ababa 74.1%of respondents was knowledgeable. The main sources of information were health institutions about 68.4% followed by mass media 29.3% and family members 18.6%. Here, most of the mothers 92.3% knew that complementary foods should be introduced at six months of child age and half of the mothers knew that a child should consume at least four types of food groups(25).

A research done in Northwest Ethiopia revealed that appropriate weaning practice was found to be 23.9%, timely initiation of weaning food 61.5%, dietary diversified feeding 43.9%, and feeding with the recommended meal frequency per day 69.8% and 15.7% started weaning food early, before 6 months of age. About 69.8% of them conformed to the recommended minimum meal frequency, and 13.1% of mothers ceased breast feeding and most (87.2%) of them did it after 12 months. Only 43.9% met minimum dietary diversity feeding(47).

A community based cross-sectional study done 476 respondents in Lasta District; Northeast Ethiopia indicated that only 56.5% of children aged 6–23 months received appropriate complementary feeding. Approximately, 97% of mothers had satisfactory knowledge about complementary feeding(48) . Moreover the prevalence of appropriate complimentary feeding in Mekele (49) and in Harar (50)was (62.8%) ,(54.4%) respectively and in Benishangul Gumuz Region, 61.8% (51).A cross-sectional research done in Bahir Dar city revealed that the prevalence of appropriate complementary feeding practices was 7% and about 32% children received dairy products and 8% mothers gave flesh foods (meat)(31).

2.1.3 Adequate nutritional care of the sick and severely malnourished child

A cross-sectional research done in India indicated that during illness ,while 23.63% reduced the frequency of complimentary feeding, 34.54% stopped complimentary feeding completely ,33% preferred thinner food during illness (52). Another cross-sectional study conducted in India revealed that 26.5% caregivers decreased the frequency of complementary feeding, while 11.5% increased giving complementary feeding and 9% stopped the complementary feeding during illness and 2% stopped the breastfeeding (53) .In Nepal and Pakistan most mothers reported that the amount of liquids offered to their infants during the diarrhoea episode was‘ same as usual’ . Only about half the mothers in Nepal and one-third of mothers in Pakistan reported that the amount of food offered to their children was ‘more than usual’. Most mothers (range 69.7–98.0%) continued to breastfeed their sick children irrespective of children’s age or the nature of their illness (54) ,(52) , (55).

2.1.4 Adequate nutrition for women during pregnancy and lactation

A community based cross-sectional study done in America revealed that the knowledge about importance of milk and its products, importance of protein, importance of iron, the common food sources of vitamins and iron was (78.2%, 68.5%, 57.3%, 62.9%, 71.8% and 61.3% respectively and about 25.8%, 58.9% and 42.7% of respondents had habit of eating fresh vegetables and daily drinking of milk respectively and about 63.7% of respondents had get iron supply during pregnancy (56). Similar study from India on antenatal mothers showed that iron folate tablet was adequately consumed by 62% of mothers among the study population(57).Another cross-sectional research done in Malawi indicated that only 57% of the pregnant women had good practices on nutrition and food groups in pregnancy (58).

A cross-sectional research done in East Wellega Zone revealed that about 59.9% and 70.9% of the respondents did not practice the habit of eating snacks and carbohydrates between meals during their pregnancy respectively. In general, 33.9% of the respondents were found to have good practice(59).According to a community based cross sectional research done Gondar Town, North, Ethiopia, about only 40.1% of pregnant mothers found to have good dietary practice during their pregnancy, 72.6% of the respondents had nutritional information during their pregnancy. About 15.5% of the respondents had diet frequency of meal 1-2 per day during their

pregnancy, 77.5% had meal frequency of 3-4 times per day, and 7.0% had diet frequency of meals >5 per day during their pregnancy(60).

2.1.5 Prevention of vitamin A deficiency

Globally a third of all preschool-age children (190 million) and 15 percent of pregnant women (19 million) do not have enough vitamin A in their daily diet(61). A cross sectional study done in Nepal showed About 79% mothers reported that they knew about the first visible symptoms of vitamin A deficiency disorder (VADD) and 95% mothers knew about the night blindness(62)

A community- based cross-sectional study among 636 children done in Kachabira District, Southern Ethiopia indicated that only 28.8% of the children aged 6-23 months consume foods that are rich in vitamin A on the day preceding the survey and 65.42% of the children aged 6-23 months consumed food groups rich in vitamin A less than three times in the week preceding the study (26). Similar study from Bahirdar city only 18% and 7% of children aged 6–24 months have received vitamin A rich and other fruits and vegetables respectively(31).

Regarding knowledge only 31(29.8%) of the women reported having heard about vitamin A mainly from health professionals (41.9%) or neighbors (31.2%). Only 9(10.7%) of the eligible women received postpartum vitamin A supplementation(57). Another study done in Sidama, Ethiopia uncovered that the diet consumed by pregnant mothers was 78.4%, 52.7%, and 52.2% consumed roots and tubers (mainly enset), cereals (mainly maize), and legumes (mainly broad bean and kidney bean) respectively. Only 28.4% and 25.6% reported consumption of provitamin A and preformed vitamin A-rich foods respectively(63).

A cross sectional study done in mekelle showed average mean of mothers knowledge on vitamin A were 0.95 which is moderately knowledgeable the knowledge average mean for mother's knowledge on Iodine were 1.02, and 0.7 for iron(64).

2.1.6 Prevention of anemia for women and children through adequate intake of iron

Approximately 12% of infants aged 6 to 11 months in the United States have inadequate iron intakes, and 8% of toddlers have iron deficiency (65).

According to a community based research done in India majority of participants had inadequate knowledge (55.8%) and unfavorable practices (58.3%) with regard to iron deficiency anemia and its prevention (66).

In Ethiopia the nationally weighted median of iron intake in women of childbearing age was found to be 43.7 mg per day (26.1, 71.8), intakes of animal source foods were generally found to be very low. Adequacy of iron intakes varied considerably across regions, from a prevalence of inadequacy of 84% of women in the Somali region compared to 6% in Amhara. Iron intakes in children are considerably lower and highly variable across regions ranging from 4.6 mg/day in Somali to 12.2 g/day in Tigray. The median intake in children aged 6-35 months was 10.0 mg per day (IQR 3.5, 20.2), with minimal difference between urban and rural children(67).A cross-sectional research done in Bahirdar city only 8%of mothers gave iron rich foods for their children (31).

2.1.7 Prevention of iodine deficiency for all members of the household

A cross-sectional study done in Ghana revealed that 64.6%, 8.6%, 26.8%, of the respondents use iodized salt exclusively, common salt exclusively and both common and iodized salt, respectively. Majority (62.6%) of the respondents stored their salt in the recommended way in closed containers. about 11.5% who stored it in open rubber sachets. Regarding their knowledge majority (90.4%) of the respondents indicated that they had heard about iodized salt. The radio was the major medium. Regarding storage of iodized salt, 121(43%) did not know that iodine is volatile and therefore escapes into the atmosphere when exposed(15).

The Ethiopian Public Health Institute-EPHI,2013 found that just 4.2% of Ethiopian households had iodized salt(67).According to a cross-sectional research done in Burie and Womberma Districts, West Gojjam, Ethiopia ,Iodized salt was found only in 1.1% of the households. During cooking of sauce, 95.1% of the households add salt in the process while 2.9% add at the beginning. Only 12% of the women were reported to have knowledge on the cause of goiter. Almost all the households (98.7%) have no knowledge on the benefits of iodated salt (68).

2.2 Factors associated with KAP of key ENA messages

1.2.1 Socio-demographic/economic variables

A community-based cross sectional study among 778 in Ghana showed that children aged 12–23 months were 26.6 times more likely [AOR 26.57; 95 % CI (3.66–193.12)] to receive appropriate complementary feeding compared to children aged 6–8 months (45). Another community based cross-sectional study in Azezo District, Northwest Ethiopia indicated that exclusive breastfeeding rates were highest among mothers aged ≥ 30 years ([AOR] 1.75; 95 % CI 1.14, 3.42). Infants whose mothers were unemployed were more likely to be exclusively breastfed than infants whose mothers were employed (AOR 1.62; 95 % CI 1.03, 2.95).

According to a community-based cross-sectional among 428 mothers in Northern Ethiopia Child's age (AOR=4.21), education level of mother (AOR=3.84) independent predictor of timely initiation of complementary feeding(46) And in Lasta occupation of mother [AOR = 9.50; 95% CI:1.02, 14.25] found to associated with complimentary feeding practice (48) .Another Community based cross sectional study in Gondar town showed that Mothers education, monthly income, nutrition information and dietary knowledge had a positive significant with pregnant mothers' dietary practices ($P < 0.001$)(60).

A community based cross-sectional studies found the place of residence of respondents have been associated with the practice of infant and young children feeding practices (31, 63). Educational status of the respondents found to be associated with ENA knowledge, attitude and practices of IYCF from cross-sectional researches done in Bahirdar (AOR 3.0; 95% CI 1.2, 8.6)(31). According to a cross-sectional studies done in Saudi Arabia and Kenya socioeconomic status were associated with breast feeding practice (69, 70). Researches done in Kenya and Bahirdar indicated as the marital status of the respondents were associated knowledge attitude and practice of ENA(31, 70). Child's sex was associated with ENA practice from research in Kenya(70). A cross-sectional study done in Lasta revealed that family size, occupation and age of mother were associated with ENA knowledge and practice respectively(48). Researches done in southern Ethiopia and Kenya indicated that Husband education and occupation ,monthly income and knowledge of the mother found to be significantly associated with maternal ,infant and young children feeding knowledge and practice(26, 31)

1.2.2 Health service utilization

A community based cross-sectional study conducted among 346 mothers in Azezo District, Northwest Ethiopia indicated that mothers who delivered at the healthcare facility practiced more exclusive breastfeeding than those who delivered at home (AOR 2.18; 95 % CI 1.22, 4.35). Mothers who received antenatal and postnatal care had better rates of EBF (AOR 2.24; 95 % CI 1.18, 5.76 and AOR 1.62; 95 % CI 1.09, 3.21)(32).

Use of postnatal care service were also associated with ENA knowledge and practice from a community based cross-sectional researches done in Lasta ,AOR = 5.98; 95% CI:1.49, 13.96 (48), in Bahirdar :AOR=4.1; 95% CI, 1.1, 7.3 (31) and Northern Ethiopia, AOR=2.80 . Antenatal care follow-up were strongly associated with ENA knowledge, attitude and practice from researches done in Saudi Arabia, Lasta and Bahirdar (31, 48, 69, 81)).

According to researches done in Bahirdar :AOR 2.4; 95% CI 1.1, 7.3 and Saudi Arabia , place of delivery and health seeking behavior were found to be significantly associated with essential nutrition actions knowledge and practice (31, 69)

1.2.3 Other factors

Other factors like: possession of radio from cross-sectional study in Bahirdar :AOR 3.2; 95% CI 1.1, 8.8(31) ,perceived size at birth and exposure to public media [AOR = 2.50; 95% CI:1.44, 4.35] in Kenya (70), in Lasta mothers decision making role on how to use family income [AOR = 5.54; 95% CI:1.19, 11.74] (48),Previous number of pregnancy :in India(60),information about nutrition :research from India(48)and Gondar (26), community basedresearch fromLasta parity(OR=2.13; P<0.001) (48), were significant predictor of KAP on IYCF, breast feeding, exclusive breast feeding and complimentary feeding.

1.3 Conceptual framework

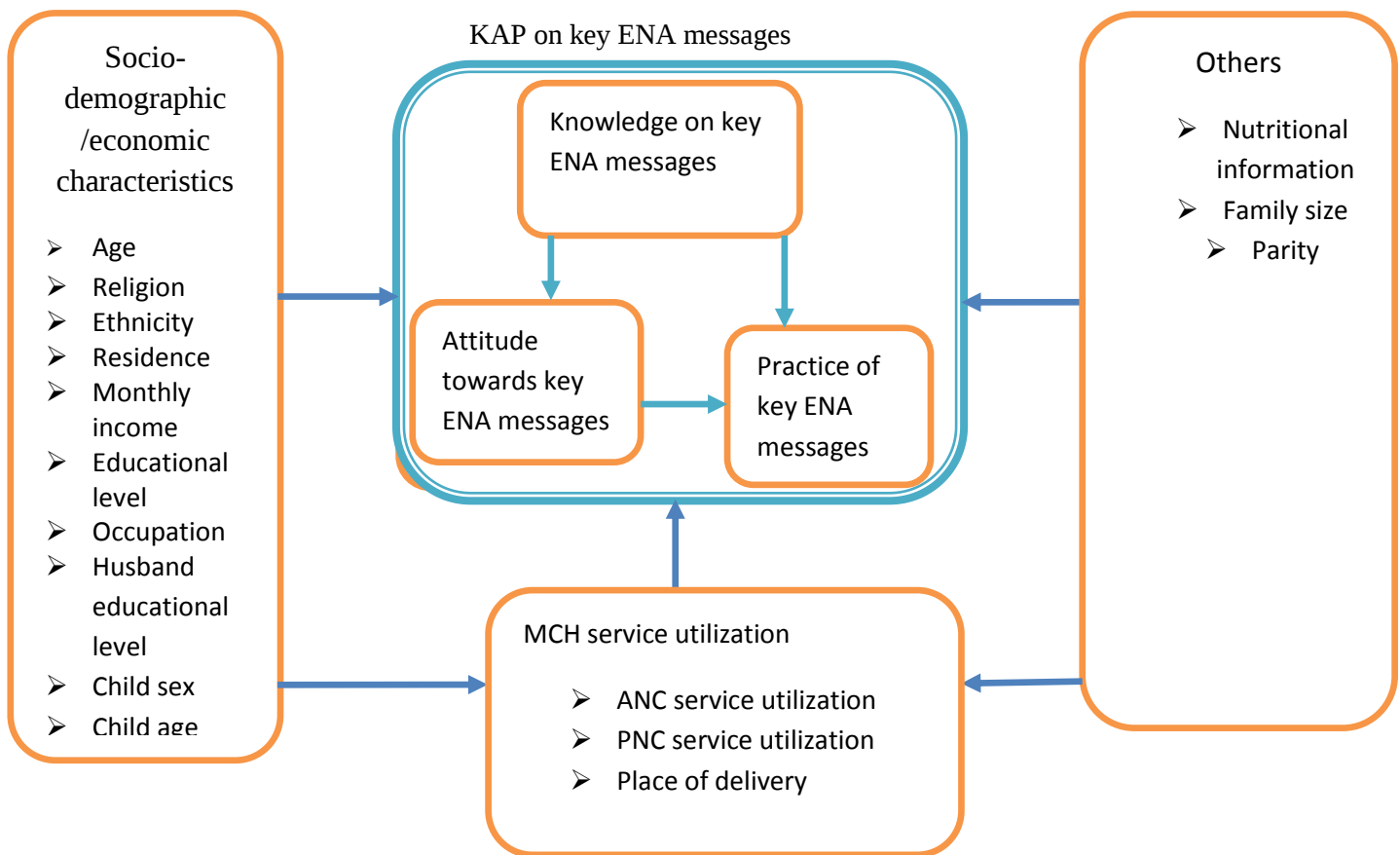


Figure 1: Conceptual framework of KAP on key ENA messages among mothers of children from birth -24 month in Wereilu Wereda, South Wollo Zone, Amhara, Ethiopia developed by reviewing different literatures (32, 37, 48, 70, 71).

3 Objectives

3.1 General Objective

To assess the knowledge, attitude and practice of key essential nutrition action messages and associated factors among mother's of children birth up to 24 month of age in Wereilu Wereda, South Wollo Zone, Amhara, Ethiopia, 2018 G.C.

3.2 Specific objectives

1. To assess the mother's knowledge on key essential nutrition action messages among mother's of children birth up to 24 month of age in WereiluWereda, South Wollo Zone, Amhara, Ethiopia, 2018.
2. To assess the mother's practice of key essential nutrition action messages among mother's of children birth up to 24 month of age in WereiluWereda, South Wollo Zone, Amhara, Ethiopia, 2018.
3. To assess the mother's attitude towards key essential nutrition action messages among mother's of children birth up to 24 month of age in WereiluWereda, South Wollo Zone, Amhara, Ethiopia, 2018.
4. To identify factors associated with the knowledge, attitude and practice on key essential nutrition action messages among mother's of children birth up to 24 month of age in WereiluWereda, South Wollo Zone, Amhara, Ethiopia, 2018.

4. Methodology

4.1 Study Area and Period

The study was conducted in Wereilu Wereda from April 1–30, 2018. Wereilu is one of the Wereda in South Wollo Zone of Amhara Region which is found at 492 km far from Addis Ababa, North-Central Ethiopia. The total population in the Town is 127,041. The Woreda have a total 24 kebeles; among which 20 kebeles are rural and 4 kebeles are urban. The majority of the inhabitants are Muslim (73.96%), while 25.77% of the populations are orthodox Christianity. According to Wereilu Wereda administration health office report, there are 5 health centers and 1 district hospital. The number of children from birth to 24 months old in this Wereda are 6426 (72).

4.2 Study Design

A community based cross-sectional study design was employed to collect data from April 1–15, 2018 among mothers who had children aged between birth and 24 months in Wereilu Wereda, South Wollo Zone, Amhara, North East Ethiopia, 2018.

4.3 Population

4.3.1 Source Population

Mothers of children aged from birth up to 24 months in Wereilu Wereda.

4.3.2 Study Population

Mothers of children aged from birth up to 24 months in selected kebeles of Wereilu Wereda.

4.4 Sample Size Determination

The size of study participants that were recruited in to the research was calculated using the single population proportion formula separately. Considering the prevalence of complimentary breastfeeding to be 56.5% (48), complementary feeding practice and associated factors among mothers having children 6–23 months of age, Lasta District, level of confidence 95%, and margin of error 5%. The proportion (p) was determined by considering prevalence of complimentary breastfeeding since it gives the maximum sample size compared to the other essential nutrition actions. Since the size of source population was finite population (less than 10,000) which is 6426

correction formula was applied. After determining the sample size a design effect of 1.5 and 5% non-response rate was used. The final calculated sample size becomes 563.

Table 1: Maximum sample size calculation from components of essential nutrition actions among mothers who had children aged between birth and 24 months in Wereilu Wereda , South Wollo Zone, Amhara ,North East Ethiopia, 2018.

