

**INFANT AND YOUNG CHILD FEEDING PRACTICES
AND
ASSOCIATED FACTORS AMONG MOTHERS
OF UNDER 24 MONTHS CHILDREN IN SHASHEMENE WOREDA,
OROMIA REGION, ETHIOPIA**

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**A RESEARCH THESIS TO BE SUBMITTED TO DEPARTMENT OF
POPULATION AND FAMILY HEALTH, COLLEGE OF PUBLIC
HEALTH AND MEDICAL SCIENCES, JIMMA UNIVERSITY IN
PARTIAL FULLFILMENT OF REQUIREMENT FOR DEGREE OF
MASTER OF PUBLIC HEALTH IN REPRODUCTIVE HEALTH**

**JUNE, 2014
JIMMA, ETHIOPIA**

Infant and Young Child Feeding Practices and associated factors among mothers of under 24 months in Shashemene Woreda, Oromia Region, Ethiopia

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June, 2014

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Abstract

Background: Infant and young child feeding is a cornerstone of care for childhood development. The first two years of life provide a critical window of opportunity for ensuring children's appropriate growth and development through optimal feeding. Any damage caused during this period could lead to impaired cognitive development, malnutrition, poor growth and development, compromised educational achievement and low economic productivity.

Objective: To assess infant and young child feeding practices and associated factors in Shashemene Woreda, Oromia Region.

Methods and materials: A community based cross sectional study was conducted from 01/08/2006 to 30/08/2006 E.C. A total of 423 mothers who had child less than two years were included in the study using simple random sampling technique. Female Public Health students collected data using semi structured interviewer administered questionnaire. Bivariate and multivariate logistic regression analyses were conducted to identify factors of infant and young child feeding practices. Statistical significance was determined at p value level less than 0.05.

Result: A total of 417 (98.6%) mothers with their index child were interviewed. The ever breastfeeding rate in this study was 98.3% while the timely initiation rate of breastfeeding and exclusive breast feeding were 58.0% and 87.8% respectively. The prelacteal feed and colostrum feeding rate were 49.4% and 65.5% respectively. One fourth (28.7%) of mothers reported using of nipple bottle for feeding. The minimum food diversity and minimum meal frequency were 39.1% and 82.0% respectively. The proportion of timely introduction of solid, semi-solid and soft foods was 65.7%. The prevalence of inappropriate infant and young child feeding practice in study area was 67.9%. Being Government [AOR=9.81(1.90, 50.65) and private [AOR=7.66(1.40, 41.94)] employee of husband, poorest socio-economical status [AOR=1.39(1.30,6.48)], not attending ANC (AOR= 4.32(2.27,8.21)], child age 0-5 months [AOR=16.01(5.01,50.03)], negative attitude of mothers [AOR=2.50(1.14,5.47)] and number of children 3-4 [AOR=5.37(1.67,7.42)] were positively associated with inappropriate IYCFPs.

Conclusion and recommendation: A wide range of inappropriate infant and young child feeding practices exist. Socio-economic status, age of child, number of children, ANC and attitude affect IYCFPs. Increasing ANC coverage for further improvement of IYCF is recommended

Acknowledgement

First for all, my great thanks go to study participants of Shashemene Woreda who gave their valuable time for study.

I am very much thankful Mr. Kasim Ibrahim and Mr. Beriso Shenka for their supervision during data collection and data collectors for their devotion and effective undertaking of responsibilities throughout data collection.

I would like to express my sincere gratitude to my advisor Dr. Mekitie Wondafrash and W/O Misra Abdulahi for their assistance, constructive ideas and valuable comment in writing research report.

I would like to acknowledge Jimma University, Department of Population and Family Health for their support and giving golden opportunity to carry out this study.

I also would like to thanks Shashemene Woreda Health Office for providing valuable information about study area in writing this research.

Lastly but not least, I would like to thanks all my friends and families for supporting me by everything while doing my research and during my educational stay.

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Abbreviations and acronym

ANC	Antenatal Care
AOR	Adjusted odd ratio
CI	Confidence interval
COR	Crude odd ratio
C/S	cesarean section
EBF	Exclusive Breast Feeding
EDHS	Ethiopia Demographic and Health Survey
ESHE	Essential services for Health in Ethiopia
HSDP	Health Sector Development Program
ICFI	Infant and Child Feeding Index
IYCFP	Infant and Young Child Feeding Practice
JU	Jimma University
MMF	Minimum meal frequency
MDD	Minimum dietary diversity
PI	Principal Investigator
PPS	Proportionate Population to Size
PNC	Postnatal care
SES	Socio-economic status
SNNP	South Nation, Nationalities and People
SRS	Simple Random Sampling
TBA	Traditional birth attendant
UNICEF	United Nation Children Fund
WHO	World Health Organization

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Chapter One: Introduction

1.1 Background information

WHO and UNICEF's recommendations for optimal infant and young child feeding are early initiation of breastfeeding within one hour of birth, exclusive breastfeeding for six months and nutritionally adequate and safe complementary feeding starting from the age of six months with continued breastfeeding up to two years of age or beyond. The WHO also has developed indicators (eight core and nine optional) to assess infant and young child feeding practices (1-3).

Exclusive breastfeeding means that an infant receives only breast milk from his or her mother or a wet nurse, or expressed breast milk, and no other liquids or solids, not even water, with the exception of oral rehydration solution, drops or syrups consisting of vitamins, minerals supplements or medicines. Breast milk is optimal nutrition for infant. Promotion of exclusive breastfeeding is the single most cost-effective intervention to reduce infant morbidity and mortality in developing countries (1-4).

Complementary feeding means the process of starting at six month, safe, appropriate and adequate foods when breast milk is no longer sufficient to meet the nutritional requirements of infants older than six months. Even after complementary foods have been introduced, breastfeeding remains a critical source of nutrients for the infant and young child. It provides about one half of an infant's energy needs up to the age of one year, and up to one third during the second year of life. Breast milk continues to supply higher quality nutrients than complementary foods, and also protective factors. It is therefore recommended that breastfeeding on demand continues with adequate complementary feeding up to 2 years or beyond. (1-3,5).

Breastfed children 6-23 months should receive grain or tuber, animal-source foods and vitamin A-rich fruits and vegetables daily. Four food groups are considered the minimum acceptable number of food groups for breastfed infants. Breastfed infants 6-8 months should be fed meals two or three times per day; 9-23 months should be fed meals three times per day and 4 times for non-breastfed children 6–23 months (2,3).