No.	Essential nutrition actions	Study area	Proportion	Calculated sample size
1	Exclusive breast feeding	Bahirdar	84%	326
2	Complimentary feeding	Azezo	79%	402
		North west Ethiopia	23.9 %	440
		Lasta	56.5%	595
		Benishangul	61.8%	571
3	Maternal nutrition during pregnancy and lactation	Wellega	33.9%	362
		Gondar	40.1%	388

$$n_i = \frac{(Z_{\alpha/2})^2(pq)}{d^2}$$

$$n_i = \frac{(1.96)^2(0.565)(0.435)}{(0.05)^2}$$

$n_i=378$ where, n_i is initial sample size. Since the study population size is less than 10,000(finite population), which is 6426, we use the following reduction formula:

$$n_f = \frac{n_i}{1 + \frac{n_i}{N}}$$

$$n_f = \frac{378}{1 + \frac{378}{6426}} = \underline{\underline{357}}$$

where, n_f is final sample size, n_i is initial sample size , p is proportion,

N is total number of household with children less than 2 years old

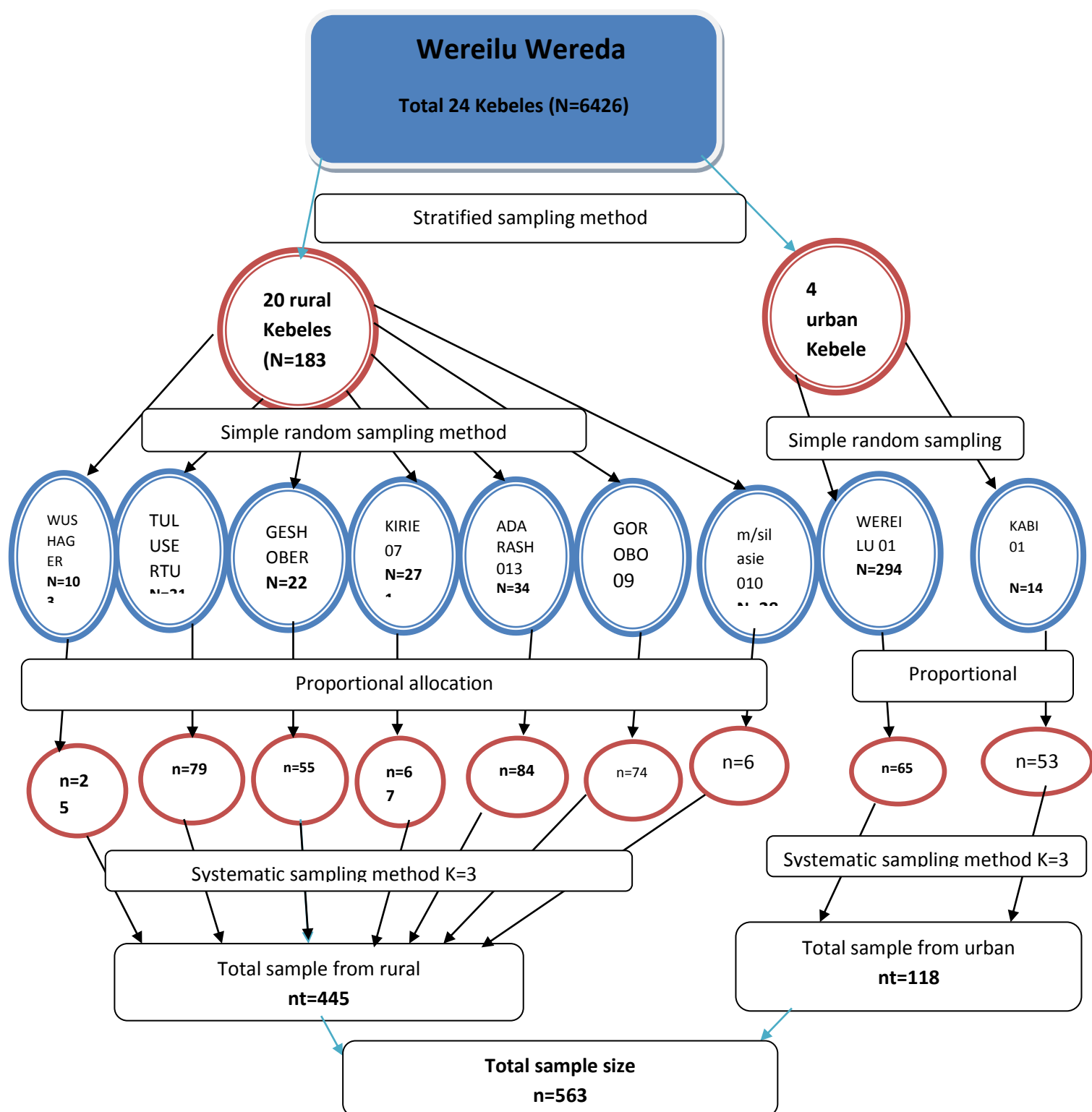
4.5 Sampling Techniques and procedure

Multistage sampling technique was employed to select the study subject. The study area, Wereilu Wereda has a total of 24 Kebeles (4 are urban and 20 are rural kebeles). From the total 24 kebeles 7 rural and 2 urban kebeles were selected by simple random sampling method.

The samples were distributed proportionally based on probability proportional to size (PPS) allocation technique. Participants in each kebele were selected by using systematic sampling technique after calculating sampling interval (K) for each kebele.

The sample frame was the list of households that have mothers of children birth–24 months of age. It was identified after checking all 9 selected kebeles (study population) to identify households with children from birth up to 24 months old and coding of those households was done to prepare sampling frame for each kebele. Then it was cross checked with health extension workers registration logbook list of those households with children less than 24 months old.

In households with two children less than two years of age, one was selected randomly by lottery method. Revisit of three times was made in case where eligible respondents are not available by the time of the survey. Those who were not available after revisit were considered as non-respondent.



N-total number of household with children birth- 2 yrs old, n-total selected children

Figure 2: schematic presentation of sampling procedure, December 2018.

4.7 Variables

4.7.1 Dependent variables

- Practice of mothers towards key ENA messages
- Knowledge of mothers about key ENA messages
- Attitude of mothers towards key ENA messages

4.7.2 Independent variables

- Socio-demographic/economic characteristics like Age, Religion, Ethnicity, Residence, Monthly income, Educational level, Occupation of the mother, Husband educational level, and Child sex.
- MCH service utilization related factors like :ANC service utilization , PNC service utilization and Place of delivery
- Other factors like :Family size,Access nutritional information, Parity and Exposure to nutrition related information

4.8 Eligibility Criteria

4.8.1 Inclusion criteria

All mothers who have children aged between births up to 2 years old and live in Wereilu Wereda for more than six months were included in the study.

4.8.2 Exclusion criteria

Mothers who were not able to speak or who were severely ill (due to different problems) were excluded from the study.

4.9 Definitions of terms and operational definitions

Definition of terms

Early/timely introduction of Breastfeeding: Is the putting of the infant on the breast within one hour of birth.

Exclusive breast feeding: Is giving only breast milk to infant allowing oral rehydration solution (ORS), drops, syrups, (vitamins, minerals, medicines) and nothing else usually done to an infant from birth to six months old.

Prelacteal feeds: Semi-solids and liquids that are given to an infant before lactation is established usually between birth and first three days of life

Bottle feeding: Feeding the infant and young child breast milk, milk, formula or semi-solid food from a bottle with nipple/teat

Continued breastfeeding: Is the status of children aged 6-24 months being fed on breast milk and solids, semi-solid and soft foods.

Optimal breastfeeding: This means beginning breastfeeding within the first hour of birth and continuing to EBF for six months and introducing semisolids, solids and soft foods that are culturally appropriate as from six months while breastfeeding is continued until two years and beyond.

Operational definitions

Good practice: Those mothers who answered mean and above the mean score to specific practice question

Poor practice: Those participants who answered below the mean of practice questions.

Knowledgeable mothers: Those mothers who answer mean and above the mean score to specific knowledge question

Poor knowledge: Those participants who answered below the mean of knowledge questions.

Good attitude: Those participants who answered mean and above the mean attitude questions.

Poor attitude: Those participants who answered below the mean of attitude questions

Minimum Dietary diversity: children receive food from four or more food groups out of the seven food groups namely: grains, roots and tubers; legumes and nuts; dairy products; flesh meat (animal source foods); eggs; Vitamin A rich fruits and vegetables; oil and other fruits and vegetables

Minimum meal frequency: is feeding 2 times per day a child aged 6–8 months and 3 times per day for 9–23 months aged child among breastfeeding mothers and 4 times per day among non breast feeding mothers.

4.10 Data Collection tool and Procedure

Data was collected by an adapted, pretested, structured, interviewer administered questionnaire adapted from WHO guideline and questionnaires, “World Health Organization 2013. “Essential Nutrition Actions: Improving Maternal, Newborn, Infant and Young Child Health and Nutrition” and FAO(Food and Agriculture organization)publication:Guidelines for assessing nutrition-related knowledge, attitudes and practices (2014), also called KAP manual (5, 73) .The questionnaire have 9 parts : Part1- Socio demographic /economic variables(16), Part 2-KAP questions on exclusive breast feeding(17 questions), Part 3-KAP questions on complimentary feeding (13 questions),Part 4-KAP questions on feeding of sick child(10 questions) ,Part 5- KAP questions on nutrition during pregnancy and lactation(9 questions),Part 6-KAP questions on prevention of Vitamin A deficiency(9 questions), Part 7-KAP questions on prevention of anemia(10 questions),Part 8-KAP questions on prevention of Iodine (9 questions) and Part 9 – questions which asses access for nutritional information. Those respondents who scores mean and above the mean, were classified as having good KAP and those who scores below mean were classified as having poor KAP. The questionnaire first developed in English and translated to Amharic language by expert. It was translated back to English by an independent translator to check for consistency. An interview with mothers of the index child was conducted at their home ensuring privacy. Seven diploma nurses and 2 BSc degree nurse were recruited as data collector and supervisor respectively.

4.11 Data quality control

The data collectors and the supervisors were trained for two days on techniques of data collection and the importance of disclosing the possible purposes of the study to the study participants before the start of data collection. To assure the quality of the data, supervisors and investigator were closely supervise the data collection procedure on daily basis. Review was made in the field for checking the completeness of questionnaire and correction was made in the field.

Each questionnaire and data sheet was checked prior to the data entry. The data was entered on daily basis and missing data was identified. Incorrectly filled or questioners that miss major content were not included in the study.

Pretest

Pretest was conducted in Jamma district (which is not a study area) using 5% of the total sample size (26 respondents) which was not included in the actual sampling and necessary adjustments was made on the tool. Jamma district is situated in a neighboring area of Wereilu District where the population shares similar attributes with that of Wereilu District population.

4.12 Data analysis and presentation

Data was entered in to satstical software EPI-data Version 4.2 up on creating the questionnaire template. The entered data was subjected to cleaning using simple frequency and tabulation to ensure the validity of the data. Then, the analysis was made with IBM SPSS version 24 after exporting the prepared data. Descriptive statistics like frequency, proportions and percentage was computed to describe the study variable in relation to the population and presented by tables and graphs. Bivariate and Multivariable logistic regression was carried out to see associations between dependent and independent variables. Odds ratio and p-value was computed to see whether any relationship exists between the two variables. Those variables that have $p\text{-value} \leq 0.25$ were taken to the multivariable logistic regression model to adjust for possible confounders. P-value < 0.05 was considered statistically significant in this study.

4.13 Ethical consideration

Ethical clearance for the start of the study was obtained from Research Ethical Committee of Department of Nursing & Midwifery, College of Health Sciences, Addis Ababa University. Permission was sought and obtained from the Wereilu Wereda Health Office. Verbal informed consent was obtained from every study participants after a detailed explanation on the purpose and benefit of the study right before data collection and those who agreed participated in the study. All interviewers were instructed on how to comply with strict confidentiality practices for all clients both during and after data collection. The identity of the participants was kept anonymous. After the data from questionnaire entered to software for analysis the questionnaire was discarded according to the ethical standard to assure confidentiality.

4.14 Dissemination of the Study

The results of the study will be presented and submitted to Addis Ababa University College of Health Science Department of Nursing and Midwifery. The findings of the study will also be shared to the Woreda Health Offices of the study area. Finally attempts will be made to publish in peer reviewed and reputable international journals.

5. Result

5.1 Socio demographic characteristics

Out of 563 mothers of children from birth up to 24 month who were selected to participate, 550 took part in the study making a response rate of 97.7%.

About 213(38.7%) of the mothers were within the age range from 30 to 34 years. Regarding Ethnicity majority of the respondents were Amhara 522(94.7%). In terms of their family size most of the respondents, 233(42.3%) had 4-5 children. With regard to educational status of the participants, 180(32.5%) of the respondents cannot read and write followed by 162 (29.5%) respondents learnt primary school respectively. Regarding father's educational status majority 306(55.6%) fathers were unable to read and write. Only 53 (9.7%) respondents were employee. Concerning the children's characteristics; more than one third (37.5%) of children age was from 6 month to 12 month .With regard to MCH service utilization related variables 390(70.9%) respondents delivered their child at health institution. About 303(55.1%) and 247(44.9%) of the respondents have ANC and PNC follow up respectively.

Table 2 :Socio-Demographics and related characteristics of mothers of children from birth up to 24 month in WoreiluWereda ,South Wollo Zone ,Amhara ,Ethiopia, 2018 (N= 550)

Socio-demographic and related variables		Frequency (N=550)	Percent
Age:	<20 years	11	2.0%
	20-24 years	99	18.0%
	25-29 years	187	34.0%
	30-34 years	213	38.7%
	>35	40	7.3%
Ethnicity :	Amhara	522	94.9%
	Oromo	17	3.1%
	Tigre	9	1.6%
	Others	2	0.4%
Religion:	Orthodox	224	40.7%
	Protestant	148	26.9%
	Muslim	173	31.5%
	Catholic	5	0.9%
Marital status :	Single	39	7.1%
	Married	482	87.6%
	Separated	28	5.1%
	Divorced	1	0.2%
Educational status of the mother	Cannot read and write	107	19.5%
	Can Read and write	180	32.7%
	Primary	162	29.5%
	Secondary	80	14.5%
	Higher education	21	3.8%
Educational status of the father	Cannot read and write	120	21.8%
	Can Read and write	306	55.6%
	Primary	76	13.8%
	Secondary	22	4.0%
	Higher education	26	4.7%
	Non employed	262	47.6%
	Housewife	218	39.6%

Occupation of the mother	Employed in government institution	52	9.5%
	Employed in private sector	1	0.2%
	Merchant	17	3.1%
Residence:	Urban	146	26.5%
	Rural	404	73.5%
Monthly income	Lower income	164	29.8%
	Medium income	334	60.7%
	Higher income	52	9.5%
Number of family member	< 4	106	19.3%
	4 – 5	233	42.4%
	6 – 8	122	22.2%
	≥9	89	16.2%
Parity	Multipara	427	77.6%
	Primipara	123	22.4%
Background of the child			
Age of the child	< 6 month	181	32.9%
	6 month-12 month	206	37.5%
	12 month -18 month	106	19.3%
	18 month -24 month	57	10.3%
Sex	Male	324	58.9%
	Female	226	41.1%
MCH service utilization related factors			
Place of birth	Home	160	29.1%
	Health institution	390	70.9%
ANC follow up	Yes	303	55.1%
	No	247	44.9%
PNC follow up	Yes	247	44.9%
	No	303	55.1%

5.2 Knowledge, attitude and practice of key essential nutrition action messages

Out of 550 study participants responded for the questions to assess their knowledge, attitude and practices of key ENA messages, 256(46.5%), 365(66.4%) and 379(68.9%) respondents had good practice, good knowledge and good attitude towards key ENA messages respectively.

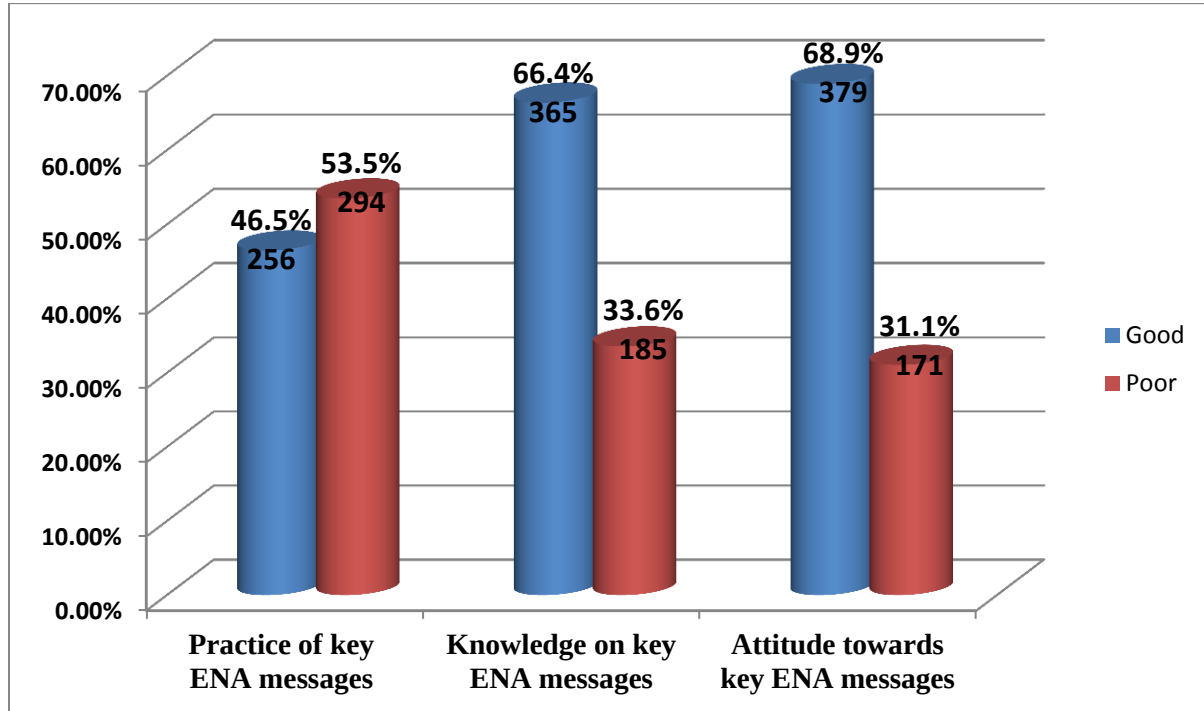


Figure 3: Knowledge, attitude and practice of key essential nutrition action messages among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018. (N=550)

5.1.1 Exclusive breast feeding

Practice of exclusive breast feeding

Almost all, 544 (98.7%) of the respondents had ever breastfeed their children. Regarding time of initiation of breast feeding about 464(84.2%) respondents initiates breast feeding immediately, with in 1 hour. One hundred forty-nine (82.3%) infants less than 6 months were exclusively breastfed; while 192(34.8%) respondents consume prelacteal feeds. About 209 (38%) of the respondents squeeze out and through away the first milk (colostrum).Regarding bottle feeding 272(49.5%) of the respondents children drink anything from bottle.

Table 3: Practice of EBF among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variable		Frequency	Percent
Ever breastfed	Yes	544	98.9%
	No	6	1.1%
Initiation of breast feeding after birth	Immediately	464	84.4%
	Hours	76	13.8%
	Days	9	1.6%
	Don't Know	1	0.2%
Exclusive breast feeding	Yes	149	82.3%
	No	32	17.7%
Pre-lacteal feed	Yes	192	34.9%
	No	358	65.1%
Squeeze out colostrum	Yes	209	38.0%
	No	341	62.0%
Bottle feeding	Yes	272	49.5%
	No	278	50.5%

Attitude towards exclusive breast feeding

Regarding attitude towards EBF, 356 (64.7%) had good attitude towards breast feed the baby exclusively until 6 month. Only 132(24%) of the respondents had poor attitude towards bottle feeding; the rest 258 (46.9%) of the respondents had good attitude towards bottle feeding. This study also revealed that 412(72%) respondents had positive attitude about colostrum feeding.

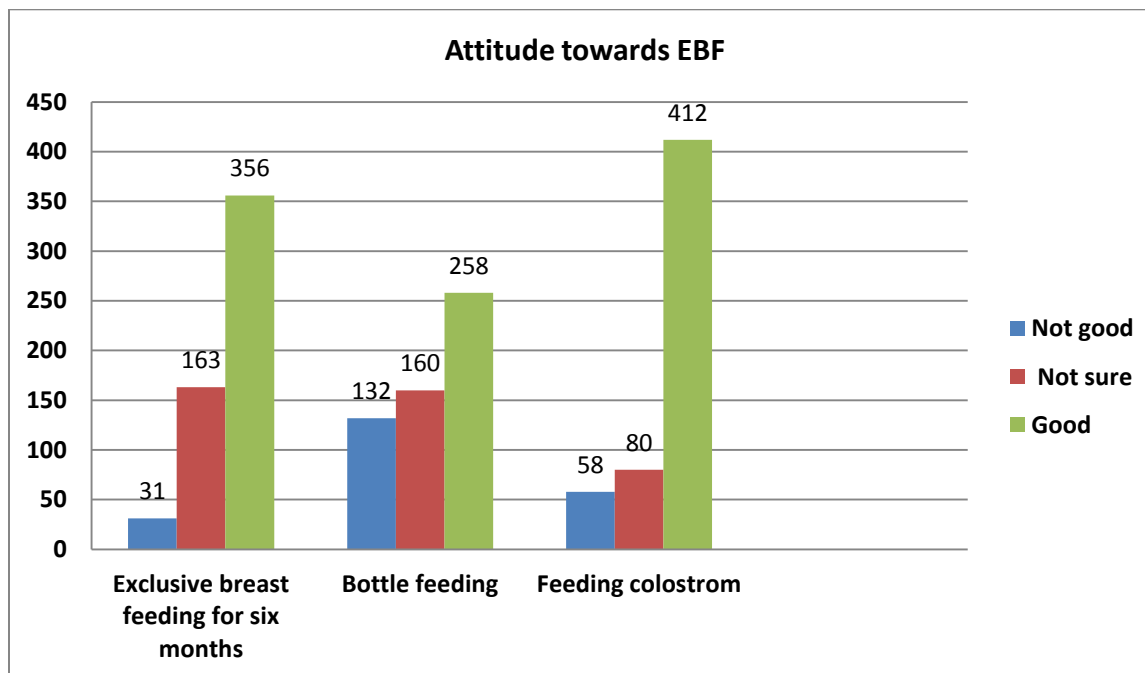


Figure 4: Attitude towards EBF among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018.