Introduction of complementary feeding before six months increases risk of illness, diarrhea and wheezing and other allergic conditions and difficult to meet the child's nutritional needs. If complementary feeding starts too late, the child does not receive food required to meet his/her growing needs this result in slower growth and development (6).

Feeding practices for infant and young children worldwide are not optimal. It is only 34.8% of infants are exclusively breastfed worldwide. Complementary foods are often introduced too early or too late and are often nutritionally inadequate or unsafe (7). Only about 39% of infants in the developing countries, 25% in Africa are exclusively breastfed for the first six months. Additionally, 6% of infants in developing countries are never breastfed (8).

A wide range of harmful infant and young child feeding practices were documented in Ethiopia. According to Ethiopia Demographic and Health Survey of 2011, 52% of infants started breastfeeding within one hour of birth and exclusive breastfeeding during the first six months. About half (49%) of children age 6-8 months consumes solid, semi-solid, or soft foods and 5% of children were fed minimum dietary diversity and 4% of children fed minimum meal frequency per day while 96% of children continued breastfeeding at one year, and 82% continued at 2 year. In Oromia Region, 52.6% and 98.0% children started breast feeding within 1 hour and ever breast fed respectively (9).

1.2 Statement of problem

Infant and young child feeding is a cornerstone of care for childhood development. The first two years of life provide a critical window of opportunity for ensuring children's appropriate growth and development of children from generation to generation through optimal feeding. Any damage caused during this period could lead to impaired cognitive development, compromised educational achievement, low economic productivity and malnutrition because the first two years of a child's life are the most important for establishing healthy growth. Once growth faltering occurs in this age, there is little opportunity for catch-up growth. Stunted infants grow to be stunted children and stunted adults (1-3).

Based on evidence of the effectiveness of interventions globally, optimal breastfeeding could prevent 13% of deaths occurring in children less than 5 years of age, while appropriate complementary feeding practices would result in 6% reduction under-five mortality (10). Malnutrition has been responsible, directly or indirectly, for 60% of under five mortality annually. Over two third of these deaths often associated with inappropriate feeding practices during the first year of life (11). Globally, about 40% of under two years deaths are associated with inappropriate feeding practices (7).

Every day, 3000-4000 infants die in the developing world from diarrhoea and acute respiratory infections because they are given inadequate amounts of breast milk. More than 10 million children die each year. 41% of these deaths occur in sub-Saharan Africa and 34% in South Asia. A major contributor to their deaths is poor breastfeeding practices (12).

Reviews of studies from developing countries show that infants who are not breastfed are 6 to 10 times more likely to die in the first months of life than infants who are breastfed. Diarrhoea and pneumonia are more common and more severe in children who are artificially fed, even in situation of adequate hygiene, and are responsible for many of deaths. The risk of death from diarrhoea of partially breastfed infants 0–6 months of age was 8.6 times the risk for exclusively breastfed children (13,14).

In Ethiopia, very large proportions of women do not practice optimal breastfeeding and complementary feeding for their children. According to profiles analyses using Demographic Health Survey data, it is estimated that there are about 50,000 infant deaths a year attributable to poor breastfeeding habits, that is, 18% of all infant deaths every year and 10% of diseases in under-fives. At 6-8 months of age, only one in two children is consuming solid or semisolid food

(15). Non-exclusive breastfeeding increase the risk of dying due to diarrhea and pneumonia among 0–5 month old infants by more than two-fold (16).

According to EDHS 2011, only 4% of children 6-23 months living with their mothers are fed in accordance with IYCF practices and 66% children under the age of two receive age-appropriate breastfeeding. Early initiation of breast feeding (52%), falls short of the HSDP IV target of 92%. The prelacteal feeds within the first three days of life were 27 %, while 12% use a bottle with a nipple. Bottle feeding exposes infants to pathogens and thus increases their risk of infection, especially diarrheal disease and it decreases infants' intake of breast milk, which in turn reduces breast milk production. The practice of giving prelacteal feeds is discouraged because it limits the infant's frequency of suckling and exposes the baby to the risk of infection (9).

Several efforts to improve the feeding status of the infant and young children have been carried out at different times. The Ethiopian government developed the Infant and Young Child Feeding (IYCF) guideline in 2004 following WHO recommendation of global strategy for feeding infants and young children for proper nutrition and health (17).

However, these efforts have failed to bring about substantive and sustainable changes leading to improvement of infant and young child feeding practices.

Many studies were conducted to assess the magnitude and determinants of single indicators of infant and young child feeding practice over narrow age range, so has not addressed the determinants sub-optimal infant and child feeding practices. Using composite variables of infant and young child feeding index based on key indicators identified by WHO not studied in Ethiopia. Composite index present IYCFPs in more holistic than just one or few indicators behaviors studied separately. And also there are no study which documented infant and young child feeding practices patterns and associated factors with inappropriate feeding practices in the study area, but the topic is recent interest.

Therefore, based on these reasons the objective of this study is to assess infant and young child feeding practices and to identify associated factors with infant and young child feeding practices indicators in comprehensive way among mothers of children age less than 24 months in Shashemene Woreda.

Chapter two: Literature review

Optimal infant and young child-feeding practices are crucial for nutritional status, growth, development, health, and ultimately the survival of infants and young children. Worldwide, it was estimated that, if 90% of infants are covered with a package of intervention to protect, promote, and support the optimal IYCFP, almost one-fifth of overall under-five mortality can be averted. The poor complementary feeding practices that many children continue to be vulnerable to irreversible outcomes of stunting, poor cognitive development and significantly increased risk of infectious diseases, such as diarrhea and acute respiratory infection. Improved breastfeeding and complementary practices in particular can contribute significantly to the reduction of child morbidity and mortality (18).

Poor nutrition not only results from a lack of food but also from inappropriate feeding practices where the timing, quality and quantity of foods given to infants and young children are often inadequate (17).

2.1 Breast feeding practices

Breastfeeding confers both short-term and long-term benefits to the health of child and mother, including helping to protect children against a variety of acute and chronic disorders. Breast milk completely satisfies an infant's nutritional and fluid needs for the first six months. Infants do not need water or other liquids to maintain good hydration, even in hot climates. Nutrients such as vitamins A, C and D, iron, zinc, antibodies and essential fatty acids needed for the infant's growing brain, eyes, and blood vessels and these are not available in other milks. Breast milk is natural food, nothing that money can buy. It is immediately available, nutritionally balanced, fresh, temperature always clean, correct and constant. Breastfeeding is associated with lower periods of postpartum amenorrhea, which could extend birth intervals and lower fertility. Breast feeding also increases mother to child bonding and reduces maternal work load (20).