Knowledge of mothers on exclusive breast feeding

After assessing the knowledge of the mothers regarding EBF, about 468 (85.1%) respondents know that breast feeding should be initiated immediately with in 1 hour. About 462(84%) respondents know that breast milk should be given to the baby exclusively until 6 month. About 321(58.4%) respondents know that pre-lacteal feeding should not be given to the baby before breast milk. Two hundred twenty-nine (41.6%) respondents know that baby should be feed with cup; others 317 (57.6%) respondents said baby should feed with bottle.

Table 4: Knowledge of EBF among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables		Frequency	Percent
Baby should start breastfeeding	Immediately after birth	468	85.1%
	Hours after birth	67	12.2%
	Days after birth	14	2.5%
	Don't Know	1	0.2%
Baby should receive only breast milk	From birth to six months	462	84.0%
	Other	64	11.6%
	Don't know	24	4.4%
Babies should be given prelacteal feeds	Yes	229	41.6%
	No	321	58.4%
Colostrum should be fed to the baby	Yes	402	73.1%
	No	148	26.9%
Babies should feed with which one?	Bottle	317	57.6%
	Cup	229	41.6%
	I don't know	4	0.7%

5.2.2 Complimentary feeding

Practice of respondents on complimentary feeding

Among 206 mothers with children aged between 6 and 12 months old, 197 (95.6%) of them started giving complementary feeding for their infants. About 130(63.5%) of mothers of children from 6 month -12 month introduced liquid or semi-solid foods at 6 month. Thirty nine (18.8 %) respondents children started complementary feeding after sixth months, thirty six (17.7 %) were initiated before they reached the sixth month. Concerning minimum meal frequency out of 369 mothers of children from 6 month up to 24 month below half,162 (44%) of mothers of children from 6 month up to 12 month give their child complimentary foods 3 times per day. The majority, 314 (85 %) of the children had poor dietary diversity. Among 106 mothers who had 12–18 months old children, 86 (81.1%) of them continued to breastfed their children at one year. Among 54 mothers who had children aged from 20 to 24 months, 42 (77.8%) of them continued to breastfed at age two years.

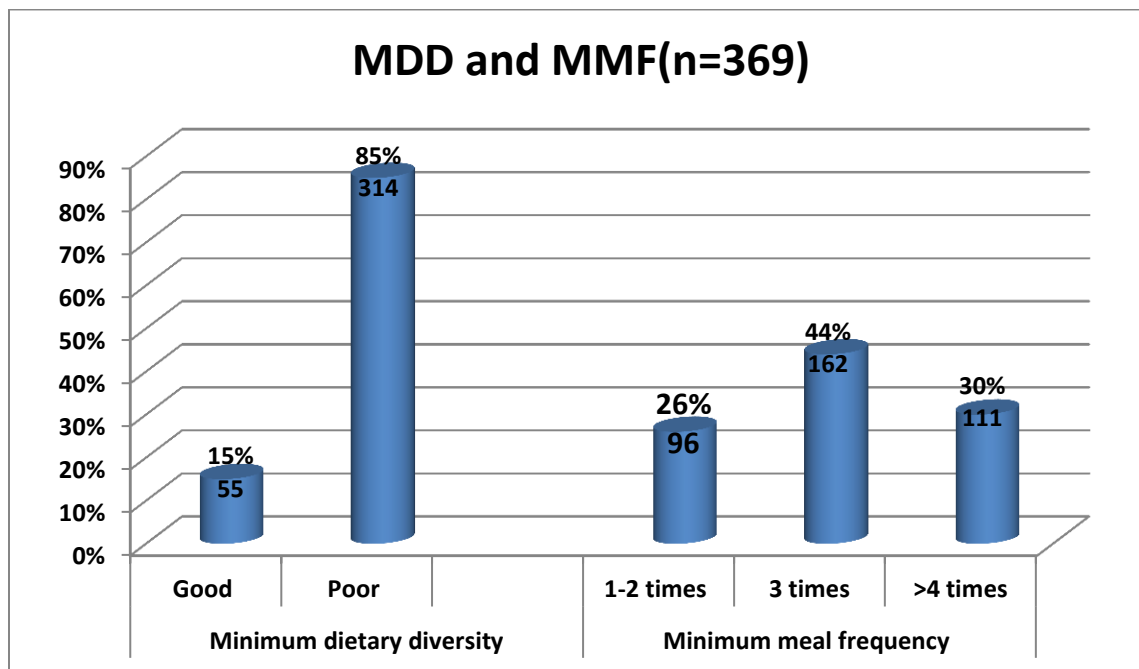


Figure 5: Minimum dietary diversity and minimum meal frequency of children from six month up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018.

Attitude of respondents towards complimentary feeding

Out of the total 550 participants 320 (58.2%) respondents had good attitude towards giving different type of food to their child each day and 357(64.9%) of the respondents had good attitude towards feeding their child several times per day .Three hundred eighty (69.1 %) respondents had good attitude towards continuing breast feeding until 24 month .

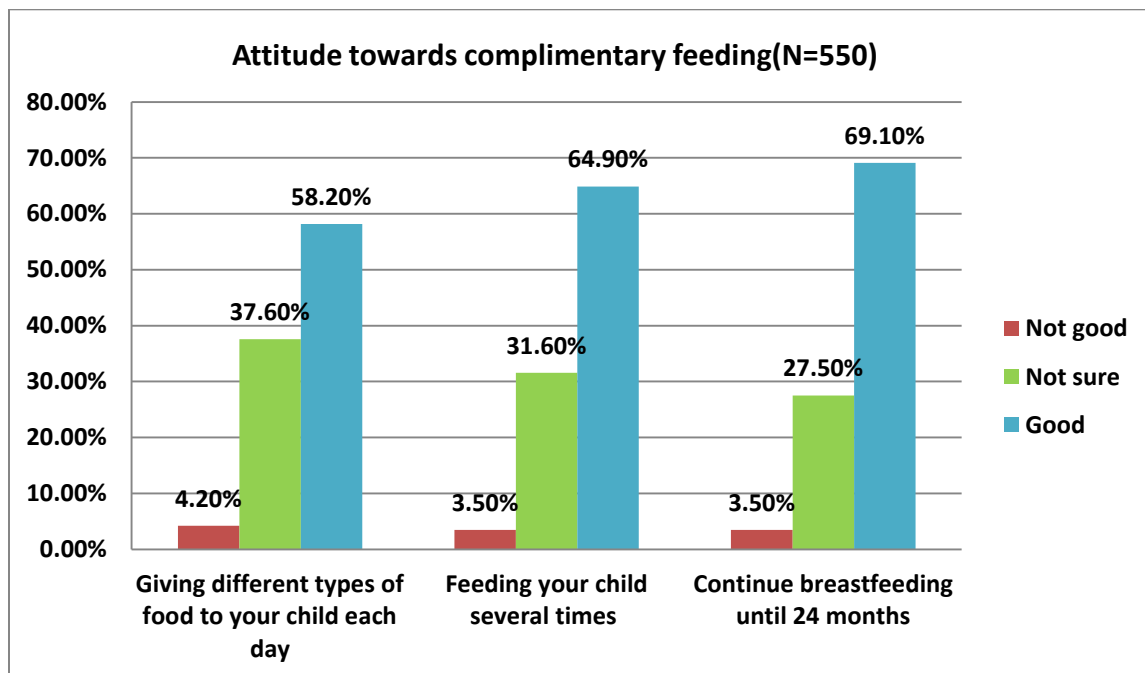


Figure 6: Attitudes of mothers of children from birth up to 24 month towards complimentary feeding in Wereilu District, South Wollo Zone, Ethiopia, 2018.

Knowledge of respondents on complimentary feeding

Four hundred seventy-one (85.6%) respondents know that complimentary food should be started at 6 month. About 122 (22.2%) know that child should get liquid or semi-solid food 3 times/ day. Two hundred thirty-one (42%) respondents know that breast should be continued until 24 month. About 36.7%, 24.1%, 50.6%, 34.0% and 31.4% of the respondents know that child consume per day animal source foods, Pulses and nuts, Vitamin-A-rich fruits and vegetables, Green leafy vegetables and Energy-rich foods respectively.

Table 5: knowledge of complimentary feeding among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variable		Frequency	Percent
Initiation of complimentary feeding	At six months	471	85.6%
	Other	47	8.5%
	Don't know	32	5.8%
	<3	9	2.5%
Frequency of complimentary feeding	3-4	139	38%
	5-6	72	19.6%
	7-8	101	24.8%
	>8	55	15%
Continuation of breastfeeding	Six months or less	64	11.6%
	6–11 months	89	16.2%
	12–23 months	164	29.8%
	24 months and more	232	42.2%

Table 6: Knowledge of types of food should child eat per day among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Which one of the following food should your child consume per day			
Food type	Responses		Percent of Cases
	Frequency	Percent	
Animal-source foods	201	20.8%	36.7%
Pulses and nuts: flours of groundnut and other legumes	132	13.6%	24.1%
Vitamin-A-rich fruits and vegetables	277	28.6%	50.6%
Green leafy vegetables (e.g. spinach)	186	19.2%	34.0%
Energy-rich foods (e.g. oil, butter/ghee)	172	17.8%	31.4%
Total	968	100.0%	177.0%

5.2.3 Feeding sick child during and after illness

Practice of feeding sick child during and after illness

Among a total of 550 participants, 202 (36.5%) participant's children were sick in the last 2 weeks ;of those ,Only 40 (19.8%) ,85(42.1%) and 77 (38.1%) mothers of sick children gave more than the usual amount of breastfeed, fluid, and food respectively. About 69.2%, 43.6%, 47% of respondents gave the same amount of breastfeed, fluid, and food respectively .The rest .5% and 2% of respondents gave less than the usual amount of fluid and food respectively.

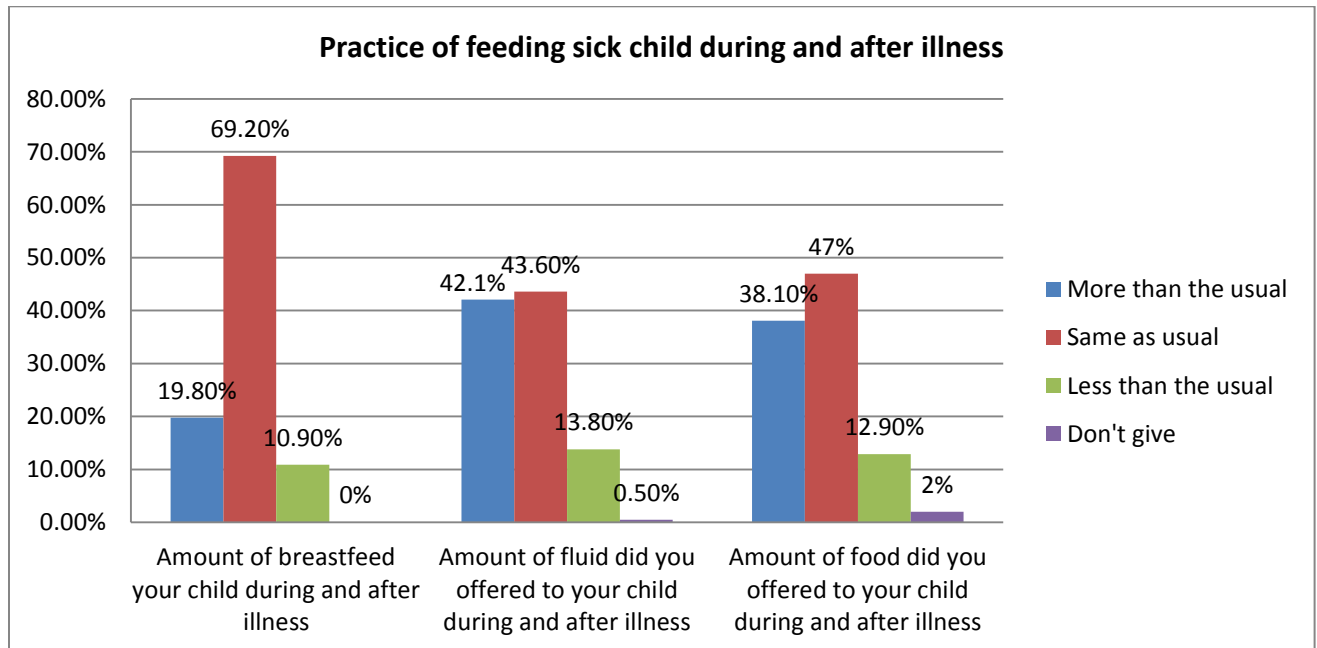


Figure 7: Practice during and after children illness among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Attitude towards feeding sick child during and after illness

Out of total interviewed respondents 269(48.9%), 283 (51.5%) and 291(52.9%) of mother's of sick children had good attitude towards increasing the amount of breast feed, fluid and food respectively. About 250(45.5%), 231(42%) and 213(38.7%) mothers were not sure weather increasing the amount of breast feed, fluid and food respectively during and after illness of their child is good or not. The rest 31(5.6%), 36 (6.5%), and 46 (8.4%) have poor attitude towards increasing the amount of breast feed, fluid and food respectively during and after illness of their child.

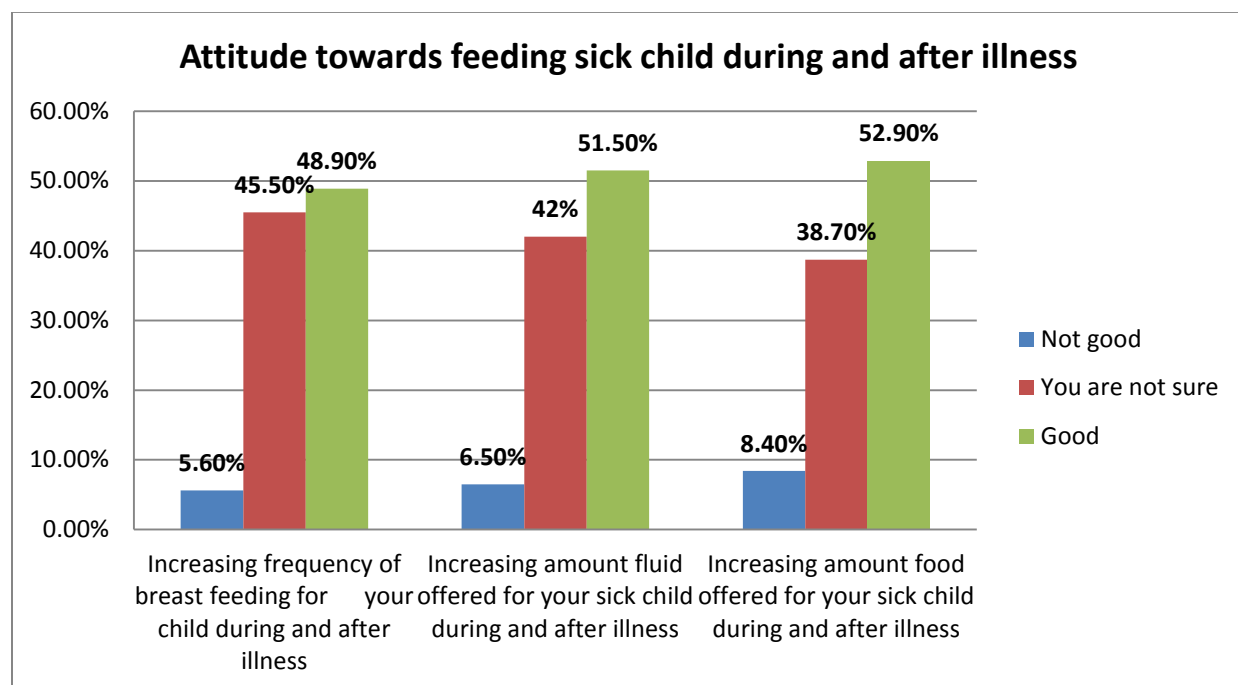


Figure 8: Attitudes of mothers towards feeding of sick child during and after illness among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018.

Knowledge of respondents on feeding of sick child during and after illness

Regarding knowledge of respondents towards feeding sick child during and after illness 307(55.8%), 293(53.3%), 308(56%) of respondents knows the amount of breastfeed, fluid and food should be more than the usual during and after illness respectively. One hundred ninety-three (35.1%), 206(37.5%) and 184(33.5%) respondents said that the same frequency of breast feeding, amount of fluid and food should be given to sick child respectively.

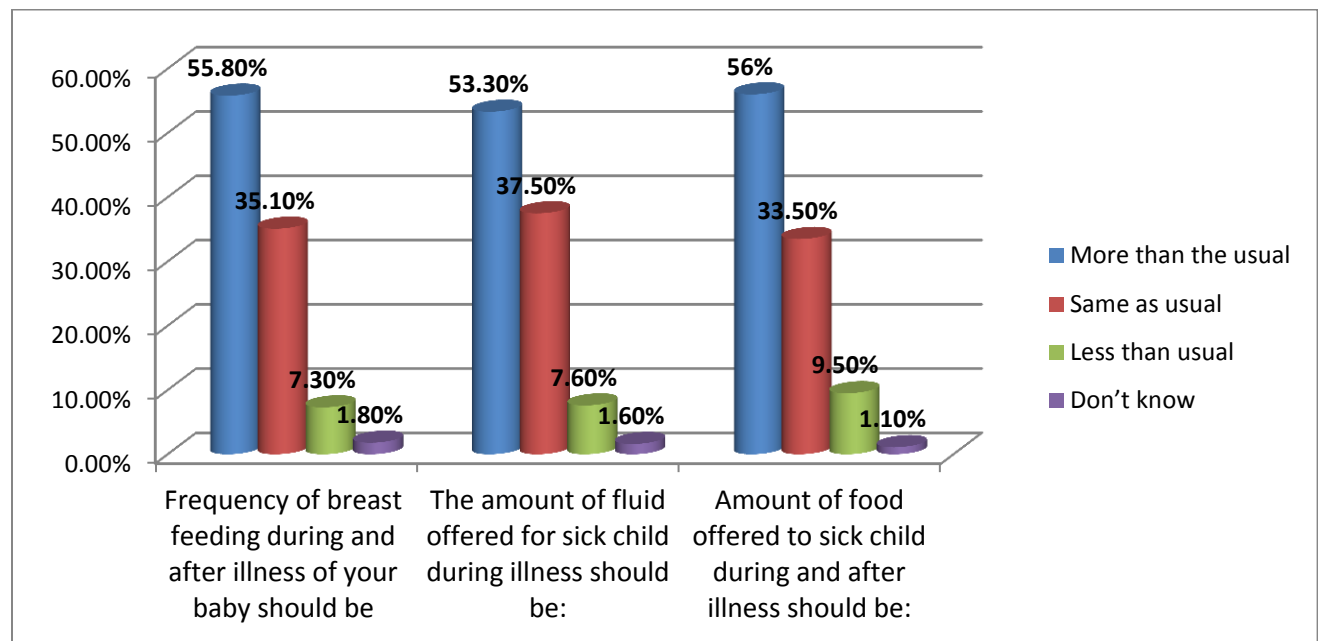


Figure 9: Knowledge on feeding of sick child during and after illness among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

5.2.4 Nutrition of women's during pregnancy and lactation

Practice of mothers on nutrition of women's during pregnancy and lactation

Four hundred sixty nine (85.3%) respondents had practiced the habit of eating snacks during their pregnancy and lactation period. About 437(79.5%) respondents eat a variety of foods, particularly animal products (meat, milk, egg) plus fruit and vegetables during pregnancy and lactation. Four hundred seven (74%) respondents have got iron/folic acid pill during pregnancy while 121(22%) did not take iron/folic acid pill during and the rest 22(4%) doesn't remember whether they had taken or not.

Table 7: Practice of respondents' nutrition of women during pregnancy and lactation among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables		Frequency	Percent
Eat one additional meal every day	yes	469	85.3%
	No	81	14.7%
Eat a variety of foods, particularly animal products , plus fruits & vegetables	yes	437	79.5%
	No	113	20.5%
Get iron/folic acid pills	yes	407	74.0%
	No	121	22.0%
	I don't know	22	4.0%

Attitude of respondents towards nutrition of women's during pregnancy and lactation

Two hundred eighty-three (51.5%) respondents had good attitude towards eating one additional meal during pregnancy and lactation; the rest 226(41.1%) were not sure and 41(7.5%) had poor attitude. Regarding iron deficiency anemia, 306 (55.5%) of respondents believe as iron deficiency anemia is serious; the rest 215(39.1%) were not sure and 29(5.3%) think as it is not serious. Three hundred forty-three (62.4%) respondents believe preparing and eating iron rich foods such as beef, chicken or liver is good ; while 183(33.3%) were not sure and 24(4.4%) of the respondents think preparing and eating iron rich foods such as beef, chicken or liver is not good.