According to WHO 2003 country profiles, there is a wide range of variation in the practice of exclusive breastfeeding among developing countries, usually short, with the rates documented being: Brazil (58%), Bangalore (40%), Iran (Zahedan) (69%), Iran (28%) Beruwala (Kalutara) (15.5%), Lebanon (10.1%), Nigeria (20%), Bangladesh (34.5%), Jordan (77%) (21). Other study done by WHO on infant-feeding practice during the first year of life shows, 98% of infants born

in Africa, 96% of those born in Asia and 90% of those born in South America are breast-fed for some part of the period (19).

According to study done in five countries indicates that 95% or more of infants in Azerbaijan, Kazakhstan, Kyrgyz Republic, Turkmenistan, and Uzbekistan were breastfed, as were almost 90% in Armenia. Less than 30% of children were breastfed within the first hour except in the case of the Kyrgyz Republic (41%). 85% or more of children under 6 months of age received breast milk six or more times in the 24 hours before the survey. The mean number of episodes of breastfeeding in the 24 hours before the survey was eight or more, with both daytime and nighttime feeding being the norm. The duration of exclusive breastfeeding was short in each country (1 month or less) (22).

A prospective study undertaken in Bangladesh in June 2008 to assess appropriate infant feeding among showed that about 92% of mothers gave colostrum to their infants, and only 8% of them gave prelacteal food or drink (3.2% of mothers gave honey; 1.3% mustard oil; 2.8% sugar, glucose, or jaggery water; and \approx 1% of them gave either plain water or other milk before giving breast milk. Almost all infants (99.4%) were breastfed at 1 mo of age and 92% of them were still breastfeeding at 12 mo of age. The proportion of infants who were exclusively breastfed decreased from 78.3% at 1 mo of age to 10.7% at 6 mo of age. The median duration of exclusive breastfeeding was 121 day. The median duration of any breastfeeding was 365 day (23).

A cross sectional study done in East Delhi on infant and young child feeding showed that, 38% of children was given prelacteal feed, 37.2% were put on breastfeeding within one hour of birth, 57.1% of children under 6 months of age exclusively breast feed and continued breastfeeding at one year was being done by 93 (72.1%) of 129 children between 12 and 23 months, 26.5% of children were bottle fed (24). Other study done in Alexandria showed that the bottle-feeding rate (among infants less than 12 months) was 44.3 % (25).

Another cross sectional study in Kolkata, India (2014) showed that 68.6% of the children had late initiation of breast feeding, 31.4% had prelacteal feeding and exclusive breastfeeding was 66.7% (26). A survey done in semi-arid rural areas of Rajasthan showed that 77% discarded their colostrum; 65.2% of mothers gave jaggery water as a prelacteal feed (27).

According to survey conducted in Madagascar, revealed that 50.0% of women initiate breast feeding with in the first hour after delivery, 76.0% exclusive breastfeeding in the first 6 months of life and 54.0% of children in the 18-23 months range still breastfeeding (28).

A secondary data analysis of Tanzania DHS 1990-2010, breastfeeding is universal in Tanzania as almost all mothers (98%) breastfed their children. However, breastfeeding was initiated within the first hour of birth in 59.0% of mothers in 2004-05 but reduced to 46.1% in 2010. In infants aged 0-5 months the prevalence of exclusive breastfeeding was 31.8% in 1999 and increased to 41.3% in 2004-05 and further improved to 49.9% in 2010. Most mothers (>91.0%) breastfed up to 1 year in all surveys, but the proportion decreased to 57.2% , 55.5% and 51.1% at 2 years of age in 1999, 2004-05 and 2010 respectively (37).

A study done in Nairobi Kenya showed that breastfeeding with almost all children (99%) having ever been breastfed. However, more than a third (37%) were not breastfed in the first hour following delivery, and 40% were given something to drink other than the mothers' breast milk within 3 days after delivery. About 85% of infants were still breastfeeding by the end of the 11th month. Exclusive breastfeeding for the first six months was rare as only about 2% of infants were exclusively breastfed for six months (8).

A community based assessment of infant and young child feeding by the Linkage's project (ESHE) in Amhara, Oromia and SNNP region in 2006 was done. A breast feeding report revealed that 60.0%, 77.0%, and 50.0% of new born babies were put to breast within one hour of birth and the exclusive breastfeeding rates (24 hour recall) was 81.0%, 62.0% and 64.0% of infants less than 6 months respectively (30).

According to cross sectional study done in Tigray Region, more than 80% of the mothers initiated feeding their children with pre-lacteal foods. The commonly used pre-lacteal foods were butter (46.7%), sugar dissolved in water (15.1%) and plain water (14.5%) (31). Another cross sectional study in Mekelle town to assess determinants of breast feeding in under 24 months in mother attending maternal and child health clinic in 2012 was conducted shows that ever breastfeeding rate was 98.9%. The timely initiation rate of breastfeeding and exclusive breastfeeding were 77.9% and 60.8%, respectively. 85% percent of mothers reported on demand breastfeeding. The continued breast feeding rate at one year and at two years was 95.7% and 65.6% respectively (20).

A study done in Dabat town on assessment of infant and young child feeding practices revealed that, approximately 51.9% of women reported giving colostrum to their infants approximately 23.2% of women reported initiating breastfeeding within one hour of delivery, 18.0% women were exclusively breastfeeding their infants for six months and 90% continued breastfeeding into the child's second year and beyond (32).

A community based cross sectional study in Arba Minch shows that breast-feeding was considered as a natural gift. More than half of the mothers (57.3%) initiated breast-feeding within the 1st hour of delivery and 60.4% exclusively breast-fed their children for 5–6 months. More than three-fourth (87.93%) of mothers suboptimal breast-fed their children (19). Another study in Bahir Dar city shows that prevalence of exclusive breastfeeding was 49.1% (33).

According to cross sectional study conducted in Jimma Arjo Woreda in 2009, only 24.6% of mothers breastfed optimally. Among those who ever breastfed, more than half of mothers (62.6%) initiated breastfeeding within first hour of delivery and 72.5% gave colostrum to their infants, and 43.3% of mothers provided butter and 53.2% gave rue (“tena-adam”) to infants to protect them against stomachache and common cold, respectively. 47.91% mothers reported to have exclusively breastfed. The proportion of exclusive breastfeeding was 37.9% at the end of the first month which dropped to 9.9% at age of 6 months (34).