Table 8: Attitude towards nutrition of women's during pregnancy and lactation among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variable		Frequency	Percent
Eat more food during pregnancy	Not good	41	7.5%
	You're not sure	226	41.1%
	Good	283	51.5%
iron-deficiency/anemia	Not serious	29	5.3%
	You're not sure	215	39.1%
	Serious	306	55.6%
prepare meals with iron-rich foods such as beef, chicken or liver	Not good	24	4.4%
	You're not sure	183	33.3%
	Good	343	62.4%

Knowledge of mothers on nutrition of women's during pregnancy and lactation

Out of 550 respondents 406(73.8%) respondents know that pregnant mother should eat more frequently than non-pregnant mother .Three hundred forty-five (62.7%) of the respondents know that taking iron supplementation during pregnancy will have benefit. Similarly ,three hundred forty-one (62%) respondents know that taking iron and folic acid supplementation helps for normal development of the nervous system while the rest 209 (38%) did not know. Moreover , one hundred sixty-five (30%) respondents know that taking iron and folic acid supplementation helps to prevent birth defect of central nervous system ;the rest 385(70%) did not know that iron and folic acid supplementation helps to prevent birth defect of central nervous system.

Table 9: Knowledge of nutrition of women's during pregnancy and lactation among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables		Frequency	Percentage
A pregnant and lactating woman should eat	Eat more frequently	406	73.8%
	Eat more protein-rich foods	110	20.0%
	Eat more iron-rich foods	26	4.7%
	Use iodized salt when preparing meals	8	1.5%
Two types of supplements, or tablets, during pregnancy.	Iron supplements	345	62.7%
	Folic acid supplements	169	30.7%
	Other	10	1.8%
	Don't know	26	4.7%
Health benefit of taking folic acid supplements/tablets	For normal development of the nervous system of the unborn baby (brain, spine and skull)	341	62.0%
	To prevent birth defects/abnormalities the nervous system of the unborn baby (brain, spine and skull)	165	30.0%
	Other	22	4.0%
	Don't know	22	4.0%

5.2.5 Vitamin A prevention

Practice of mothers on vitamin A prevention

Three hundred forty-nine (63.5%) respondents have taken vitamin A supplementation within 45 days after delivery. About 255(69.1%) respondent's children have taken vitamin A supplementation 2 times a year after 6 month of age. One hundred sixty-two (29.5%) participants eat animal-source foods-Liver, Kidney, Heart, and Egg yolks/egg from chicken, Milk, cheese, yogurt or other dairy product with in the last 24 hours. One hundred seventy-eight (32.4%) participants eat green vegetables-Amaranths, spinach, cassava leaves, kale and other green leafy vegetables with in the last 24 hours. Two hundred sixty-five (48.2%) respondents eat Fruits-Ripe mango, ripe papaya within the last 24 hours.

Table 10: Practice of vitamin A prevention among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables		Frequency	Percent
Mother take Vitamin A supplementation as soon as possible (within 45 days) after delivery	Yes	349	63.5%
	No	201	36.5%
Child get Vitamin A supplementation two times a year after 6 month of age	Yes	255	69.1%
	No	114	30.9%
Eat animal-source foods-Liver, Kidney, Heart, and Egg yolks/egg from chicken, or other dairy product	Yes	162	29.5%
	No	388	70.5%
Eat Green vegetables-Amaranths, spinach, cassava leaves, kale and other green leafy vegetables	Yes	178	32.4%
	No	372	67.6%
Eat Fruits-Ripe mango, Ripe papaya	Yes	265	48.2%
	No	285	51.8%

Attitude of mothers towards vitamin A prevention

Two hundred seventy-three (43.1%) respondents believe that vitamin A deficiency is serious; the rest 278(50.5%) were not sure and 35(6.4%) believe that vitamin A deficiency is not serious. Three hundred thirty-seven (61.3%) respondents think eating vitamin A rich foods such as carrot ,green leafy vegetables ,sweet potato, and liver is good; while 183(33.3%) were not sure and 30(5.5%) respondents believe eating vitamin A rich foods such as carrot , green leafy vegetables ,sweet potato, and liver is not good.

Table 11: Attitude towards vitamin A prevention among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables		Frequency	Percent
lack of vitamin A	Not serious	35	6.4%
	You're not sure	278	50.5%
	Serious	237	43.1%
Prepare meals with vitamin-A-rich foods such as carrots, green leafy vegetables, sweet-potatoes or liver	Not good	30	5.5%
	You're not sure	183	33.3%
	Good	337	61.3%

Knowledge of mothers on vitamin A prevention

Regarding prevention of vitamin A deficiency three hundred five (55.5%) respondents know that it can be prevented by eating vitamin-A-rich foods – having/giving a diet rich in vitamin A, 145(26.4%) by Eat/feed foods fortified with vitamin A and 299(54.3%) by getting vitamin A supplementation; the rest 99(18%) do not know how to prevent vitamin A deficiency. Two hundred ninety (52.7%) respondents know that mother should take Vitamin A supplementation as soon as possible (within 45 days) after delivery. Forty-hundred twenty-nine (78%) participants know that Child should take Vitamin A supplementation two times a year after 6 month of age .Regarding symptoms of vitamin A deficiency 200(37.6%) participants know that vitamin A deficiency causes weakness/feels less energetic, 210(39.5%) know that vitamin A deficiency causes to be more likely to become sick and 288(54.1%) participants know that vitamin A deficiency causes eye problems: night blindness (inability to see at dusk and in dim light), dry eyes, corneal damage, blindness.

Table 12: Knowledge of vitamin A prevention among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables		Frequency	Percent
Prevention of a lack of vitamin A	Eat/feed vitamin-A-rich foods – having/giving a diet rich in vitamin A	305	55.5%
	Eat/feed foods fortified with vitamin A	145	26.4%
	Give vitamin A supplements/sprinkles	299	54.3%
	Don't know	99	18%%
Vitamin A supplementation as soon as possible (within 45 days) after delivery for the mother	Yes	290	52.7%
	No	260	47.3%
Vitamin A supplementation two times a year after 6 month of age for the child	Yes	429	78.0%
	No	121	22.0%

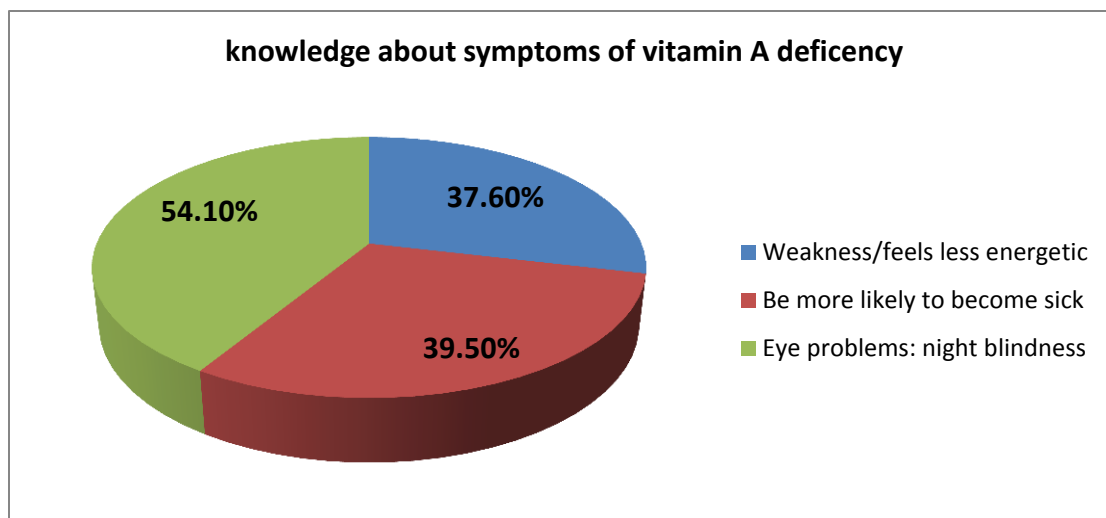


Figure 10: Knowledge of symptoms of vitamin A prevention among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

5.2.6 Prevention of anemia for women and children

Practice of mothers on prevention of anemia

Four hundred seven (74%) mothers received iron or folic acid during pregnancy; the rest 131 (23.8%) respondents did not. Four-hundred fifty-three (82.4%) respondents eat meat and animal products during pregnancy. Four-hundred forty (80%) participants eat green leafy vegetables and fruit during pregnancy; the rest 110(20%) participants did not eat.

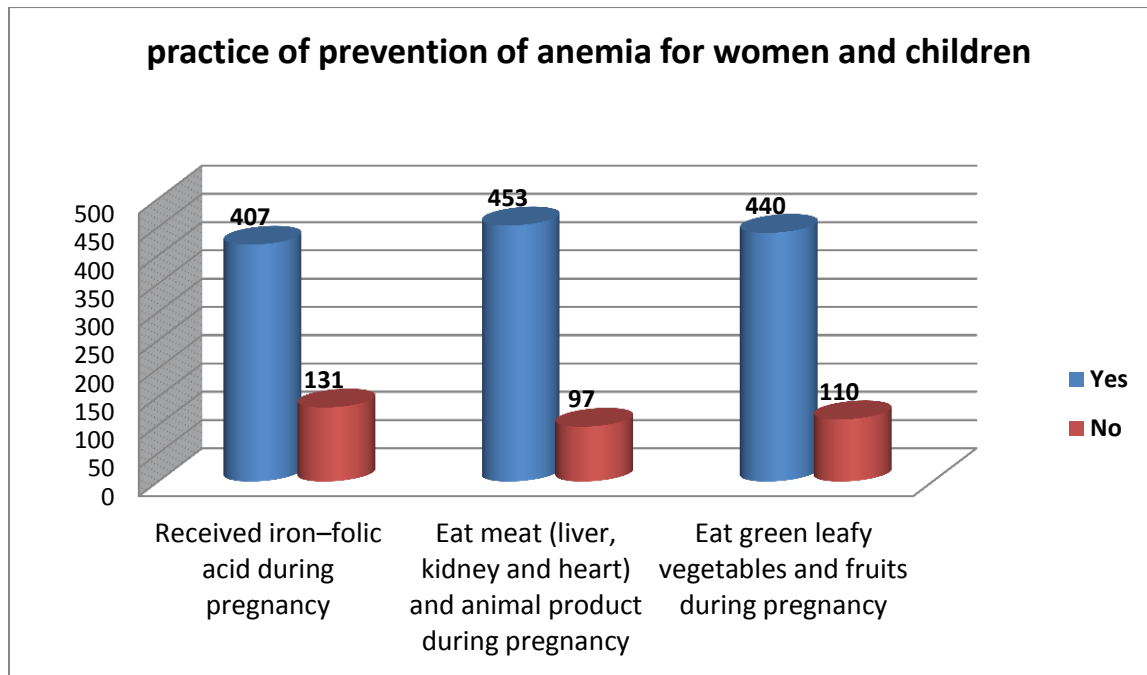


Figure 11: Practice on prevention of anemia for women and children among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Attitude of mothers towards prevention of anemia

Eighty four (15.3%) respondents think as they are likely to develop iron deficiency anemia; the rest 350(63.3%) were not sure and 116(21%) respondents think that they are not likely to develop iron deficiency anemia. 306 (55.6%) participants think that iron deficiency anemia is serious; while the rest 215(39.1%) were not sure and 29(5.3%) think that iron deficiency anemia is not serious. Three hundred nineteen (58%) participants think preparing meal with iron rich food such as beef or liver is good ;the rest 199(36.2%) were not sure and 32(5.8%)think that preparing meal with iron rich food such as beef or liver is not good.

Table 13: Attitude towards prevention of anemia for women and children among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variable		Frequency	Percent
How likely to be iron-deficient/anemic?	Not likely	116	21.1%
	You're not sure	350	63.6%
	Likely	84	15.3%
	Not serious	29	5.3%
	You're not sure	215	39.1%
	Serious	306	55.6%
iron-deficiency/anemia	Not good	32	5.8%
	You're not sure	199	36.2%
	Good	319	58.0%

Knowledge of mothers on prevention of anemia

Four hundred fifty-nine (83.5%) participants know that pregnant and lactating mother should receive iron-folic acid. Regarding the health risk of iron deficiency 401(72.9%) of the respondents know that iron deficiency cause delay in mental and physical development; the rest 121 (22%) said other than the above and 28 (5.1%) didn't know what it cause. Four-hundred thirty-four (78.9%) participants know that conception of meat and animal product during pregnancy is helpful to prevent anemia. About 417(75.8%) participants know that consumption of green leafy vegetable and fruit should be consumed to prevent iron deficiency anemia.

Table 14: Knowledge on prevention of anemia for women and children among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variable		Frequency	Percent
Pregnant and lactating mothers should receive iron–folic acid	Yes	459	83.5%
	No	91	16.5%
Health risks for infants and young children of a lack of iron in the diet	Delay of mental and physical development	401	72.9%
	Other	121	22.0%
	Don't know	28	5.1%
Consumption of meat and animal product during pregnancy is helpful to prevent anemia	Yes	434	78.9%
	No	116	21.1%
Consumption of green leafy vegetables and fruits should be consumed to prevent iron deficiency anemia	Yes	417	75.8%
	No	133	24.2%

5.2.7 Prevention of iodine deficiency for all members of the household

Practice of mothers on prevention of iodine deficiency

Four hundred fifty-six (82.9%) respondents used iodized salt while they cook family food; However, 94 (17.1%) of the respondents used non iodized salt. Four hundred four (73.5%) respondents did add salt to stew at the end, while the rest 137(24.9%) added salt at middle and 9(1.6%) added salt at the beginning. About 483 (87.8 %) respondents did store salt in dark closed container; the rest 67(12.2%) did not.

Table 15: Practice on prevention of iodine deficiency among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables		Frequency	Percent
Kind of salt used while you cook family food	Iodized	456	82.9%
	Not iodized	94	17.1%%
Time when salt was added in to the stew	At the end	404	73.5%
	At the middle	137	24.9%
	At the beginning	9	1.6%
Store salt in dark closed container	Yes	483	87.8%
	No	67	12.2%

Attitude of mothers towards prevention of iodine deficiency

Two hundred thirty-one (42%) respondents think iodine deficiency is serious; the rest 277(50.4%) were not sure and 42(7.6%) think that iodine deficiency is not serious. About 311 (56.5%) participants think that preparing meal with iodized salt is good; while 212(38.5%) were not sure and 27(4.9%) participants think that preparing meal with iodized salt is not good.

Table 16: Attitude towards prevention of iodine deficiency among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variable		Frequency	Percent
Lack of iodine in the body	Not serious	42	7.6%
	You're not sure	277	50.4%
	Serious	231	42.0%
Prepare meals with iodized salt	Not good	27	4.9%
	You're not sure	212	38.5%
	Good	311	56.5%

Knowledge of mothers on prevention of iodine deficiency

Four hundred forty-one (80.2%) respondents know that they should eat food prepared from iodized salt; However, the rest 70(12.7%) list action other than the above and 39 (7.1%) do not know how to prevent iodine deficiency. About 417 (75.8%) respondents know that goiter can be caused by iodine deficiency. Regarding when salt should be added to the stew 404(73.5%) know that salt should be added to the stew at the end; the rest 139(25.3%), and 7(1.3%) respondents said that salt should be added at the middle and at the beginning respectively. About 435(79.1%) respondents know that salt should be stored in dark closed container.

Table 17: Knowledge on prevention of iodine deficiency among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variable		Frequency	Percent
Prevention of iodine deficiency	Eat/prepare foods with iodized salt	441	80.2%
	Other	70	12.7%
	Don't know	39	7.1%
Goiter can be caused by iodine deficiency	Yes	417	75.8%
	No	133	24.2%
Salt should be added in to a stew	At the end	404	73.5%
	At the middle	139	25.3%
	At the beginning	7	1.3%
Salt should be stored in dark closed container	Yes	435	79.1%
	No	115	20.9%

5.2.8 Access to nutritional related information

Regarding nutrition related information four hundred sixteen (75.6%) respondents hear message about maternal infant and young children feeding practice. Concerning source of this information 303(33.7%)respondents have got the information from Nurses followed by 277(30.8%) respondents have got the information from Health extension workers; other source of information are from media 116(12.9%),Midwives 115(12.8%) and Doctors 88(9.8%).Regarding time when information was given 389(44.7%)respondents have got the information during pregnancy followed by 186(21.4%)respondents have got the information during their post-natal period; the rest 130(14.9%),82(9.4%),48(5.5%), and 35(4%)have got nutritional information during delivery, immunization, sick child visit and well child visit respectively. Regarding where the information was given 440(57.9%) respondents have got at health facility, 246 (32.4%) in their home and 74 (9.7%) during community events.

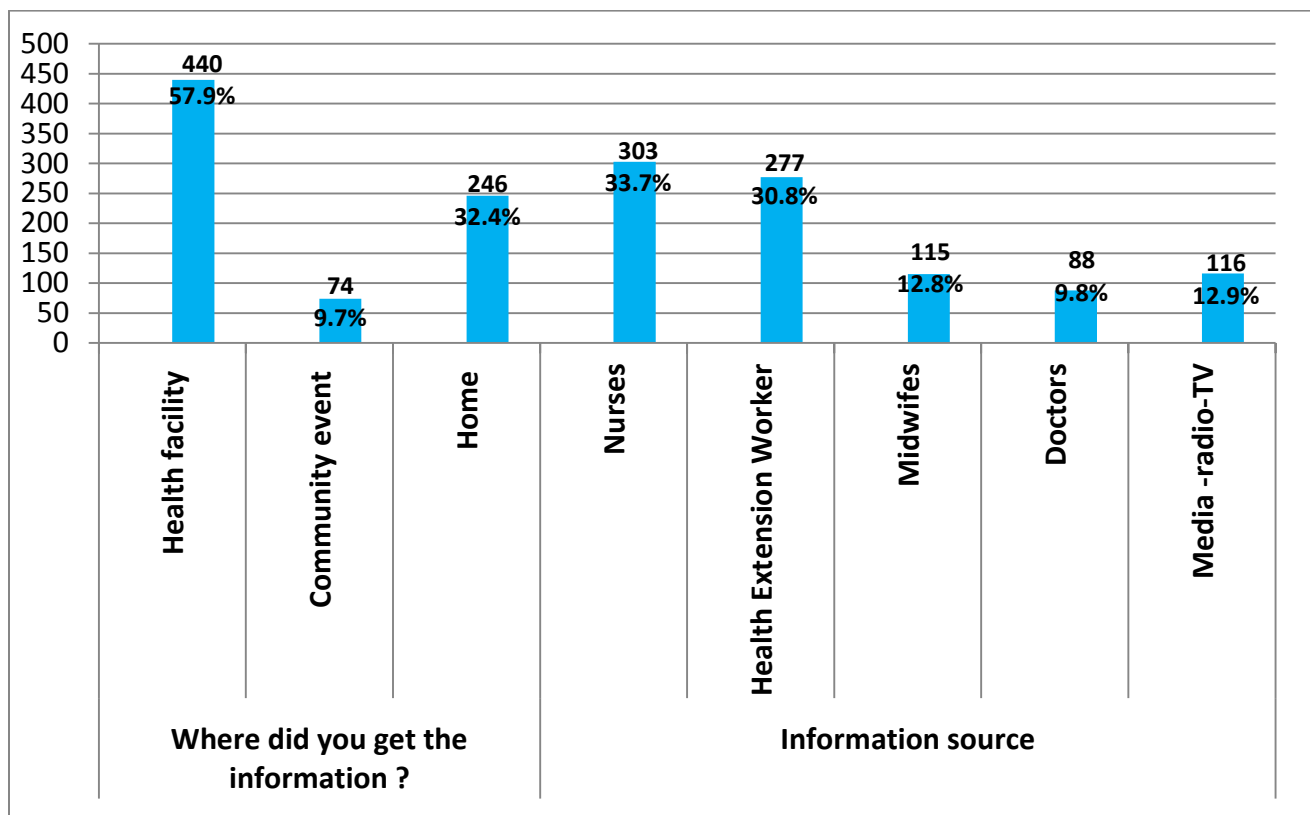


Figure 12: place where information was given and source for nutritional related information among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

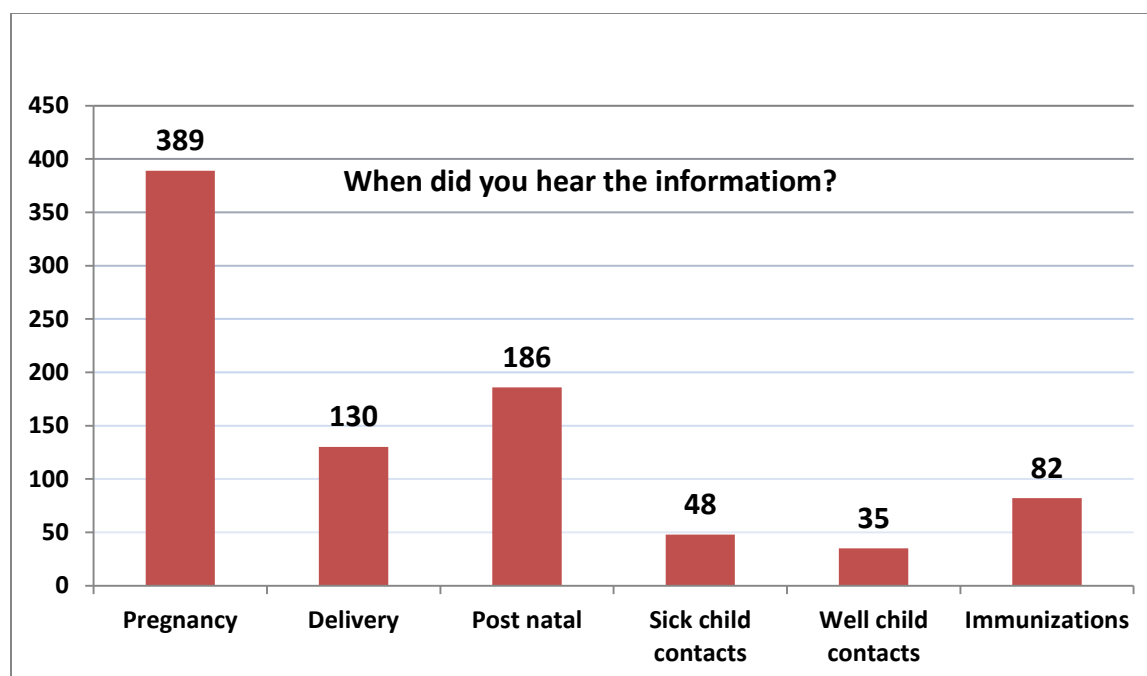


Figure 13: Time when nutrition related information was provided among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

5.3 Factors associated with knowledge, attitude and practice of key essential nutrition action messages

5.3.1 Bivariate and Multivariate analysis of practice on key ENA messages and associated factors

In bivariate logistic regression analysis educational status of the mother, educational status of the father, residence, monthly income, parity, sex of the child, place of birth, ANC follow up, PNC follow-up, nutrition related information, knowledge level and attitude level were associated with practice of key ENA messages. Those variables that have p-value less than or equal to 0.25 were entered to multivariable logistic regression model to adjust for possible confounders.

In multivariate logistic regression educational status of the mother and the father, monthly income, parity, place of birth, PNC, level of knowledge and level of attitude have been found to be significantly associated with the practice of key ENA messages. Accordingly, the odds of good practice of key ENA messages among children whose mothers attended primary school [AOR = 2.7, 95 % CI: (1.548-4.905)] and secondary school and above [AOR = 3.9, 95 % CI:

(1.929, 8.217)] was higher as compared to those illiterate mothers. Similarly, the odds of practice of key ENA messages were higher among fathers whose educational level was secondary and above [AOR=2.7, 95% CI: (1.356 -5.719)] as compared to those fathers who were illiterate. The odds of practice of key ENA messages were higher among fathers whose educational level was primary (AOR=2.0, 95% CI: (1.145-3.577)) as compared to those fathers who were illiterate. Monthly income was also associated with the practice of key ENA messages. Those who have higher monthly income were 4.4 times more likely to have good practice of key ENA messages than those who have lower income. Those who have medium income were also 2.2 times more likely to have good practice of key ENA messages than those who have lower income. Regarding parity children of multipara mothers were 2.1 times more likely to have good practice of key ENA messages than children of primipara mothers. Concerning place of birth the odds of good practice of key ENA messages among children who have been delivered in health institution (AOR=2.9, 95% CI: (1.692-5.157)) was higher as compared to those who have been delivered in their home. Furthermore, mothers who had PNC follow-up were 2.2 times more likely to practice the key ENA messages than those mothers who did not have PNC follow-up. In addition, mothers who have good knowledge were 3.2 times more likely to practice the key ENA messages than those with poor knowledge. Moreover, increased odds of practice of key ENA messages were noted among mothers who had good level of attitude towards key ENA messages [AOR = 5.5, 95 % CI: (3.146-9.8)] compared to those who had poor attitude.

Table 18: Factors associated with practice of key ENA messages among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables	Level of practice(N=550)		Odd Ratios		
	Good	Poor	COR(95% CI)	AOR(95% CI)	P value
Frequency (%)	Frequency (%)				
Educational status of the mother					
Illiterate	85(33.2%)	202(68.7%)			
Primary	102(39.8%)	60(20.4%)	4(2.7-6.07)**	2.7(1.55-4.9)**	.001
Secondary and above	69(27.0%)	32(10.9%)	5(3.14-8.36)**	3.98(1.93-8.22)**	.000
Educational status of the father					
Illiterate	111(43.4%)	230(78.2%)			.004
Primary	88(34.4%)	43(14.6%)	4(2.76-6.514)*	2.02(1.14-3.57)*	.015
Secondary and above	57 (22.3%)	21(7.1%)	5(3.247-9.74)**	2.784(1.35-5.719)**	.005
Residence					
Urban	79(30.9%)	36(12.2%)	3.2(2.06-4.96)*	.908(.51-1.62)	.744
Rural	117(69.1%)	258(87.8%)			
Monthly income					
Lower	104(40.6%)	200 (20.4%)			.001
Higher	18(7.0%)	60(11.6%)	3.27(1.7-6.3)**	4.4(1.9-10.2)**	.001
Medium	134(52.3%)	34(68.0%)	1.26(.68-2.3)*	2.2(1.03-4.8)*	.041
Parity					
Multipara	218(85.2%)	209(71.1%)	2.3(1.5-3.57)*	2.1(1.17-3.78)*	.013
Primipara	38(14.8%)	85(28.9%)			
Sex of the child					
Male	164(64.1%)	160(54.4%)	1.49(1.06-2.1)*	1.18(0.74-1.86)	.480
Female	92(35.9%)	134(45.6%)			

Place of birth					
Health institution	194 (75.8%)	196(66.7%)	1.56(1.07-2.27)**	2.95(1.69-5.16)**	.000
Home	62(24.2%)	98(33.3%)			
ANC follow-up					
Have ANC follow-up	186(72.7%)	117(39.8%)	4.02(2.8-5.7)*	1.2(.74-1.96)	.458
Have no ANC follow-up	70(27.3%)	177(60.2%)			
PNC follow-up					
Have PNC follow-up	156(60.9%)	91 (31.0%)	3.48(2.45-4.95)**	2.17(1.35-3.49)**	.001
Have no PNC follow-up	100 (39.1%)	203 (69.0%)			
Hear nutritional related information					
Hear nutritional related information	230(89.8%)	177(73.8%)	3.14(1.94-5.08)*	.611(.305-1.224)	.165
Did not hear nutritional related information	26(10.2%)	117(26.2%)			
Knowledge level					
Good knowledge	222(86.7%)	143(48.6%)	6(4.49-10.57)**	3.2(1.86-5.58)**	.000
Poor knowledge	34(13.3%)	151(51.4%)			
Attitude level					
Good attitude	233(91.0%)	146(49.7%)	10(6.32-16.68)**	5.5(3.14-9.8)**	.000
Poor attitude	23(9.0%)	148(50.3%)			

Note: *p-value <0.05, **p-value<0.01, CI = Confidence Interval, COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio

5.3.2 Bivariate and Multivariate analysis on level of attitude towards key ENA messages and associated factors

In bivariate logistic regression analysis: educational status of the mother and the father, residence ,monthly income, sex of the child ,place of birth , ANC follow-up ,PNC follow-up , nutritional related information, and knowledge level were associated with attitude of mothers towards key ENA messages.

In multivariate logistic regression analysis: sex of the child, place of birth, ANC follow-up, PNC follow-up and level of knowledge of the respondents were significantly associated with attitude of respondents towards key ENA messages. Accordingly, the odds of good attitude towards key ENA messages were higher among mothers with male child (AOR=2.1, 95% CI: (1.36-3.18)) as compared to those mothers with female child. Concerning place of birth the odds of good attitude towards key ENA messages among children who have been delivered in health institution (AOR=1.7, 95% CI: (1.045-2.995)) were higher as compared to those who have been delivered in their home. Regarding ANC follow-up mothers who had ANC follow-up were 2.4 times more likely have good attitude towards key ENA messages than mothers who had not ANC follow-up. Similarly, the odds of attitude towards key ENA messages were higher among mothers who had PNC follow-up (AOR=1.7, 95% CI: (1.085-2.752)) as compared to those mothers who had not PNC follow-up. Moreover, respondents with good knowledge level were 2.5 times more likely to have good attitude than those with poor knowledge.

Table 19: Factors associated with attitude towards key ENA messages among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables	Level of attitude (N=550)		Odd Ratios		
	Good Frequency (%)	Poor Frequency (%)	COR(95% CI)	AOR(95% CI)	P value
Educational status of the mother					
Illiterate	162(42.7%)	125(73.1%)			
Primary	133(35.1%)	29(17.0%)	3.5(2.2-5.6)*	1.7(.99-3.13)	.054
Secondary and above	84(22.2%)	17(9.9%)	3.8(2.15-6.75)*	2.0(.98- 4.2)	.057
Educational status of the father					
Illiterate	204(53.8%)	137(90.1%)			
Primary	109(28.8%)	22(12.9%)	3.3(2.0-5.5)*	1.4(.76-2.56)	.270
Secondary and above	66(17.4%)	12(7.0%)	3.6(1.9-7.1)*	1.8(.82-3.94)	.141
Residence					
Urban	99(26.1%)	16(9.4%)	3.4(1.9-6.0)*	1.5(.81- 2.94)	.189
Rural	280(73.9%)	155(90.6%)			
Monthly income					
Higher	128(33.8%)	36(21.1%)	2.0(1.0-4.0)*	1.5(0.71-3.50)	.263
Medium	218(57.5%)	116(67.8%)	1.0(.5-1.9)*	1.2(.62-2.61)	.509
Lower	33(8.7%)	19(11.1%)			
Sex of the child					
Male	245(64.6%)	79(46.2%)	2.1(1.47-3.07)**	2.0(1.36-3.18)**	.001
Female	134(35.4%)	92(53.8%)			
Place of birth					
Health institution	258(68.1%)	132(77.2%)	1.6(1.05-2.41)*	1.7(1.04-2.99)*	.034
Home	121(31.9%)	39(22.8%)			
ANC follow-up					
Have ANC follow-up	248(65.4%)	55(32.2%)	3.9(2.7-5.8)**	2.4(1.53- 3.86)**	.000
Have no ANC follow-up	131(34.6%)	116(67.8%)			
PNC follow-up					
Have PNC follow- up	200(52.8%)	47(27.5%)	2.9(1.9-4.36)*	1.7(1.08-2.75)*	.021

Have no PNC follow-up	179(47.2%)	124(72.5%)			
Hear nutritional related information					
Hear nutritional related information	318(83.9%)	129(75.4%)	1.7(1.09-2.6)**	1.4(.82-2.49)	.210
Did not hear nutritional related information	61(16.1%)	42(24.6%)			
Knowledge level					
Good knowledge	294(77.6%)	71(41.5%)		2.5(1.6- 4.08)**	.000
Poor knowledge	85(22.4%)	100(58.5%)	4.8(3.3-7.18)**		

***p-value <0.05, **p-value<0.01, CI = Confidence Interval, COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio**

5.3.3 Bivariate and Multivariate analysis of level of knowledge and associated factors

In bivariate logistic regression: educational status of the mother , educational status of the father ,residence, ANC follow-up, PNC follow –up and nutritional information were associated with level of knowledge of the respondents.

In multivariate logistic regression: educational status of the mother, residence, ANC follow-up, PNC follow-up and nutrition information were significantly associated with level of knowledge of the respondents. Regarding educational status of the mother the odds of good knowledge of key ENA messages among children whose mothers attended primary school [AOR =2.8, 95 % CI: (1.650- 4.801)] and secondary school and above [AOR = 6.1, 95 % CI: (2.945- 12.719)] were higher as compared to those illiterate mothers. In addition, those respondents whose residence was urban were 2.2 times more likely have good level of knowledge than respondents whose residence was rural. Similarly, the odds of knowledge of key ENA messages were higher among mothers who had ANC follow-up (AOR=3.7, 95% CI: 2.421-5.742) as compared to those mothers who had not ANC follow-up. Moreover, regarding nutritional information mothers who heard nutritional related information were 1.9 times more likely to have good knowledge level of key ENA messages than mothers who did not heard nutrition related information.

Table 20: Factors associated with knowledge of key ENA messages among mothers of children from birth up to 24 month in Wereilu District, South Wollo Zone, Ethiopia, 2018

Variables	Level of knowledge (N=550)		Odd Ratios		
	Good	Poor	COR(95% CI)	AOR(95% CI)	P value
	Frequency (%)	Frequency (%)			
Educational status of the mother					
Illiterate	146(40.0%)	141(76.2%)			
Primary	131(35.9%)	31(16.8%)	4.0(2.59-6.4)**	2.8(1.65-4.8)**	.000
Secondary and above	88(24.1%)	13(7.0%)	6.5(3.5-12.2)**	6.1(2.9-12.7)**	.000
Educational status of the father					
Illiterate	199(54.5%)	142(76.8%)			
Primary	104(28.5%)	27(14.6%)	2.7(1.7-4.4)*	1.4(.67-2.9)	.368
Secondary and above	62(17.0%)	16(8.6%)	2.7(1.5-4.9)*	1.2(.53-2.7)	.659
Residence					
Urban	100(27.4%)	15(8.1%)	4.2(2.4-7.6)*	2.2(1.14-4.25)*	.019
Rural	265(72.6%)	170(91.9%)			
ANC follow-up					
Have ANC follow-up	250(68.5%)	53(28.6%)	5.4(3.67-7.98)**	3.7(2.42-5.74)**	.000
Have no ANC follow-up	115(31.5%)	132(71.4%)			
PNC follow-up					
Have PNC follow-up	195(53.4%)	52(28.1%)	2.9(2.0-4.29)**	2.2(1.37- 3.4)**	.001
Have no PNC follow-up	170(46.6%)	133(71.9%)			
Hear nutritional related information					
Hear nutritional related information	324(88.8%)	123(66.5%)	3.9(2.5-6.2)*	1.9(1.14-3.49)*	.015
Did not hear nutritional related information	41(11.2%)	62(33.5%)			

*p-value <0.05, **p-value<0.01, CI = Confidence Interval, COR = Crude Odds Ratio, AOR = Adjusted Odds Ratio

6 Discussion

This study was performed to assess the magnitude and associated factors of knowledge, attitude and practice of key ENA messages among mothers of children from birth to 24 month in Wereilu District. Accordingly, the overall prevalence of good knowledge, good attitude and good practice were 66.4%, 68.9% and 46.5% respectively. This finding is higher than previous study done in Ambo District, West Shoa Zone, Ethiopia, according to which the prevalence of good knowledge, good attitude and good practice were 39%, 32% and 28.7% respectively (82).The possible justifications for this discrepancy might be the increased Ethiopian Government efforts to improve maternal and child nutrition through a community based Health Extension Program and variation in study setting.

This study revealed that 82.3% EBF practice which is almost consistent with study in Bahirdar 84% (31). However, this practice is higher than study finding in Azezo District 79% (32) ,in Oromia Region 56.7%((71) , and Al Hassa-Soudi Arabia(72) .Possible justifications for this variation could be the increased maternal and child health service utilization in this study such as use of delivering at a healthcare facility (70.9 %).It might also be due to time gap between studies because now adays the number of health facilities/health professionals is increasing every year.

In this study 84.2% of mothers initiated breastfeeding within the first hour after delivery. Which is almost consistent with study in Southern Ethiopia (33) and Bahir Dar (31).However, this finding is higher than previous study findings in Ethiopia (73), Tanzania (74) and in India (75). The discrepancy might be due to the time gap between studies and in Ethiopia, the number of mothers who had ANC follow up and who give birth at a health institution is dramatically increasing due to persistent promotion of the free delivery service provision in the country, which creates a good opportunity for health professionals to give information and to promote the initiation of breastfeeding within an hour after birth.

As per this study, 49.5% of mothers used a bottle to feed their index child which is not a WHO recommendation. This finding is higher than previous study finding in Bahirdar(31),in India (76). In this study 192 (34.9%) mothers gave prelacteal feeds to their index child ;This finding is higher than EDHS 2016(30), in Bahirdar (31).This might be explained by the majority of mothers in the current study had no formal education and a lack of access to mass media because

of their poor socioeconomic status and most of the respondents of this study are from rural area, where there is less access to nutrition related information.

Regarding attitude towards EBF in this study 64.7% of the respondents had good attitude towards EBF. This is lower than a research done in Gondar(36)and in Mizan Aman(37). This lower result in the current study may be due to low income, relatively high family size and low educational status of the study participants as compared to other previous studies.

According to this study only 24% of the respondents were considered bottle feeding is dangerous; which is lower than study in Gondar (37.3%) (36).This might be due to the difference in socio-economic status , cultural variation among study populations and difference in setting and time gap between studies.

In this study about 30% of respondents believed that pre-lacteal foods like butter, sugar and water is good to their neonates. The finding was in line with study done in Northwest Ethiopia 26.8% (77) . However ,the result is lower than a research done Somali Region ,Eastern Ethiopia which were 82%(35). The probable reasons to this discrepancy could be a variation in socio-demographic characteristics like educational status of study subjects and difference in access to health related information.

This study revealed that 72% respondents had positive attitude towards colostrum feeding ;which is higher than a study done in Benchimaji zone ,69.4% (38), in Gondar 65.74% (36).The possible justifications for this discrepancy might be increased Ethiopian Government efforts to improve maternal and child health through a community based Health Extension Program and variation in setting and time gap between studies.

Regarding complimentary feeding in this study 95.6% mothers started giving complementary foods or drinks. This finding is consistent with study finding in Bahirdar(31),in Nairobi, Kenya (70). However, this finding is higher than the previous study finding in Ethiopia (77) and in India (76). The difference might be due to the governmental and nongovernmental organizations who are currently promoting the benefit of complementary feeding through professionals and mass media.

TICF in this study was 63.5% which is almost consistent with study in Northwest Ethiopia, 61.5% (47) and in Lalibela (48). This might be explained by similarity in the life style,

socioeconomic status and cultural factors. However, this finding was lower than the WHO cut-off point (80 % to 94 %) for good practice of complementary feeding (48) and it was higher than study in Nigeria 57% (41) 39.2% and in Pakistan (42), 55% in India (44). Possible justifications for this discrepancy might be Health extension workers are making home to home visits on regular bases to support families in accessing basic health services and to give home-based health education as well as other promotion services, including promotion of appropriate IYCF.

According to this study about 74% of 6–23 months old children have been given the minimum meal frequency. This finding is higher than the study findings in Northwest Ethiopia (47), India (78) and Pakistan (79). Additionally 15% of children aged between 6 and 23 months old have received the minimum meal diversity. This finding is higher than the study findings in Ethiopia (31) and Pakistan (79). One possible explanation for this discrepancy might be the improvements in nutrition education and counseling in the community as components of maternal and child health care services.

As per this study, most of, 87.4% and 81.1% mothers have continued to breastfeed their children at age one and two years respectively. This finding is in line with previous study finding in Ethiopia (73). These high findings might be due to the majority of women participated in these studies were housewives and spend much of their time at home which increases the likelihood of continuing to breastfeed.

Regarding knowledge of complimentary feeding in this study 471 (85.6%) respondents know that complimentary foods should be started at 6 month. This finding is lower than the study finding in Addis Ababa 92.3% (25). One possible explanation for this variation might be difference in study setting and socioeconomic characteristics of the respondents like income, educational status and access to nutrition related information.

Concerning feeding of a child during and after illness in this study 38.1% of mothers who have sick children increase the frequency of feeding during illness. This finding is higher than research in India 11.5% (53). Possible explanation for this might be in Ethiopia Health extension workers are making home to home visits on regular bases to support families in accessing basic health services and to give home-based health education as well as other promotion services.