According to cross-sectional study on factors associated with exclusive breastfeeding practices among mothers in Goba district, South East Ethiopia. The prevalence of exclusive breastfeeding in the last 24 hours preceding the survey was 71.3%. The median duration of exclusive breastfeeding was three months and mean frequency of breastfeeding was six times per day (7).

According to EDHS 2011, 98% of children are breastfed for some period of time. Exclusively breastfed decreases sharply from 70% of infants’ age 0-1 month to 32% among infants 4-5 months. The HSDP IV targets an increase in the proportion of exclusively breastfed infants under age 6 months to 70% by 2015. The median duration and the mean duration of any breastfeeding in Ethiopia are 25 months. The median duration of exclusive breastfeeding is 2.3 months, and the mean duration of exclusive breastfeeding is 4.2 months. The proportion of children who are currently breastfeeding is 95% or more for children up to age 12-17 months and then declines to 84% of children age 18-23 months (9).

2.2 Complementary feeding

A cross sectional study conducted on infant and young child feeding practices among mothers attending rural Health center in East Delhi in 2012 on diet pattern of children less than two years. Minimum dietary diversity, minimum meal frequency, and minimum acceptable diet were seen adequate in 32.6%, 48.6%, and 19.7% of children between six months and two years of age, respectively. Children ages 6-9 month (62.5%) were taking solid, semi-solid, or soft foods. Overall, only 21% of breastfeeding and non breastfeeding children are fed according to the infant and young child feeding recommendations (24).

A prospective study conducted in rural Bangladesh to assess appropriate feeding practices shows that at 6 mo of age, about half (49.6%) of the infants were given semi-solid foods and about two-thirds (66.4%) at 9 mo of age. The proportion of infants who was given solid foods was low until 5 mo of age (13.2%) but increased rapidly thereafter (43.9% at 6 mo of age and 94.1% at 10 mo of age) (23).

Secondary data analysis of Tanzania in 2010 shows that complementary feeding practices was found that the majority of infants aged 6-8 months were reported to receive soft, semi-solid or solid foods, and the proportion increased from 79.6% in 2004-05 to 92.3% in 2010. However very few children aged 6-23 months met the minimum requirements for indicators for dietary diversity, meal frequency and acceptable diet. The prevalence of minimum dietary diversity showed slight decrease from 39.5% in 2004-05 to 38.0% in 2010, whereas minimum meal frequency and acceptable diet showed significant decline from 45.0% and 18.5% in 2004-05 to 34.7% and 13.4% in 2010 respectively (29).

A community based assessment of infant and young child feeding by the Linkage's project (ESHE) in Amhara, Oromia and SNNP region in 2006 revealed that addition timely complementary feeding rate were 39.0%, 60.0% and 60%, respectively (30).

A study done in Dabat town on Assessment of Infant and Young Child Feeding practices revealed that, about 54.0% started complementary feeding at the age of six months and 21.7% of infants were given a bottle (32). A descriptive cross-sectional study on mothers' knowledge and practice related to exclusive breast feeding in Jimma in 2000 showed that 40% were reported to have started on weaning food when aged 4-6 months (36).

According to EDHS 2011 Infant formula supplementation at any age is uncommon in Ethiopia. Among breastfeeding children under age two, very few (2%) consume infant formula. However, a much higher proportion (18%) receives other milk or other liquids. Among breastfeeding children in age 6-23 months, 66% ate foods made from grains, and 20% ate foods from legumes or nuts, only 15% consumed fruits and vegetables rich in vitamin A or foods made from roots and tubers, 13% consumed cheese, yogurt, or other dairy products, 5% of children consume meat, fish, or poultry, and 8% consume eggs in the 24 hours preceding the survey. Overall, almost four of every five breastfeeding children age 6-23 months (78%) consumed some solid or semi-solid food during the day or night preceding the survey. 51% of children age 6-9 months received complementary foods the day or night preceding the survey (9).

2.3 Determinants of infant and young child feeding practice

A cross-sectional study was conducted to identify factors affecting early initiation of breastfeeding and exclusive breast-feeding among mothers in peri-urban Guatemala City. Children born at home were significantly more likely than children born at hospitals to initiate breastfeeding early (37). Secondary data analysis of DHS 2006 to 2010 in Nepal to assess determinants infant and young child feeding indicators showed cesarean deliveries were associated with delay in timely initiation of breastfeeding (38). Another study done in Nepal also showed that mother education level, child sex, parity, family size, and time of postnatal care were independent predictors of exclusive breastfeeding practice in the study area (42).

A survey conducted on the practices of infant feeding and the influencing factors in United Arab Emirates showed that the mothers' nationality and educational status were significant influences on the mothers' decision to exclusively breast-feed. Increased maternal age, multiparity (three or more), and vaginal delivery were significant positive predictors for early breastfeeding (39).

Another similar study done in Iraq showed inadequate supply of breast milk was the most common reason reported by mothers for discounting breastfeeding. Economic constraints, hygiene and knowledge are major factors in predisposing bad practices of child feeding. Some of the women are reluctant to add oil to the diets of children, believe that cheese may impair their intellect, while eggs delay speech and cause stammering. The other negative practices include late introduction to solid food, providing small quantities of food during weaning, reluctance to wash milk bottles with detergents and not boiling water to prepare other feeds (40).

A study done in Bangladesh showed that breastfeeding initiation was significantly associated with mode of delivery (23). Similarly, study done to assess factors associated with sub-optimal infant breastfeeding and feeding practices in Nairobi Kenya showed child's sex; perceived size at birth; mother's marital status, ethnicity; education level; family planning (pregnancy desirability) and health seeking behavior (place of delivery) (8).

According to Tanzania DHS secondary data analysis, the most consistent determinants of suboptimal breastfeeding included young maternal age (< 25 years), lower maternal education, maternal employment, home delivery, inadequate care during and after birth and poor economic status. Lower parental education, poor household economic status, absence of postnatal check-ups after delivery, young child age and rural residence were significant and consistent risk factors associated with inappropriate complementary feeding practices in Tanzania (29).

A study done in Jimma on 412 mothers also showed that about 67.2% mothers had satisfactory knowledge on benefit of breastfeeding, 28.2% mothers found to have a good breastfeeding practice, 87% had adequate knowledge about exclusive breastfeeding, while most (90%) had positive attitude towards exclusive breast-feeding. Although knowledge and attitude towards exclusive breast-feeding among mothers was found to be high, the findings showed that only 25% of mothers offered breast milk alone to their babies in the first 4-6 months of infant life. Hence, this study documented a discrepancy between mothers' knowledge, attitude and practice of exclusive breast-feeding. Suboptimal breast-feeding practices were significantly associated with not utilization of family planning, lack of knowledge about the duration of exclusive breast-feeding, and not attending health-education sessions (36).