Regarding adequate nutrition for women during pregnancy and lactation, this study revealed that 85.3% of the respondents had practiced the habit of eating snacks during their pregnancy and lactation period. This finding is higher than the study finding in East Wellega Zone ,59.9%(59).According to this study 74% of respondents have got iron/folic acid pill during pregnancy which is higher than finding in India 62%(56).The reason for this discrepancy might be explained by the improvements in utilization of ANC and institutional delivery. Hence, nutrition education and counseling are components of maternal health care services; a higher utilization of these services will bring an added benefit to improve mothers' awareness on appropriate maternal and child feeding practices.

Concerning prevention of vitamin A deficiency in this study, 162(29.5%) participants eat vitamin A rich foods on the day preceding the survey; which was comparable with study in Kachabira District, Southern Ethiopia 28.8% (26). However , the finding was higher than study from Sidama 25.6% (63). According to this study 63.5% of respondents have taken vitamin A supplementation (immediately) within 45 days after delivery. Which is higher than study in Ethiopia 10.7% (57) .This discrepancy might be due to the difference in socio-cultural status of the participants and improvement in implementation of maternal and child nutrition related strategies. This study revealed that 54.1% of participants know that vitamin A deficiency causes eye problems: night blindness which is lower than a study done in Nepal which were 95% (62).This might be due to the difference in socio-economic status such as educational status, income and cultural variation among sample populations.

Regarding prevention of anemia this study showed that 82.4% respondents eat meat and animal product during pregnancy; 80% of the participants eat green leafy vegetables and fruit during pregnancy; which is comparable with previous study in Amhara region (67).This might be due to similarity in socio-demographic characteristics of the respondents.

Concerning prevention of iodine deficiency according to this study, 82.9% of respondents used iodized salt while they cook family food. This finding is higher than study finding in Ghana 64.6%(15).In this study most of, 87.8 % respondents did store salt in dark closed container. This is higher than study finding in Ghana 62.6% (15) and Burie and Womberma Districts, Ethiopia(68).The probable reasons to this discrepancy could be a variation in study period and the increased effort made in Ethiopia to achieve the nutritional strategies through health

extension workers. As per this study, 75.8% of the respondents know that goiter can be caused by iodine deficiency, this finding is higher than study in Burie and Womberma Districts, Ethiopia, 12%(68). This discrepancy might be due to the socioeconomic differences like income and educational status between study participants and the time gap between studies.

Regarding factors associated with the KAP of key ENA messages the result of the multivariate analysis showed that the odds of practice of key ENA messages were higher among mothers whose educational level were secondary and above [AOR = 3.98, 95 % CI: 1.929, 8.217] as compared to that of illiterate mothers. Parallel findings were reported by studies in Northern Ethiopia (AOR=3.84)(46), in Lasta [AOR = 9.50; 95% CI:1.02, 14.25](48) and in Bahirdar (AOR 3.0; 95% CI 1.2, 8.6)(31). This might be due to the fact that educated mothers have a better understanding of nutrition education than less educated mothers'. Additionally, educated mothers might obtain information from different sources like; books, leaflets and magazines, and might have a better chance of exposure to nutrition education through mass media than their counterparts. Similarly, the odds of practice of key ENA messages were higher among fathers whose educational level was secondary and above [AOR=2.78, 95% CI: 1.356, 5.719] and primary level (AOR=2.02, 95% CI: 1.145, 3.577) as compared to those fathers who were illiterate. This could be due to the fact that fathers' knowledge regarding key ENA messages is affected by their education level, this ultimately determines maternal practice on optimal maternal and child nutrition and health seeking behavior.

Regarding place of birth the current study revealed that higher odds of key ENA message practice were observed among mothers who delivered in health institution as compared to those who delivered in their home. This finding was in line with research done in Azezo District (AOR 2.18; 95 % CI 1.22, 4.35)(32). This could be explained as mothers who give birth at health institutions have a better opportunity to access appropriate maternal and child feeding information, which ultimately decreases exposure to traditional beliefs immediately after birth.

Moreover, concerning PNC follow-up a significant association was observed between practice of key ENA messages and attending postnatal care service (AOR=2.177, 95% CI: 1.356, 3.496). This finding is consistent with previous study findings in Bahirdar (AOR 4.1; 95% CI 1.4, 12.2)(31), in Lasta (AOR = 5.98; 95% CI: 1.49, 13.96)(48), and Northern Ethiopia

(AOR=2.80)(26). This might be due to the result of information and counseling that the mothers received from health workers during their postnatal visits.

According to this study family income was significantly associated with practice of key ENA messages (AOR=4.397; CI: 1.899, 10.182). It is also supported by evidences from Azezo District (0.25 (0.15, 0.49) (32) and in North West Ethiopia (AOR= 2.18, CI: 1.39, 3.39(60). Possible justification to this could be families with high income are able to pay the requested fee to utilize MCH services and they can also easily access and implement nutrition related information.

Regarding parity multipara mothers had more practice of key ENA messages (AOR =2.106; 95 %CI: 1.172, 3.786) than primipara mothers. The reason for this could be that as the parity increased, infant management experiences will also be increased. Furthermore, exposure of mothers to nutritional related information was found to be significantly associated with good knowledge level of key ENA messages (AOR=1.999, CI: 1.142, 3.499).

Concerning sex of the child the odds of level of attitude towards key ENA messages were higher among male child (AOR=2.081, CI: 1.359, 3.187) as compared to that of female child. One possible explanation for this might be traditionally peoples in the study area believe that male children should feed more than female to be stronger.

Regarding residence the odds of knowledge of key ENA messages were higher among urban mothers as compared to that of rural mothers (AOR=2.2, CI: 1.137, 4.256). This was in line with a previous study finding in Northwest Ethiopia(80). This might be explained by urban mothers are better than rural mothers in terms of educational, economic status and have more access to nutrition information than rural mothers. On the other hand mothers living in rural areas are more likely to be affected by community beliefs due their low access to nutrition education and counseling.

Concerning ANC follow-up according to this study, mothers who had ANC follow-up were 2.431 times more likely to have good attitude towards key ENA messages than mothers who had not ANC follow-up. This finding was in line with other reports in Northeast Ethiopia (AOR=5.9, CI: 2.45, 14.21)(48). Possible justification for this could be the increased knowledge and attitudinal changes due to the information provided by the antenatal care clinics on infant

feeding and the nutritional values of breast milk. Obviously, pregnancy has been considered as an important window of opportunity to deliver nutrition counseling and education on ENA.

With regard to respondents level of knowledge the odds of practice of key ENA messages were higher among mothers with high knowledge of key ENA messages (AOR=3.224; 95%CI: 1.86, 5.588) as compared to their counterparts with a lower key ENA message knowledge. In addition, mothers with good level of attitude towards key ENA messages were 5.55 times more likely to have good practice of key ENA messages. The finding was supported by other study report elsewhere in Northwest Ethiopia (77). This shows that boosting a mothers knowledge of key ENA messages and changing attitude of mothers towards key ENA messages is cornerstone for implementing sustainable strategies to improve appropriate ENA practices (81). However, There was also a gap between the knowledge (46.5%) and attitude(66.4%) of mothers with their practices (68.9%). This might indicate the presence of some cultural practice that could affect the practice of key ENA messages and poor socioeconomic status to implement the recommendations they know or pressure by other part of the family on the mothers.

7 Strength and limitation

Strength

Since the study was a community-based study, it can be generalized for the total study population in the Woreda. The study used adapted standardized questionnaires which increase its validity. Adequate sample size was employed with a high response rate.

Limitation

The investigators made a lot of effort to maintain the quality of the data, mainly through a pretest, frequent field supervisions, and training of data collectors. However, the study is not free from error. It may introduce social desirability and recall bias. In addition, the study was not supplemented with any qualitative data.

8 Conclusion and Recommendation

8.1 Conclusion

This study provided a baseline finding on the status of KAP of key ENA messages in the study area. The practices of key ENA messages in the study area were found to be low; the knowledge and attitude of key ENA messages were relatively higher than their practice.

Educational status of the mother and the father, monthly income, parity, place of birth, PNC follow-up, level of knowledge and level of attitude were significantly associated with the practice of key ENA messages. In addition, attitude of respondents towards key ENA messages were significantly affected by sex of the child, place of birth, ANC follow-up, PNC follow-up and level of knowledge of the respondents. Moreover, educational status of the mother, residence, ANC follow-up, PNC follow-up and getting nutrition related information were significantly associated with level of knowledge of the respondents.

8.2 Recommendation

Based on the finding of this study, the following recommendations were forwarded to different stakeholders:

For health institutions in the Wereda

- Training of health workers on ENA recommendation guideline should be strengthened to enhance their knowledge and skill; thereby nutrition-based health information will be transferred for mothers at health institution and community level.
- Enhance a community-based nutrition focused behavioral change communication to equip and enhance community knowledge of key ENA messages and to translate this knowledge into practice.
- Current health education efforts should be strengthened to stepping-up the MCH service utilization by focusing on uneducated and rural women.

For Wereda Health Bureau, Wereda Education Office and Health Extension Workers

- It is recommended to give community based health education and counseling for mothers and their husbands on key ENA messages to enhance their knowledge and increase level of practice of key ENA messages.
- It is recommended to expand education to all levels especially teaching husbands which plays a significant role in changing wives'/mothers' knowledge and practice level.
- Media have to promote social behavioral change and communication related to key ENA messages.

For researchers

- Future studies should emphasize mixed methods, such as triangulating with a qualitative study design and prospective study designs to identify factors for KAP of key ENA messages.

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10 Annex

Annexe 1: Information sheet

A. English version

Addis Ababa University, School of allied health sciences, Department of Nursing and Midwifery

INTRODUCTION: Good morning/afternoon? My name is _____. In this study which is undertaken by Addis Ababa University, College of Health sciences, school of allied Health sciences, department of Nursing and Midwifery, you and I would have a short discussion of about 20-30 minutes only and I am asking you to help us. Before we go to our discussion, I will request you to listen carefully to what I am going to read to you about the purpose and general condition of the study and you will tell me whether you agree or disagree to participate in this study at the end.

The purpose of this study is to assess nutritional KAP of key ENA messages among mothers of children birth up to two years old in Wereilu Wereda, 2018. The study will be conducted through interviews. The results of the study will inform design of the nutrition education intervention strategies targeting you. I would like to assure you that privacy will be maintained strictly throughout. A code number will identify every participant and no name will be used. Your responses to any of the questions will not be given to anyone else and no reports of the study will ever identify you. If a report of results is published, only information about the total group will appear.

The interview is voluntary and your participation / non-participation, or refusal to respond or stop responding to the questions will have no effect now or in the future on services that you or any member of your family may receive from the service providers.

Are you willing to participate in this study?

1. ☐ Yes. 2. ☐ No

Thank you!!!

Annex 2. Consent form for mothers of children from birth up to two years old (English Version)

I undersigned have been informed about the purpose of this particular research project. I have been informed that I am going to respond to this question by answering what I know concerning the issue. I have been informed that the information I give will be used only for the purpose of this study and my identity as well as the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study or not to respond to questions if I am not interested. Furthermore I have been informed that I can stop responding to the questions at any time in the process. Based on the above information I agree to participate in this research voluntarily.

Signature: _____

Date: _____

Interviewer signature certifying that informed consent has been given verbally by the respondent.

Name _____

Signature _____

Date _____

Tele. _____

3. If there are things that require clarification please don't hesitate to ask the Interviewer or the principal investigator for clarification.

Address of the principal investigator

Biruk Beletew

Addis Ababa University, College of Health Sciences, School of allied health sciences,
Department of Nursing and Midwifery

Mobile: 09-22-89-80-70

E-mail: birukkelemb@gmail.com

Addis Ababa

Annex 3.English version Questionnaire

I. Socio-demographic/economic characteristics

S.no	Question	Response	Skip
Background of the mother/care taker			
101	Age	1. <20 years 2. 20-24 years 3. 25-29 years 4. 30-34 years 5. 35 years and above	
102	Ethnicity	1. Amhara 2. Oromo 3. Tigre 4. If others specify _____	
103	Religion	1. Orthodox 2. Protestant 3. Muslim 4. Catholic 5. If others specify _____	
104	Marital status	1. Single 2. Married 3. Separated 4. Divorced 5. Widowed	
105	Educational status of the mother	1. Cannot read and write 2. Can Read and write 3. Primary 4. Secondary 5. Higher education	
106	Educational status of the father	1. Cannot read and write 2. Can Read and write 3. Primary 4. Secondary 5. Higher education	
107	Occupation of the mother	1. Non employed 2. Housewife 3. Employed in government institution 4. Employed in private sector 5. Merchant 6. If others specify _____	
108	Residence	1. Urban 2. Rural	
109	Monthly income	-----ETB	

110	Number of family member	1. < 4 2. 4 – 5 3. 6 – 8 4. ≥9	
111	Parity(no of birth)	1. Multipara 2. Primipara	
Back ground of the child			
112	Age	1. 0-6month 2. 7-12month 3. 13-18month 4. 19-24month	
113	Sex	1. Male 2. Female	
MCH service utilization			
114	Where was the child born?	1. Home 2. Institution	
115	Did you have ANC follow up	1. Yes 2. No	
116	Did you have PNC service	1. Yes 2. No	

II. KAP questionnaire on Key ENA messages mother's of children from birth up to 2 yrs old; adapted from WHO guidelines and questionnaire (5, 73).

1. exclusive breast feeding

Practice of exclusive breast feeding

101. Have you ever breastfed [NAME]?

1. Yes 2. No If the answer is no Skip to 103

102. When did you start breast feed after birth? If less than 1 hour , record immediately(“00” hours),If less than 24 hours, record hours ,Otherwise, record days

1. Immediately 2. Hours 3. Days 4. Don't Know

1. Did you gave sugar water, water, butter, before breast during the first days of the baby's life? 1. Yes 2. No
103. Did you squeeze out and throw away the first milk (colostrum)?
2. Yes 2. No
104. Did your baby drink anything from a bottle between sunrise yesterday and sunrise today?
1. Yes 2. No

Attitude towards exclusive breast feeding

105. How good do you think it is to breastfeed your baby exclusively for six months?
1. Not good 2. You're not sure 3. Good
106. How good do you think it is to give your child anything from bottle?
1. Not good 2. You're not sure 3. Good

Knowledge of exclusive breast feeding

107. How long after birth a baby should start breastfeeding? If it less than an hour, circle immediately.
1. Immediately 2. Hours 3. Days 4. Don't Know
108. For how long a baby should receive only breast milk and nothing else?
1. From birth to six months 2. Other 3. Don't know
109. Babies should be given sugar water, water, butter, before first breast milk during the first days of the baby's life? 1. Yes 2. No
1. The first yellowish milk/colostrum should be fed to the baby? 1. Yes 2. No
110. Babies should feed with which one?
1. Bottle 2. Cup 3. I don't know

2 Complimentary feeding

Practice of complimentary feeding

201. Did you introduce liquids or foods (semi-solid or solid) other than breast milk to the baby?

1. Yes 2. No if no Skip to 205

202. At what age did you first introduce?

1. 6 months 2. 1 year 3. 2 year 4. Others

203. How many times did you feed your child solid and/or semi-solid food between sunrise yesterday and sunrise today? If response is not numeric, probe for a numeric response

1. Number of feedings of solids and/or semi-solid foods _____
2. Don't know

204. Next I would like to ask you about some liquids and food that (NAME) may have had yesterday during the day or at night

Group	Food lists	No	Yes
Group 1: Grains, roots and tubers	Porridge, bread, rice, noodles or other foods made from grains		
	White potatoes, white yams, manioc, cassava or any other foods made from roots		
Group 2: Legumes and nuts	Any foods made from beans, peas, lentils, nuts or seeds		
Group 3: Dairy products	Infant formula, such as [insert local examples]		
	Milk, such as tinned, powdered or fresh animal milk		
	Yogurt or drinking yogurt		
	Cheese or other dairy products		
Group 4: Flesh foods	Liver, kidney, heart or other organ meats		
	Any meat, such as beef, pork, lamb, goat, chicken or duck		
	Fresh or dried fish, shellfish or seafood		
	Grubs, snails or insects		
Group 5: Eggs	Eggs		
Group 6: Vitamin A fruits and vegetables	Pumpkin, carrots, squash or sweet potatoes that are yellow or orange inside		
	Any dark green vegetables [insert local examples]		

	Ripe mangoes (fresh or dried [not green]), ripe papayas (fresh or dried), musk melon [insert other local vitamin-A-rich fruits]		
	Foods made with red palm oil, red palm nut or red palm nut pulp sauce		
Group 7: Other fruits and vegetables	Any other fruits or vegetables		

205. Was your child breastfed or did he or she consume breastmilk yesterday during the day or at night?

1. Yes 2. No 3. Don't know/no answer

Attitude towards complimentary feeding

206. How good do you think it is to give different types of food to your child each day?

1. Not good 2. You're not sure 3. Good

207. How good do you think it is to feed your child several times each day?

1. Not good 2. You're not sure 3. Good

208. How good do you think it is to continue breastfeeding until 24 months?

1. Not good 2. You're not sure 3. Good

Knowledge of complimentary feeding

209. How long after birth a baby should start to receive semi-solid and solid foods?

Age in Months _____

1. At six months 2. Other 3. Don't know

210. Until what age is it recommended that a mother continues breastfeeding?

1. Six months or less 3. 12–23 months
2. 6–11 months 4. 24 months and more (correct response)

211. How many times the child should feed solid and/or semi-solid food between per day? If response is not numeric, probe for a numeric response

1. Number of feedings of solids and/or semi-solid foods _____
2. Don't know

212. Which one of the following food type your child should get per day?

1. Animal-source foods (meat, poultry, fish, liver/organ meat, eggs, etc.)
2. Pulses and nuts: flours of groundnut and other legumes (peas, beans, lentils, etc.), sunflower seed, peanuts, soybeans
3. Vitamin-A-rich fruits and vegetables (carrot, orange-fleshed sweet potato, mango, papaya, etc.)
4. Green leafy vegetables (e.g. spinach)
5. Energy-rich foods (e.g. oil, butter/ghee)
6. Don't know

213. Until what age is it recommended that a mother continues breastfeeding?

- | | |
|-----------------------|--|
| 1. Six months or less | 4. 24 months and more (correct response) |
| 2. 6–11 months | |
| 3. 12–23 months | 5. Don't know |

3. feeding of sick child during and after illness

Practice Feeding of the Sick Child during and after illness

301. Did your child was sick with in the last two weeks?

1. Yes
2. No if no Skip to 305

302. How much did you breastfeed your child during and after illness? compared with the usual

- | | |
|------------------|--------------------|
| 1. More | 3. Less than usual |
| 2. Same as usual | 4. Never gave food |

5. Don't feed

303.What amount of fluid did you offered to your child during and after illness? compared with the usual

- | | |
|------------------------|---------------------|
| 1. More than the usual | 3. Less than usual |
| 2. Same as usual | 4. Don't give fluid |

304.What amount of food did you offered to your child during and after illness? compared with the usual

- | | |
|--------------------|--------------------|
| 1. More than usual | 3. Less than usual |
| 2. Same as usual | 4. Don't feed |

Attitude towards feeding sick child

305.How good do you think increasing frequency of breast feeding for your child during and after illness

1. Not good 2. You're not sure 3. Good

306.How good do you think increasing amount fluid offered for your sick child during and after illness

1. Not good 2. You're not sure 3. Good

307.How good do you think increasing amount food offered for your sick child during and after illness

1. Not good 2. You're not sure 3. Good

Knowledge towards feeding of sick child

308.The frequency of breast feeding during and after illness of your baby should be :

- | | |
|------------------------|--------------------|
| 1. More than the usual | 3. Less than usual |
| 2. Same as usual | 4. Don't know |

309.The amount of fluid offered for sick child during illness should be:

- | | |
|------------------------|--------------------|
| 1. More than the usual | 3. Less than usual |
| 2. Same as usual | 4. Don't know |

310.The amount of food offered to sick child during and after illness should be:

- | | |
|------------------------|--------------------|
| 1. More than the usual | 3. Less than usual |
| 2. Same as usual | 4. Don't know |

4 Nutrition of Pregnant and lactating Women

Practice of mothers nutrition during pregnancy and lactation

401. Did you eat one additional meal every day during pregnancy and lactation?

1. Yes 2. No

402. Did you eat a variety of foods, particularly animal products (meat, milk, eggs, etc), plus fruits & vegetables during pregnancy and lactation?

1. Yes 2. No

403. Did you get iron/folic acid pills to maintain your strength & health during the pregnancy? Show her or tell the color

1. Yes 2. No 3. I don't know

Attitudes of mothers towards nutrition during pregnancy and lactation

404. How good do you think it is to eat more food during pregnancy?

1. Not good 2. You're not sure 3. Good

405. How serious do you think iron-deficiency/anaemia is?

1. Not serious 2. You're not sure 3. Serious

406. How good do you think it is to prepare meals with iron-rich foods such as beef, chicken or liver?

1. Not good 2. You're not sure 3. Good

Knowledge of mothers on nutrition during pregnancy and lactation

407. How should a pregnant and lactating woman eat in comparison with a non-lactating woman?

- | | |
|--------------------------------|--|
| 1. Eat more frequently | 4. Use iodized salt when preparing meals |
| 2. Eat more protein-rich foods | |
| 3. Eat more iron-rich foods | 5. Other |

6. Don't know

408. Most women would benefit from two types of supplements, or tablets, during pregnancy. Which are they?

1. Iron supplements

3. Other

2. Folic acid supplements

4. Don't know

409. What is the health benefit for taking folic acid supplements/tablets?

1. For normal development of the nervous system of the unborn baby (brain, spine and skull)
2. To prevent birth defects/abnormalities the nervous system of the unborn baby (brain, spine and skull)
3. Other
4. Don't know

5 Prevention of Vitamin A deficiency

Practice of mothers on prevention of Vitamin A deficiency

501. Did you (Mother), take Vitamin A supplementation as soon as possible (within 45 days) after delivery?

1. Yes
2. No

502. Did your child get Vitamin A supplementation two times a year after 6 months of age?

1. Yes
2. No

503. I would like to ask you about particular foods you may eat on their own or as part of a dish. Yesterday, during the day and night, did you eat any of the following foods?

1. Animal-source foods-Liver, Kidney, Heart, Egg yolks/egg from chicken, duck, guinea fowl or other bird, Milk, cheese, yogurt or other dairy product

2. Green vegetables-Amaranth, spinach, cassava leaves, kale and other green leafy vegetables
3. Fruits-Ripe mango, Ripe papaya, Cantaloupe, Apricot
4. I didn't eat

Attitude of mothers towards vitamin A deficiency

504. How serious do you think a lack of vitamin A is?

1. Not serious
2. You're not sure
3. Serious

505. How good do you think it is to prepare meals with vitamin-A-rich foods such as carrots, green leafy vegetables, sweet-potatoes or liver?

1. Not good
2. You're not sure
3. Good

Knowledge of mothers on vitamin A deficiency

506. How can one prevent a lack of vitamin A in the body?

1. Eat/feed vitamin-A-rich foods – having/giving a diet rich in vitamin A
2. Eat/feed foods fortified with vitamin A
3. Give vitamin A supplements/sprinkles
4. Other
5. Don't know

507. Mothers should take Vitamin A supplementation as soon as possible (within 45 days) after delivery?

1. Yes
2. No
3. I don't know

508. Can you tell me how you can recognize someone who lacks vitamin A in his or her body?

1. Weakness/feels less energetic
2. Be more likely to become sick (less immunity to infections)
3. Eye problems: night blindness (inability to see at dusk and in dim light), dry eyes, corneal damage, blindness
4. Other
5. Don't know

509. Child should take Vitamin A supplementation two times a year after 6 month of age?

1. Yes 2. No 3. I don't know

6 Prevention of anemia among mothers and children

Practice of mothers on prevention of anemia among mothers and children

601. Did you (Mothers of infants 0–5 mo) received iron–folic acid during pregnancy?

1. Yes 2. No

602. Did you eat meat (liver, kidney and heart) and animal product during pregnancy?

1. Yes 2. No

603. Did you eat green leafy vegetables and fruits during pregnancy?

1. Yes 2. No

Attitude of mothers towards prevention of anemia among mothers and children

604. How likely do you think you are to be iron-deficient/anaemic?

1. Not likely 2. You're not sure 3. Likely

605. How serious do you think iron-deficiency/anaemia is?

1. Not serious 2. You're not sure 3. Serious

606. How good do you think it is to prepare meals with iron-rich foods such as beef, or liver?

1. Not good 2. You're not sure 3. Good

Knowledge of mothers on prevention of iron deficiency anaemia

607. Pregnant and lactating mothers should receive iron–folic acid?

1. Yes 2. No

608. What are the health risks for infants and young children of a lack of iron in the diet?

1. Delay of mental and physical development 2. Other 3. Don't know

609. Consumption of meat and animal product during pregnancy is helpful to prevent anemia?

1. Yes 2. No

1. Consumption of green leafy vegetables and fruits should be consumed to prevent iron deficiency anemia? 1. Yes 2. No

7 Iodine

Practice of mothers on prevention of iodine deficiency

701. What kind of salt did you use while you cook family food? *(If possible, ask the respondent to show you the salt.)*

1. Iodized 2. Not iodized 3. Don't know/no answer

702. When did you add salt in to the stew?

1. At the end 2. At the middle 3. At the beginning

703. Did you store salt in dark closed container?

1. Yes 2. No

Attitudes of mother towards iodine deficiency

704. How serious do you think a lack of iodine in the body is?

1. Not serious 2. You're not sure 3. Serious

705. How good do you think it is to prepare meals with iodized salt?

1. Not good 2. You're not sure 3. Good

Knowledge of mothers on prevention of iodine deficiency

706. How can iodine deficiency be prevented?

1. Eat/prepare foods with iodized salt 2. Other 3. Don't know

707. Do you know goiter can be caused by iodine deficiency

1. Yes 2. No

708. When do you think salt should be added in to a stew?

2. At the end 2. At the middle 3. At the beginning

709. Salt should be stored in dark closed container?

1. Yes 2. No

8 Nutritional information

801. Did you hear a message about maternal, infant and young children feeding?

1. Yes 2. No 3. Can't remember

If no you finished

802. From whom did you hear these messages?

- | | |
|----------------------------|--------------------------|
| 1. Nurse | 4. Radio/TV |
| 2. Doctor | 5. Other (specify) _____ |
| 3. Health extension worker | |

803. When did you hear these messages? During:

- | | |
|------------------------|--------------------------|
| 1. Pregnancy | 5. Well child contacts |
| 2. Delivery | 6. Immunizations |
| 3. Post natal | 7. Other (specify) _____ |
| 4. Sick child contacts | |

804. Where did you hear these messages?

- | | |
|--------------------|--------------------------|
| 1. Health facility | 4. Other (specify) _____ |
| 2. Community event | |
| 3. Home | |

Annex 4: Amharic Version Information sheet

እድሜያቸው ከወልደት እስከ 24 ወራት ባሉ ህፃናት እናቶች የመረጃ መስጫና የፈቃደኝነት መጠየቂያ ቅጽ

አድስ አበባ ዩኒቨርሲቲ

ጤናሳይንስ ኮሌጅ፣ ነርሴንግና ሜድዋይሬሪ ት/ት ክፍል

ክፍልአንድ :የመረጃመስጫቅጽ

መግቢያ:እንደምንአደሩ / ዋሉ ስሜ----- ይባላል::በአድስ አበባ ዩኒቨርሲቲ ፣ በጤና ሳይንስ ፋኩሎቲ ፣ በነርሲንግና ሜድዋይሬሪ ት/ቤት አስተባባሪነት በሚከናወነው ጥናት እኔና እርሶዎ አጠር ያለ ፣ ከ 20-30 ደቂቃ የሚወስድ ውይይት ይኖረናል ፡፡ ለዚህም ውይይት እንድትባባሩኝ በትህትና እጠይቃለሁ ፡፡ ወደ ውይይቱ ከመግባታችን በፊት ስለጥናቱ አላማና ጠቅላላ ሁኔታ ስለማነብልወት በጥሞና እንዲያዳምጡን እጠይቃለሁ ፡፡ በመጨረሻም በጥናቱ ለመሳተፍ መስማማወን እና አለመስማማትወን ይነግሩኛል፡፡

የዚህ ጥናት አላማ በወረኢሉ ወረዳ የሚኖሩ እድሜያቸው ከ 2 ዓመት በታች የሆኑ ልጆች ያላቸው እናቶች ስለራሳቸው እና ልጆቻቸው አመጋገብ ያላቸውን ግንዛቤ ፣ አመለካከት እና ተግባር ምን እንደሚመስል ለማወቅ ሲሆን ጥናቱ የሚካሄድበት መንገድ በመረጃ ሰበሰባቢው በሚቀርብ መጠይቅ ይሆናል ፡፡ እርሶዎ የሚሰጡት መረጃ በወረኢሉ እና በሀገር አቀፍ ደረጃ ለሚገኙ እናቶች እና ህፃናት ስለምግብ የሚያስፈልጋቸውን መረጃ ለማዳረስ ይረዳል፡፡

በቆይታዎ ሁሉ ምስጢር እንደምንጠብቅ እያረጋገጥኩኝ ለእያንዳንዱ ተሳታፊ የተለየመለያ ቁጥርሲሆን ስምዎን ግን አንጠቅስም ፡፡ ለማንኛውም ጥያቄ የሚሰጡት ምላሽ ለሌላ ሰው ተላልፎ አይሰጥም ፡፡ የጥናቱ ውጤት ሪፖርትም ስለእርሶዎ አይገልጽም ፡፡

በተጨማሪም የጥናቱ ሪፖርት ቢታተም የሚያወጣው ስለ አጠቃሊይ ተሳታፊዎች ብቻ ይሆናል ፡፡ መጠይቁ በፈቃደኝነት ላይ ብቻ ሲሆን የእርሶዎ መሳተፍ ወይም አለመሳተፍ እንዲሁም ጥያቄዎችን ለመመለስ ፈቃደኛ አለመሆንና በጥቂው ወቅት አቋርጦ መውጣት አሁንም ይሁን ወደፊት እርሶዎ ምይሁን ቤተሰብዎ በሚያገኙት አገልግሎት ላይ ምንም አይነት ተጽዕኖ አይኖረውም ፤ በጥናቱ ላይ ተሳታፊ በመሆንዎም የሚሰጥ ክፍያም አይኖርም ፡፡ ለመሳተፍ ፈቃደኛ ነዎት?

1. () አዎ 2. () አይደለሁም

አመሰግናለሁ!!!

ማስታወሻ ፡ የጥናቱ ተሳታፊ በጥናቱ ላይ ለመሳተፍ ፈቃደኛ ከሆኑ ወደ ፈቃደኝነት ማረጋገጫ ቅጽ ይለፉ፡፡

Annex 5: Amharic version consent form (ፈቃደኝነት ማረጋገጫ ቅጽ የአማርኛ ትርጉም)

ክፍል 2:-እድሜያቸው ከ 2 ዓመት በታች የሆኑ ልጆች ያላቸው እናቶች የፈቃደኝነት መጠየቂያ ቅጽ

ከታች ፊርማዎን ያኖረኩት እኔ የጥናቱ ዓላማ የተነገረኝ ሲሆን የምጠየቀው ጥያቄ የማቀውን መመለስ እንደምችል ፤ እኔ የምሰጠው መረጃ ለዚህ ጥናት አገላግሎት ብቻ የሚውል ሲሆን ስሜንና የምሰጠውን መረጃ በምስጢር እንደሚጠበቅ ተነግሮኛል ። ፍላጎት ከሌለኝ በጥናቱ ያለመሳተፍ ፤ ጥያቄ ያለመመለስና በጥያቄው መካከል አቋርጬ መውጣት እንደምችል ተነግሮኛል ። በዚህ መሰረት በጥናቱ ለመሳተፍ ፈቃደኛ መሆኔን በፊርማ የአረጋግጣለሁ።

ፊርማ -----ቀን -----ማስታዎሻ:

1. የጥናቱ ተሳታፊ በጥናቱ ፈቃደኛ ከሆኑ መጠይቁን ይጀምሩ።

2. የጥናቱ ተሳታፊ ፈቃደኛ መሆናቸውን የሚያረጋግጥ የመረጃ ሰብስባቢው ስምና ፊርማ

ስም _____

ፊርማ _____

ስልክ _____

ማንኛውም ገለጻ የሚያስፈልጋቸው ነገሮች ካሉ መረጃ ሰብስባቢውንም ሆነ ዋና ተመራማሪውን በአካልም ሆነ በአድራሻው ይጠይቁ።

የዋና ተመራማሪው አድራሻ:

ብሩክ በለጠው

አዱስ አበባ ዩኒቨርሲቲ ፤ ጤና ሳይንስ ኮሌጅ ፤ በነርቪኖች ሚዴዋይዴሪ ድህረመረቃ ት/ቤት

ስልክቁጥር- 09 22898070, birukkelemb@gmail.com , አዱስ አበባ

Annex 6. Amharic Version Questionnaire

ክፍል 1 : ማህበራዊ ፣ ነባራዊና ኢኮኖሚያዊ ሁኔታ

101. እድሜሽ/ዎት ስንት ነው?

- | | |
|----------------|-----------------|
| 1. <20 years | 4. 30-34 years |
| 2. 20-24 years | 5. 35 እና ከዛ በላይ |
| 3. 25-29 years | |

102. 35 years and above የየትኛው ብሄረሰብ አባል ናት?

- | | |
|--------|---------------------|
| 1. አማራ | 4. ጉራጌ |
| 2. ትግሬ | 5. ሌላካለ (ይጠቀስ)----- |
| 3. ኦሮሞ | |

103. የትኛውን ሀይማኖት ተከታይ ናት ?

- | | |
|----------------|---------------------|
| 1. ኦርቶዶክስ ተዋህዶ | 4. ፕሮቴስታንት |
| 2. ሙስሊም | 5. ሌላካለ (ይጠቀስ)----- |
| 3. ካቶሊክ | |

104. የጋብቻ ሁኔታዎን ይግለፁልኝ

- | | |
|----------|-------------|
| 1. ያላገባ | 4. ባሌ የሞተባት |
| 2. ባለትዲር | 5. የተለያዩች |
| 3. የፈታች | |

105. የትምህርት ደረጃ

- | | |
|-------------|-----------------------|
| 1. ያልተማረች | 3. 9-12ኛ ክፍል |
| 2. 1-8 ኛክፍል | 4. የኮሌጅ ት/ት እና ከዛ በላይ |

106. የባለቤትሽ/ወየት/ትደረጃ

- | | |
|-------------|------------------------|
| 1. ያልተማረ | 3. 9-12ኛ ክፍል |
| 2. 1-8 ኛክፍል | 4. የኮሌጅ ት/ት እና ከዚያ በላይ |

107. የስራ ሁኔታ

- | | |
|-------------|----------------------|
| 1. የቤት እመቤት | 3. የመንግስት ሰራተኛ |
| 2. የግል ስራ | 4. ሌላ ካለ (ይጠቀስ)----- |

108. የመኖሪያ ቦታ 1. ከተማ 2. ገጠር

109. ባጠቃላይ ምን ያህል ወርሀዊ ገቢ ያገኛሉ?-----ኢትዮ. ብር

110. የቤተሰብ ብዛት

- | | |
|--------|--------|
| 1. አንድ | 2. ሁለት |
|--------|--------|

3. ሦስት

5. አምስትና ከዛ በላይ

4. አራት

III. ባጠቃላይ ምን ያህል ልጅ ወልደዋል? -? 1. አንድ

2. ሁለትና ከዚያ በላይ

ልጅን የሚመለከት

II2. ልጅሽ ስንት አመቱ / ቷ ነው?

1. 0-6 ወር

3. 13-18 ወር

2. 7-12 ወር

4. 19-24 ወር

II3. የልጅሽ ያታ: 1. ወንድ 2. ሴት

አገልግሎት አጠቃቀምን በተመለከተ

II4. ልጅወን የት ነው የወለዱት? 1. እቤቴ 2. ጤና መስሪያ ቤት

II5. የቅድመ- ወሊድ ክትትል አድርገዋል? 1. አዎ 2. አላደረጉም

II6. የድህረ- ወሊድ ክትትል አድርገዋል? 1. አዎ 2. አላደረጉም

በቁልፍ አስፈላጊ የአመጋገብ ድርጊት መልእክቶች ላይ ከውልደት እስከ 24 ወራት እድሜ ባሉ ህፃናት እናቶች መካከል በሚኖረው እውቀት ፣ አመለካከት እና ተግባር ላይ የቀረበ መጠየቅ የአማርኛ ትርጉም

1 የእናት ጡት ብቻ ስለመመገብ

ተግባርን የተመለከተ መጠይቅ

101. ጡት አጥብተው ያዉቃሉ? 1. አወ 2. አላዉቅም

መልስወ አላዉቅም ከሆነ ወደ ጥያቄ ቁጥር 103 ይሂዱ

102. ከወለዱ ከምን ያክል ጊዜ በኋላ ነበር ለልጅወ ጡት የሰጡት?

1. ወዳዉኑ

2. ከሰዓታት በኋላ

3. ከቀናት በኋላ

4. አላዉቅም

103. ለልጅወ በመጀመሪያወቹ ቀናት ዉስጥ ጡት ከመጀመራቸዉ በፊት ዉሀ በስኳር ፣ ዉሀ ወይም ቅቤ ሰጥተዉት ነበር?

1. አወ

2. አልሰጠሁም

104. የመጀመሪያዉን ቢጫ ወተት (እንገር) አልበዉያ ፈሳሉ? 1. አወ 2. አላፈሰም

105. ትላንት ፀሀይ ከወጣች ጀምሮ እስከ ዛሬ ልጅወ ከጡጦ የጠጣዉ ነገር አለ? 1. አዎ 2. የለም

አመለካከትን የተመለከተ መጠይቅ

106. ልጅን እስከ 6 ወር ጡት ብቻ መስጠት ምን ያክል ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው

107. ለልጅ በጡጦ መመገብ ምን ያክል ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው

ግንዛቤን የተመለከተ መጠይቅ

710. ህፃናት ከተወለዱ ከስንት ጊዜ በኋላ ጡት መጥባት አለባቸው?

1. ወዳዉኑ 2. ከስዓታት በኋላ 3. ከቀናት በኋላ 4. አላዉ

711. ህፃናት የእናታቸውን ጡት ብቻ ለምን ያህል ጊዜ መመገብ አለባቸው?

1. እስከ 6 ወር ድረስ 2. ሌላካለይጠቀስ 3. አላዉቅም

712. ህፃናት በመጀመሪያዎቹ ቀናት ውስጥ ጡት ከመጀመራቸው በፊት ውሀ በስኳር ፣ ውሀ ወይም ቅቤ መስጠት አለባቸው? 1. አዉ 2. የለባቸውም

713. የመጀመሪያውን ቢጫ ወተት (እንገር) ህፃናት መመገብ አለባቸው? 1. አዉ 2. የለባቸውም

714. ህፃናትን በየትኛው መንገድ መመገብ አለብን? 1. በጡጦ 2. ስኒ 3. አላዉቅም

2 ተጨማሪ ምግብን በተመለከተ

ተግባርን በተመለከተ

201. ለልጅዎ ከጡት ሌላ ፈሳሽ ፣ ጠጣር እና ለስለስ ያሉ ምግቦችን አስጀምረዉለታል?

1. አዉ 2. አላስጀመርኩትም

መልስዉ አላስጀመርኩትም ከሆነ ወደ ጥያቄ ቁጥር 205 ይሂዱ

202. መጀመሪያ መቼ ነበር ያስጀመሩት?

1. 6 ወር 3. 2 አመት
2. 1 አመት 4. ሌላካለ (ይጠቀስ)-----

203. ትላንትፀሀይከወጣችበት ጊዜ ጀምሮ እስከ ሠራዊት እስከ ወጣችበት ጊዜ ድረስ ልጅዎን ጠጣረና ለስለስ ያሉ ምግቦችን ስንት ጊዜ ሰጡት? 1. በቁጥር----- 2. አላዉቅም

204. ከዚህበመቀጠልበትላንትናዉእለትቀንናምሸትለልጅዉጠጣርእናለስለስያሉምግቦችንሰጥተዉከሆነአጠይቅወታለሁ?