Another study done in Jimma Arjo Woreda to assess factors associated with sub-optimal breast feeding in 2012 revealed that initiation of breastfeeding after one hour of delivery was significantly associated with not attending formal education and painful breastfeeding experiences. The majority (67.02%) of mothers had no knowledge about exclusive breastfeeding. Non-exclusive breastfeeding was negatively associated with ownership of radio, but positively associated with the practice of discarding colostrums (34). A Similar study done in Goba district to assess factors affecting breast feeding shows that getting postnatal counseling was timely initiation of breastfeeding. Being unemployed and age of infants of less than two months were independently associated with exclusive breastfeeding (7).

A study done in Harar town on infant and young child feeding practices shows that exclusive breastfeeding practice was associated with an average monthly income and place of delivery and complementary feeding practice was associated with a monthly income and antenatal care (12).

According to case study in Amhara region, factors such as maternal education, trained delivery services and antenatal clinic visits were associated with EBF. Maternal education was also associated with improved dietary diversity score of complementary feeding for the children (41).

According to study done in Mekelle town, home delivery, vaginal delivery and non health professional as a birth attendant were found to be positively statistically associated with timely initiation of breast feeding. Employment status and Child's age were associated with exclusive breastfeeding (20).

According to EDHS 2011 the likelihood that a child is breastfed in the first hour after birth increases with the mother's educational status and wealth quintile. The proportion of children who breastfed within one hour of birth does not vary significantly by type of assistance at delivery. Children whose mothers were assisted during childbirth by a traditional birth attendant are most likely to receive prelacteal feeds (34%), while children whose mothers were assisted by a health professional are least likely (21%). The practice of prelacteal feeding decreases as wealth quintile increases (9).

2.4 Significance of study

Since WHO global recommendation on IYCFP strategy, varying levels of interventions efforts, giving due emphasis to key messages of appropriate infant and young child feeding practices, were being given both at health institution and community level. However, these efforts have failed to improvement of infant and young child feeding practices. These efforts were not based evidence on comprehensive indicators of infant and young child feeding practices.

The assessment of IYCFP based on composite indices used to indicate cumulative IYCFP status to provide single information as one variable to indicate cumulative infant and young child feeding practice status to provide single information as one variable

Composite indices have some potential to address some concerns (i.e. age specific practices) related to analysis and interpretation of IYCFP patterns.

A few attempts at the measurement of IYCFP in the form of composite indices made using database of Demographic and Health survey in few countries like Ethiopia. Research in Ethiopia has, however, not been directed in this direction till date, where such composite index not only useful for research, but used for monitoring and evaluation of program, international comparisons and advocacy of IYCF.

Therefore, the finding of this study can provide relevant information for policy makers and NGOs for future planning and formulation of appropriate strategies in order to promote optimal infant and young child feeding practice.

Findings from this study also have significant input for monitoring and evaluation of infant and young child feeding practices program, summary statistics overall progress of program for managers and achieving the millennium goal, i.e. in reducing the child mortality.

The finding of this study will also help as a baseline data for those who are interested in carrying out further research with this regard.

This study also vital to identify factors contributing to poor feeding practices and who need to be targeted for intervention to improve IYCF practices in study area.

4.5 Conceptual framework

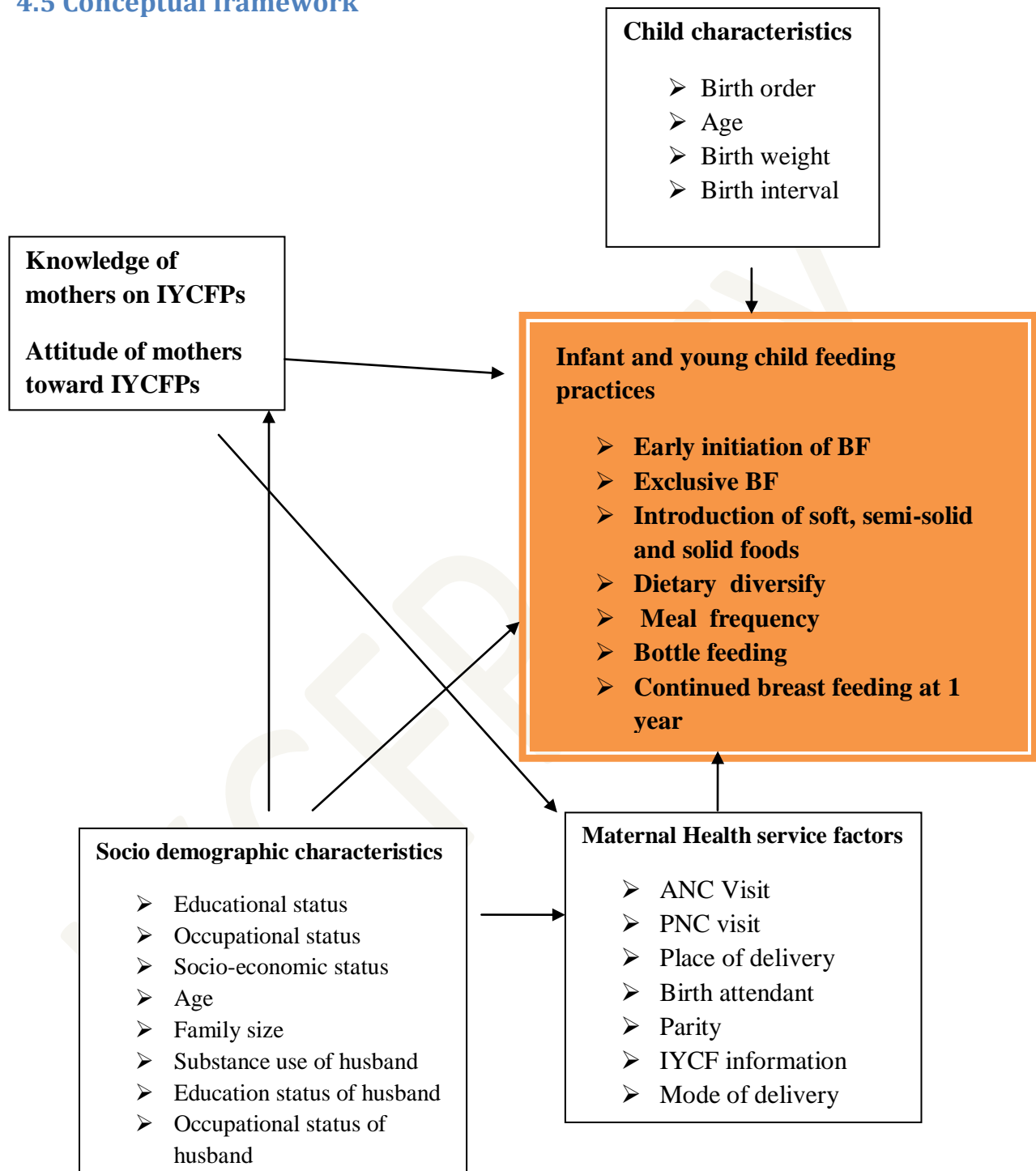


Fig 1 Conceptual framework for assessment of Infant and young child feeding practices Shashemene Woreda, 2014