ቡድን	የምግብ ዝርዝሮች	አወ	አይደለም
ቡድን1: ከጥራጥሬ ፣ ከስራስሮች እና ከብስር ያላቸው ተክሎች	ገንፎ ፣ ዳቦ ፣ ሩዝ ፣ ወይም ከጥራጥሬ የተሰሩ ሌሎች ምግቦች		
	ነጭ ድንች ፣ ነጭ የስር ተክል ፣ የካሳቫ ስር ፣ ካሳቫ ወይም ከስራስር የሚዘጋጁ ሌሎች		
ቡድን2: የብርተክሎች፣የለውዝ ተክል፣	ከአተር፣ ባቄላ ፣ምስር ፣አቾሎኒ ወይም ዘሮች የሚዘጋጁ ማናቸውንም ምግቦች		
ቡድን3: የወተትተዋጽኦምርቶች	የጨቅላ ህፃናት ምግብ፣ (የሀገር ውስጥ ምሳሌዎችን ያስገቡ)		
	ወተት፣የተናጠ፣በፓውደር መልክ ወይም ትኩስ የእንስሳት ወተት		
	እርጎ		
	አይብ ወይም ሌሎች የእንስሳት ተዋጽኦ ምርቶች		
ቡድን4: ከሲፖሚዘጋጁምግቦች	ጨጓራ፣ጉላሊት፣ልብ ወይም የሌሎች የሰውነት ክፍል ስጋዎች		
	ማንኛውም ስጋ፣ የኩብት ስጋ፣ የአሳማስጋ፣ የበግስጋ፣የፍየል፣የዶሮ ወይም የዳክዬ		
	ትኩስ ወይም የደረቀ አሳ፣ሼል አሳ ወይም የባህር ምግብ		
	ግራብ፣ቀንድ አውጣዎች ወይም በራሪ ነብሳት		
ቡድን5: እንቁላል	እንቁላል		
ቡድን6: ቫይታሚን ኤ ፍራፍሬዎች እና ቅጠላቅጠሎች	ዱባ፣ካሮት፣ስኳሽ ወይም ስኳርድንች እንዲሁም አረንጓዴተክሎች (የአገር ውስጥ ምሳሌዎችን ያስገቡ)		
	የደረሰ ማንጎ (ትኩስ ወይም የደረቀ (አረንጓዴ))፣የደረሰ ፓፓዬ (ትኩስ ወይም የደረቀ)፣ሃባብ (የሌሎች የአገር ውስጥ በቪታሚንኤ የበለፀጉ ፍራፍሬዎችን ያስገቡ)		
	በቀይ የዘንባባ ዘይት የተሰሩ ምግቦች በቀይ የዘንባባ ፍሬ ወይም በቀይ የዘንባባ ፍሬ የተሰራ የፕልፕሶስ		
ቡድን7: ሌሎች አትክልት ወይም ፍራፍሬዎች	ሌሎች ፍራፍሬዎች እና አረንጓዴ ተክሎች		

205. ልጅሽ በትላንትናዉ እለት ፣ ማለትም ከጧት እስከ ማታ ጡት ጠብቷል ?

1. አወ
2. አልጠባም
3. አላዉቅም

አመለካከትን በተመለከተ

206. ለልጅ በቀን የተለያዩ አይነት ምግቦችን መስጠት ምያ ክልጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም
2. እርግጠኛ አይደለሁም
3. ጥሩ ነው

207. ለልጅ በቀን ብዙ ጊዜ ምግቦችን መስጠት ምያክል ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም
2. እርግጠኛ አይደለሁም
3. ጥሩ ነው

208. ልጅን እስከ ሁለት አመት ድረስ ጡት መጥባት ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም
2. እርግጠኛ አይደለሁም
3. ጥሩ ነው

ግንዛቤን በተመለከተ

209. ህፃናት ከተወለዱ ከስንት ጊዜ በኋላ ጠጣረና ለስለስ ያሉ ምግቦችን መጀመር አለባቸው?

1. በ 6 ወር
2. ሌላ
3. አላዉቅም

210. ህፃናት እስከ ስንት አመት ጡት መጥባት አለባቸው?

- | | |
|---------------|---------------------|
| 1. እስከ 6 ወር | 4. 24 ወር እና ከዚያ በላይ |
| 2. ከ 6-11 ወር | 5. ሌላ |
| 3. ከ 12-23 ወር | |

211. ህፃናት ለስለስ ያሉ ምግቦችን በቀን ስንት ጊዜ መመገብ አለባቸው ብለው ያስባሉ?

1. በቁጥር-----
2. አላዉቅም

212. ከሚከተሉት ምግቦች መካከል ልጅሽ በቀን የትኞቹን ማግኘት አለበት?

1. የእንስሳት ተዋፅዖ ምግቦች እንደ ፤ ስጋ ፤ የወፍ ስጋ ፤ ጉበት ፤ እንቁላል እና የመሳሰሉትን
2. ለውዝ፡ የኦቾሎኒ ዱቄት እና ሌሎች ጥራጥሬዎች እንደ ፤ አተር ፤ ባቄላ እና የመሳሰሉትን
3. በቫይታሚን ኤ የበለፀጉ ፍራፍሬ እና አትክልት ምግቦች እንደ (ካሮት ፤ ብርቱካን ፤ ድንች ፤ ማንጎ ፤ ፓፓያ ፤ እና የመሳሰሉትን
4. አረንጓዴ ቅጠላ ቅጠል አማ ምግቦች ለምሳሌ ጎመን
5. ሀይል ሰጭ ለምሳሌ ዘይት, ቅቤ
6. ሌላ
7. አላዉቅም

213. እናቶች ልጆቻቸውን እስከ መቶ እንድያጠቡ ይመከራል?

- | | |
|------------------|---------------------|
| 1. ወር እና ከዚያ በታች | 4. 24 ወር እና ከዚያ በላይ |
| 2. ከ 6-11 ወር | 5. ሌላ |
| 3. ከ 12-23 ወር | 6. አላዉቅም |

3 የታመመ ህፃንን አመጋገብ በተመለከተ

ተግባርን በተመለከተ

301. ባለፉት 2 ሳምንታት ልጅዎ ታሞብዎት/ ማብዎት ነበር?

1. አወ
2. አልታመመብኝም/ችብኝም
3. መልስወ አልታመመብኝም/ችብኝም ከሆነ ወደጥያቄ ቁጥር 305 ይሂዱ

302. ህፃኑ በታመመ ጊዜ ለምን ያክል ጊዜ አጠባሽዉ ፣ ከወትሮዉ ስታወዳድሪ?

1. ከወትሮዉ በበለጠ
2. ልክ እንደ ወትሮዉ
3. ከወትሮዉ ባነሰ
4. አላጠባም
5. አላወቅም

303. ህፃኑ በታመመ ጊዜ ምን ያክል ፈሳሽ ስጠሽዉ ፣ ከወትሮዉ አወዳድረሽ?

1. ከወትሮዉ በበለጠ
2. ልክ እንደ ወትሮዉ
3. ከወትሮዉ ባነሰ
4. ፈሳሽ አልሰጥም

304. ህፃኑ በታመመ ጊዜ ምን ያክል ምግብ ስጠሽዉ ፣ ከወትሮዉ አወዳድረሽ?

1. ከወትሮዉ በበለጠ
2. ልክ እን ደወትሮዉ
3. ከወትሮዉ ባነሰ
4. ምግብ አልሰጠውም

አመለካከትን በተመለከተ

305. ልጆች ሲታመሙ ከበፊቱ በተለየ ቶሎ ቶሎ መመገብ ምን ያክል ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም
2. እርግጠኛ አይደለሁም
3. ጥሩነው

306. ልጆች ሲታመሙ ከበፊቱ በተለየ የሚመገቡትን ምግብ መጨመር ምን ያክል ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም
2. እርግጠኛ አይደለሁም
3. ጥሩነው

214. ልጆች ሲታመሙ ከበፊቱ በተለየ የሚጠቡትን ጡት መጨመር ምን ያክል ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም
2. እርግጠኛ አይደለሁም
3. ጥሩነው

ግንዛቤን የተመለከተ ተመጣይቅ

215. ህፃናት በታመሙ ጊዜ ለምን ያክል ጊዜ መጥባት አለባቸዉ?

1. ከወትሮዉ በበለጠ
2. ልክ እንደወትሮዉ
3. ከወትሮዉ ባነሰ
4. አላወቅም

216. ህፃናት በታመሙ ጊዜ ምን ያክል ፈሳሽ መውሰድ አለባቸዉ?

1. ከወትሮ ዉበበለጠ
2. ልክ እንደ ወትሮዉ

3. ከወትሮ ወ. ባነሰ

4. አላወቅም

217. ህፃናት ቦታመሙ ጊዜ ምን ያክል ምግብ መወሰድ አለባቸው?

1. ከወትሮ ወ. በበለጠ

3. ከወትሮ ወ. ባነሰ

2. ልክ እንደ ወትሮ ወ.

4. አላወቅም

4 የነፍሰጡር እና አጥቢ እናቶች አመጋገብ

ተግባርን በተመለከተ

401. ነፍሰጡር እያለሽ እና ስታጠቢ ከበፊቱ በበለጠ ተጨማሪ ቢያንስ አንድ ጊዜ ትመገቢ ነበር?

1. አዎ 2. አልመገብም

402. ነፍሰጡር እያለሽ እና ስታጠቢ ከተለያዩ የምግብ አይነቶች በተለይ ስጋ ፣ ወተት ፣ እንቁላል ፣ የተለያዩ ፍራግሬዎች እና ቅጠላቅጠሎችን ትመገቢ ነበር?

1. አዎ 2. አልመገብም

403. ነፍሰጡር እያለሽ እና ስታጠቢ ሻይታሚን ቢፃ (ፎሎክ አሲዴ) ተሰቶሽ ነበር? (አሳይ ወይም ቀለሙን መናገር)

1. አዎ 2. አልተሰጠኝም 3. አላወቅም

አመለካከትን በተመለከተ

404. በእርግዝና ጊዜ ከበፊቱ በተለየ ብዙ ምግብ መመገብ ምን ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው

405. በአይረን እጥረት የሚመጣ ደም ማነስ ምን ያክል ከባድ ነው ብለው ያስባሉ?

1. ከባድ አይደለም 2. እርግጠኛ አይደለሁም 3. ከባድ ነው

406. በእርግዝና ጊዜ በአይረን የበለፀጉ ምግቦችን ማዘጋጀት ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው

ግንዛቤን የተመለከተ መጠይቅ

407. ነፍሰ ጡር እና አጥቢ እናቶች ከማያጠቡትጋር ስናወዳድር እንደት መመገብ አለባቸው?

1. ከወትሮ ወ. በበለጠ

6. አላወቅም

2. ገንቢ ምግቦችን በበለጠ ሁኔታ መመገብ አለባቸው

3. በአይረን የበለፀጉ ምግቦችን መመገብ አለባቸው

4. ምግብን ስናዘጋጅ በአየድን በበለገ ጨዋ መሆን አለበት

5. ሌላ

408. ብዙ እናቶች በእርግዝና ጊዜ በሚሰጡ ሁለት መድሀኒቶች ይጠቀማሉ ፣ እነሱም፣ (አሳይ ወይም ቀለሙን መናገር)

1. አይረን
2. ፎሊክስኦሲድ
3. ሌላ
4. አላዉቅም

409. በእርግዝና ጊዜ ፎሊክስ ኦሲድ መውሰድ ለምን ይጠቅማል?

1. ጤንማ የአእምሮ እድገት እንድኖር ያደርጋል
2. የወሊድ ጊዜ እክሎችን / ችግሮችን ፣ ያልተወለደን ህፃን የነርቭ ስርአት (አንጎል ፣ ህብረሰረሰር እና እራስቅል) ችግሮች ለመከላከል
3. አላዉቅም

5 ቫይታሚን ኤን የተመለከተ

ተግባርን በተመለከተ

501. ከወለድሽበ 45 ቀን ውስጥ ቫይታሚን ኤ ወስደሻል?

1. አወ
2. አልወሰደኩም
3. አላዉቅም

502. ልጅ] ከተወለደ ከ 6 ወር በላይ በአመት ሁለት ጊዜ ቫይታሚን ኤ ወስዳል?

1. አወ
2. አልወሰደም
3. አላዉቅም

503. ከዚህ በመቀጠል በትላንትናዉ እለት ቀንና ምሽት ሊመገቧቸው የሚችሏቸውን ዝርዝር ምግቦችን በተመለከተ ጥያቄ ጠይቆት እወዳለሁ፡፡ትላንትና ቀን ላይ እና ምሽት ከሚከተሉት የትኛውን ተመግበዋል?

1. የእንስሳት ምንጭ- ጨጓራ ፣ ኩላሊት ፣ ልብ ፣ የእንቁላል አስኳል/የዶሮ እንቁላል ፣የ ዳክዬ ፣የ ጊኒ ወፍ ወይም ሌላ ወፍ ፣ ወተት ፣ አይብ ፣እርጎ ወይም ሌሎች የወተት ተዋጽኦ ምርቶች
2. አረንጓዴ አትክልቶች- አማራንትስ ፣ ስፒናች ፣ ካሳቫ ቅጠሎች፣ ጥቅል ጎመን እና ሌሎች አንጓዴ ቅጠሎች ያላቸው አትክልቶች
3. ፍራፍሬዎች- የደረሰ ማንጎ ፣ የደረሰ ፓፓዬ ፣ መንደሪን ፣ አፕሪኮት
4. አልበላሁም

አመለካከትን በተመለከተ

504. የቫይታሚን ኤ እጥረት ምን ያክል ከባድ ነው ብለው ያስባሉ?

1. ከባድ አይደለም
2. እርግጠኛ አይደለሁም
3. ከባድ ነው

505. ምግብ ሲዘጋጅ በቫይታሚን ኤ በበለፀጉ ምግቦች እንደ ፣ ካሮት ፣ አርንጋዴ ቅጠል ያላቸው አትክልቶች ፣ ጣፋጭ ድንች እና ጉብት መጨመር ምን ያክል ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም
2. እርግጠኛ አይደለሁም
3. ጥሩ ነው

ግንዛቤን የተመለከተ መጠይቅ

506. አንድ ሰው የቪታሚን ኤ እጥረት በሰውነቱ ውስጥ በምን መልኩ ሊከላከል ይችላል?

1. በቪታሚን ኤ የበለፀጉ ምግቦችን
2. በቪታሚን ኤ የተሞሉ ምግቦችን ይመገቡ
3. በቪታሚን ኤ የታከሉ
4. የቪታሚን ኤ ጭማሪዎችን የሚሰጡ ምግቦችን ይመገቡ
5. አላውቅም

507. እናቶች እንደወለዱ ወዲያውኑ ቫይታሚን ኤ ማግኘት አለባቸው?

1. አወ
2. የለባቸውም
3. አላውቅም

508. የቫይታሚን ኤ እጥረት ያለባቸው ሰዎች የሚያሳዩትን ምልክቶች ልትነግሯች ትችያለሽ?

1. ድካም እና አቅም ማነስ
2. የመታመም እድል አላቸው
3. የአይን ችግር ፣ ማታ ማታ የማየት ችግር ፣ የአይን መድረቅ ፣ ማየት መሳን
4. አላውቅም

509. ህፃናቶች ከ 6 ወር በኋላ ቫይታሚን ኤ ባመት 2 ጊዜ ማግት አለባቸው ብለሽታ ስቢያለሽ?

1. አወ
2. አላስብም
3. አላውቅም

6 ደም ማነስን ስለመከላከል

ተግባርን በተመለከተ

601. ነፍሰጡር እያለሽ አይረን እና ፎሊክ አሲድ ነበር?

1. አዎ
2. አልወሰብም
3. አላውቅም

602. ነፍሰጡር እያለሽ ስጋ እና የእንስሳት ተዋፅኦ ትመገሚ ነበር?

1. አዎ
2. አልወሰብም
3. አላውቅም

603. በእርግዝና ጊዜ አረንጓዴ ቅጠሎችን እና ፍራፍሬዎችን ትመገሚ ነበር?

1. አዎ
2. አልወሰብም
3. አላውቅም

አመለካከትን በተመለከተ

604. በአይረን እጥረት ምክናየት በሚመጣ ደም ማነስ የመያዝ እድል አለኝ ብለው ያስባሉ?

1. የመያዝ እድል አለኝ
2. እርግጠኛ አይደለሁም
3. የመያዝ እድል አለኝ

605. በአይረን እጥረት ምክናየት የሚመጣ ደም ማነስ ምን ያክል ከባድ ነው ብለው ያስባሉ?

1. ከባድ አይደለም
2. እርግጠኛ አይደለሁም
3. ከባድ ነው

606. ምግብ ሲዘጋጅ በአይረን በበለፀጉ ምግቦች እንደ የከብት ስጋ ፣ ጉብት ተጨምሮ ቢዘጋጅ ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው

ግንዛቤን በተመለከተ

607. ነፍሰጡር እና አጥቢ እናቶች አይረን እና ፎሊክ አሲድ መወሰድ አለባቸው።

1. አዎ 2. የለባቸውም 3. አላውቅም

608. ህፃናት በሚመገቡት ምግብ ውስጥ የአይረን እጥረት ካለውምን የጤና እክል ይገጥማቸዋል?

1. የአእምሮ እና አካላዊ እድገት መዘግየት 2. ሌላ 3. አላውቅም

609. ስጋን እና የእንስሳት ተዋፅኦ በእርግዝና ጊዜ መመገብ ደም ማነስን ይከላከላል ብለው ያስባሉ?

1. አዎ 2. አላስብም 3. አላውቅም

610. አረንጓዴ ቅጠላቅጠሎችን እናፍራፍሬዎችን በእርግዝና ጊዜ መመገብ አለብን?

1. አዎ 2. የለብንም 3. አላውቅም

7 አዮድንን በተመለከተ

ተግባር

701. የቤተሰብ ምግብ ስታዘጋጅ የትኛውን አይነት ጨዋ ትጠቀሟል?

1. በአዮድን የበለፀገ ጨዋ 2. በአዮድን ያልበለፀገ ጨዋ 3. አላውቅም

702. የቤተሰብ ምግብ ስታዘጋጅ ጨዋ መቸ ነው የምትጨምረው?

1. መጨረሻ 2. መካከል 3. መጀመሪያ

703. ጨዋ የምታስቀምጭው የተከደነ እቃ ውስጥ ነው?

1. አዎ 2. አይደለምም 3. አላውቅም

አመለካከትን በተመለከተ

704. በሰውነታችን ውስጥ የአዮድን እጥረት መኖር ከባድ ነው ብለው ያስባሉ?

1. ከባድ አይደለም 2. እርግጠኛ አይደለሁም 3. ከባድ ነው

705. ምግብን በአዮድን በበለፀገ ጨዋ ማዘጋጀት ጥሩ ነው ብለው ያስባሉ?

1. ጥሩ አይደለም 2. እርግጠኛ አይደለሁም 3. ጥሩ ነው

ግንዛቤን በተመለከተ

706. የአዮድን እጥረትን እንደት መከላከል እንችላለን?

1. በአዮድን የበለፀገ ምግብ መመገብ 2. ሌላ 3. አላውቅም

707. እንቅርት በአዮድን እጥረት ሊመጣይችላል?

1. አዎ
2. አያመጣምም
3. አላዉቅም

708. ምግብ ስናዘጋጅ ጨዋ መጨመር ያለብን መቼ ነው?

1. መጨረሻ
2. መካከል
3. መጀመሪያ

709. ጨዋ መጨመር ያለብን የተደነገረው ስጥነው?

1. አዎ
2. አይደለምም
3. አላዉቅም

8 ስለ ምግብ ያለውትን መረጃ በተመለከተ

801. ስለ እናቶችና ህፃናት ስርዓተ-ምግብ መረጃ አግኝተዋል?

1. አዎ
2. አላገኘሁም
3. አላስታዉስም

802. መልስዎ አዎ ከሆነ : መረጃውን ከየት አገኙ?

1. ነርስ
2. ዶክተር
3. ጤና ኤክስቴንሽን ሰራተኛ
4. ከጓደኛ
5. ሌሎችምንጮች _____

803. መረጃውን መቼ ሰማሽ?

1. በእርግዝና ጊዜ
2. በወሊድ ጊዜ
3. ድህረ -ወሊድ
4. ህፃን ሳሳክም
5. ጤናማ ህፃን ከትትል
6. በክትባት ጊዜ
7. ሌላ ካለ ይጠቀስ-----

804. መረጃውን የት ሰማሽ?

- | | |
|---------------|--------------------|
| 1. ጤና መስሪያ ቤት | 3. ከቤት |
| 2. ማህበረሰብ | 4. ሌላ ካለ ይጠቀስ----- |

Annex 7: Training module for data collectors and supervisors

I. Instruction

- ☞ Identify target subjects to be interviewed
- ☞ Procedures to be followed during interview of subjects, care of use of non leading questions
- ☞ When to interview/convenient time
- ☞ Disclose the possible purposes of the study to the study participants
- ☞ When to start data collection and when to end

II. methods of training

- ✓ Pass through the instrument with data collectors to point out specific instructions
- ✓ Provide an example of a completed instrument or an interview transcript for the data collectors
- ✓ Allow data collectors to practice with the tool

Training module manual

Data collection method Or instruction	Data collector and supervisors	Training needs	Training activities
Mothers or primary care takers interview	Health extension workers and Nurses	- Interviewing techniques - How to follow and feel the instrument	- Interview instructions - How to ask questions - Trainee interview practice