(Adapted from: UNICEF. *Food, Health and Care: The UNICEF Vision and Strategy for a World Free from Hunger and Malnutrition*. New York,: UNICEF, 1992.)

Chapter Three: Objectives

4.1 General objective

To assess infant and young child feeding practices and associated factors among mothers of children less than 24 months in Shashemene Woreda, Oromia Region, 2014.

4.2 Specific Objectives

- To determine breast feeding practices
- To determine complementary feeding practices
- To identify factors affecting infant and young child feeding practices.

Chapter Four: Methods and Materials

4.1 Study area and period

The study was carried out in Shashemene Woreda, West Arsi Zone, Oromia Regional, Ethiopia. Capital town of the zone is Shashemene, which is located at 250km from Addis Ababa. There are 13 Woredas in the Zone. Total population of West Arsi Zone is estimated to be 2,345,910 according to 2013 projection. Among these total populations, Shashemene Woreda total population and Households are 251,703 and 53,554 respectively. Among total population of Woreda, 14,372 are under two year children. There are 37 kebeles in Woreda. Shashemene Woreda has 6 Health Centers and 39 Health Post. There are 72 Health Extension Workers and 123 Health professionals in the Woreda.

The study was conducted from 01/08/2006 E.C to 30/08/2006 E.C

4.3 Study design

A community-based cross-sectional study design was employed.

4.4 Source and study population

Source populations:

- ✓ All mothers who had a child age less than 24 months

Study population

- ✓ Mothers who had a child age less than 24 month in the randomly selected Kebele and who fulfill inclusion criteria.

Inclusion criteria

- ✓ A single child per household who is in age group less than 24 month was included in the study. Children and parent who live in the area for six or more months before the study began.

Exclusion criteria

- ✓ Those mothers who are unable to communicate due to serious illness at the time of data collection
- ✓ Known HIV positive status mothers
- ✓ Those children having any illness 15 days prior to the survey because affect feeding practices during data collection

4.5 Sample size

The maximum sample size was determined using single population proportion formula based the following assumption ; 95% confidence ,prevalence of exclusive breast feeding in Ethiopia according to EDHS 2011 was 52 % (9) and a precision of 5 % between the sample and the parameter was taken. After adding 10% for non- response, the total sample size becomes 423. Hence, a total of 423 mother - child pair of will be included in the study.

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

Some basic assumptions of sample size determination

P = 52 % exclusive breast feeding proportion, variable which provide maximum sample size than other variables (9).

$Z_{\alpha/2}$ = critical value for normal distribution at 95% confidence interval which equals to 1.96 (z value at $\alpha = 0.05$)

The degree of precision = 0.05 (5%)

Non response rate = 10%

$$n = 384 + 384 * 10\% = 423$$

Total sample size was **423** mother - child pair.

4.6 Sampling technique

From 37 Kebeles in Shashemene Woreda, 13 Kebeles (one third) were selected by using lottery method. The total numbers of less than 24 month children in 13 kebeles were 5,243 children. The numbers of study participants were allocated to each kebele proportionally according to the size of less than 24 month children in kebele. Lists of children age less than 24 months that was prepared by Health Extension Works from family registration book was used as a sampling frame. To select study participant from each kebele, simple random sampling was employed in 13 kebeles to get 423 mothers of children age less than 24 month. In households with more than one children of age less than 24 month, youngest child was selected as index child.

Lottery method was used for mothers who had a child of the same age to identify index child. If the eligible mothers were absent from the house at the time of data collection, then revisit was done and if they are absent at the second visit they were considered as non-respondents.

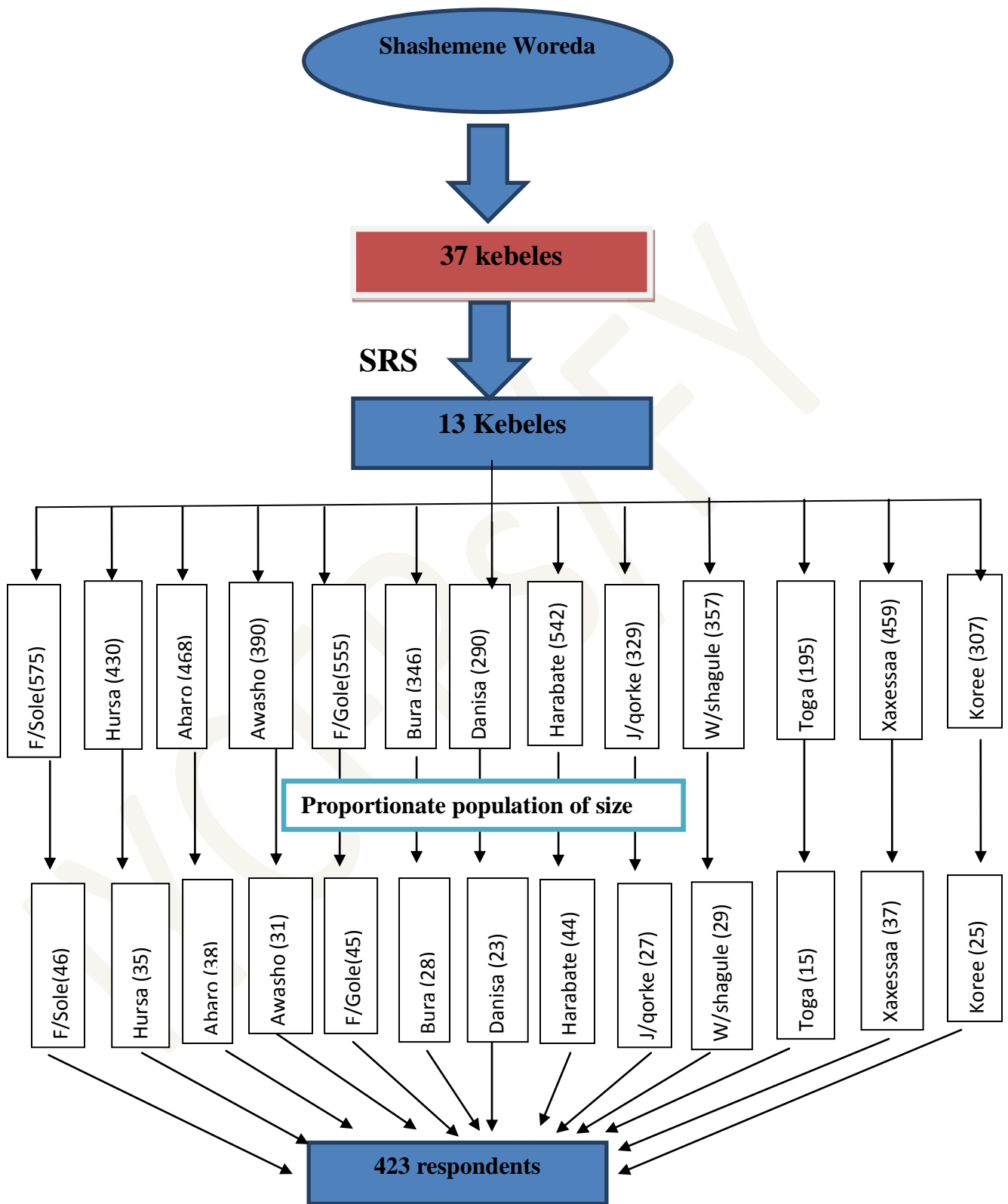


Fig 2 Schematic representation of sampling procedure, Shashemene Woreda, 2014

4.7 Variables

Dependent variables: Infant and young child feeding practices [composite variable of Initiation of BF, Exclusive BF, Introduction of fluid, semi-solid and solid foods, Dietary diversity, Meal frequency, Bottle feeding, Continued breast feeding at 1 year]

Independent variables:

- **Socio demographic/economic characteristic:** age of mother, occupation of mother, education status of mother, husband education status, husband occupation, husband substance use, family size
- **Child characteristics:** age, birth order, birth interval, perceived birth weight
- **Maternal Health service factors:** ANC, PNC, place of delivery, birth attendant, number of ANC visit, mode of delivery, IYCFP information during ANC, number of live births, number of children
- **Attitude of mothers or caregivers towards infant and young child feeding**
- **Knowledge of mothers or caregivers towards infant and young child feeding**

4.8 Data collection tools and methods

The data were collected using semi- structured questionnaire. The questionnaire was adapted from WHO sample questionnaire, EDHS and reviewing relevant literatures (3, 9). The final English version questionnaire was translated in to local language (Afan Oromo) then translated back to English by another individual who have the same ability with the previous individuals to check consistencies or distortion in the meaning of words in the content of the questionnaire.

A face-to-face interview was conducted with mothers or caregivers of the children less than 24 months using questionnaire.

Age of the child was calculated from the date of birth to the date of the survey. For those with written evidence, date of birth was obtained from child health cards and for those who didn't have written documents, age was established relying on the date given by the mother. To prevent recall bias of birth date local calendar with common local events was used.

The number of meals and type of food consumed by child yesterday rely on mothers 24 hour dietary recall.

4.9 Data collection

Ten Public Health female students' from Paradise Valley University College was recruited for data collection. The criteria for recruitment was based on who can read, speak and listen Afan Oromo and who know study area. Two supervisors (one Environmental Health and one BSC Nurse) were selected from Shashemene Woreda for supervision.

The supervisors and data collector were trained for one day. The content of training was purposes of study, data collection techniques, introducing tools question by question, practical session on art of interviewing, data quality assurance methods, ethical issues and clarification of any doubt was also given.

The supervisors checked completeness of each questionnaire on daily basis and supported data collectors. The supervisors also checked the activities of each data collectors by random spot-checking of the households to ensure reliability of the data collected.

4.10 Pre test

The questionnaires were pre tested prior to the actual data collection on 20 (~5%) of the respondents on Kersa kebele which was not selected for actual study. The finding from pretest was used to modify questionnaire and for formatting.

4.11 Data processing and analysis

The data were coded and entered in the computer using EPI data version 3.1 and exported to SPSS version 16.0 statistical software for analysis.

Descriptive statistics were presented using frequencies, proportions, summary statistics, graphs and tables.

A bivariate analysis was carried out to select variables for the multivariate analysis. Variables that have P-value < 0.25 on bivariate analyses were entered in the multivariate logistic regression model with dependent variable.

A multivariate logistic regression analysis was carried to variables statistically significant in bivariate logistic regression analysis. Multivariate analysis was used identify predictors of independent variables of IYCFP after controlling confounding variable.

All tests were two-sided and $P < 0.05$ was considered as statistically significant. The degree of association between independent and dependent variables were assessed using adjusted odds ratio with 95% confidence interval.

4.12 Data quality assurance

To assure the quality of the data, properly designed standard questionnaires were developed and translated to Afan Oromo by expertise with great emphasis given to local vocabularies, and then back translated to English to validate conceptual equivalence. The questionnaires were also pre-tested. Training was given to data collectors and supervisors. Furthermore, supervisors and the principal investigator checked questionnaires on daily basis for completeness and clarity. Any error, ambiguity, incompleteness, or any other problems were addressed on the following day before starting next day activities.

Probing questions were used to reduce recall bias in questions prone to error arising due to memory lapses.

4.13 plan for data dissemination and utilization

The findings of this study will be disseminated to different Organizations that will have a contribution to improve the status Infant and young child feeding practice. The report of the study will be submitted and presented to Department of Population and Family Health, College of Public Health and Medical Sciences, Jimma University and to respective health institutions & other concerned and interested organizations. The findings will also be presented at various seminars and workshops. It will also be published in national or international scientific journal.

4.14 Ethical consideration

The study was conducted after obtaining ethical clearance from ethical review board of Jimma University. Letter of permission was secured from Woreda health offices. Kebele administrators were communicated through formal letters from Woreda Health office in addition to personal communication.

Informed consent was obtained from each study subject prior to the interview after the purpose of the study is explained to respondent. Confidentiality of the information was assured and privacy of the respondent was maintained by removing personal identities.

4.15 Operational definitions

Appropriate infant and young child feeding practices = defined as exclusive breast feeding in children age less than 6 months, early initiation of breast feeding , non use of bottle feeding, minimum meal frequency, minimum dietary diversity, timely introduction of solid, semi-solid and soft foods in 6-8 months and breast feeding. Each indicator was scored whether the practices appropriate based on WHO and UNICEF recommendation. A practice that was appropriate for a specific age group received a score of 1, and a practice that was inappropriate received a score of 0. If summed score is equal to 4 or above, it was considered as appropriate IYCFP (WHO, 2008).

Inappropriate infant and young child feeding practices = defined as non-exclusive breast feeding in children age less than 6 months, initiation of breast milk feeding after 1 hour, bottle feeding, food diversity less than 4 food groups, meal frequency less than three times per day, introduction of solid, semi-solid and soft foods before 6 months or after 8 months and non-breast feeding. If summed score is less than 4 score, it was considered as inappropriate IYCFP (WHO2008).

Indicators		Score
Exclusive breast feeding	Yes	1
	No	0
Bottle feeding since birth	Yes	0
	No	1
Initiation of breast feeding	Within 1 hour (yes)	1
	After 1 hour (no)	0
Introduction of solid, semi-solid and fluid foods	6-8 month (yes)	1
	Less than 6 or greater than 8 month (no)	0
Food diversification within 24 hour	4 or more food groups (yes)	1
	Less than 4 food groups (no)	0
Meal frequency within 24 hour	3 or more times (yes)	1
	Less than 3 times (no)	0
Breast feeding	Yes	1
	No	0

(Adapted from Arimond M and T. Ruel M., 2002 and WHO RAM development update 2008)

Pre lacteal feeding = Children given something other than breast milk during the first three days of life

Exclusive breast-feeding = Infants, have received only breast-milk from his/her mother, and no other liquids or solids with the exception of drops or syrup consisting of vitamins, mineral or medicines. EBF measured for child less than 6 months only breast fed within 24 hour and if child is greater than 6 month by asking mother weather child fed only breast milk up to six month.

Predominant breast-feeding = The infants' predominant nourishment has been breast-milk and allows the infant to receive certain liquids (water and water-based drinks, fruit juice), ritual fluids and ORS, drops or syrups (vitamins, minerals, medicines).Non-human milk and food-based fluids are not allowed.

Continued breast feeding at 1 year = children 12-15 months of age who are breast feed

Continued breast feeding at 2 year = children 20-23 months of age who are breast milk feed

Complementary foods= any solid or semi-solid or soft foods which are given to the child.

Timely initiation of breast feeding = Putting neonate on mother breast to suck within 1 hour of delivery (including 1hour).

Ever breast feeding = Breast feeding any time since birth.

Adequate (met) minimum dietary diversity =Children 6–23 months of age who consume from 7 food groups 4 or more food groups.

The 7 foods groups used for tabulation of this indicator are:

- ✓ Grains, roots and tubers
- ✓ Legumes and nuts
- ✓ Dairy products (milk, yogurt, cheese)
- ✓ Flesh foods (meat, fish, poultry and liver/organ meats)
- ✓ Eggs
- ✓ Vitamin-A rich fruits and vegetables and
- ✓ Other fruits and vegetables

Minimum meal frequency= Children age 6–23months who receive solid, semi-solid, or soft foods the minimum number (3 times for breastfed children and 4 times for non-breastfed children.

Minimum acceptable diet: a composite indicator of minimum dietary diversity and minimum meal frequency. When a currently breastfed and non breast fed child meets both the minimum diversity and the minimum meal frequency.

Sufficient knowledge of IYCF - When the respondent woman identified correctly 60% correct or true questions out of questions prepared about IYCF knowledge (36).

Insufficient knowledge of IYCF - When the respondent women score 60% or below 60% out of statements prepared about IYCF knowledge.

Positive attitude about IYCF - When the mother's responds agree and strongly agree to the questions prepared towards attitude IYCF (36).

Negative attitude about IYCF - When the mother's responds neutral, disagree and strongly disagree to the questions prepared towards attitude IYCF.

Neutral - When mother's respond neither agrees nor disagree.

Family size = refers total number of people living in a house during the study period

Young child = child less than 24 months

Small BW = mothers' child size perception little baby during birth

Normal BW = mothers' child size perception medium or normal during birth

Large BW = mothers child size perception big baby during birth

Substance use - use of any one substance such as drinking alcohol, chewing chat or smoking cigarette by husband sometimes/daily.

Wealth Index - used as measure of socio-economic status. Household wealth index was constructed using the principal components statistical procedure to determine the weights for the index based on household assets information collected. The variables used to determine wealth index included were bank saving account, land, livestock, electricity, radio, television, watch, bed, chair, table, telephone/mobile, refrigerator, electric mitad, toilet, safe water access, home wall, home roof type, home floor type, number of rooms. The data are coded into 'yes' or 'no' for each item. Cronbach's alpha was used to measure reliability of variable. The principal component analysis was carried for assets of cronbach's alpha more than 0.7. Based on reliability, the final asset used to rank households were electricity, watch, television, chair, bed, toilet, safe water access, agriculture land and rooms then individuals were ranked according to the total score of the household. The wealth index was divided into five SES categories/quintiles, each of them comprising 20% of population. The bottom 40% of households was referred to poorest (20%) and poorer (20%) household, the next 20% as the middle households and the top 40% as richer 20%) and richest (20%).

Chapter Five: Result

5.1 Socio-demographic characteristics of mothers and husband

A total 417 of mothers and caregivers of children less than 24 months were included in the study yielding response rate of 98.6%. The mean (\pm SD) age of the mothers was 28.1 years ($SD\pm 4.9$) and ranges from 18 to 43 years. Majority of mothers (99.6%) were married. More than half (54.7%) were house wives by occupation. With regard to educational status, 170(40.7%) mothers did not have formal education. Most of respondents were Oromo by ethnicity (88.2%) and Muslim by religion (86.2%). Half 211(50.6%) of households had a family size four to six and the median family size was six. Regarding to wealth index one to five (20.6%) of respondents were in 3rd quartiles (Table 1).

With regards to husband education level more than (53.7%) of them had primary education while 230(60.2%) of husbands were farmers by occupation. Most (61.0%) of husband didn't use substance (Table 1).

Table 1 Socio-demographic characteristics of respondents in Shashemene Woreda, 2014

Variables (n=417)		Number	Percent
Age (years)	≤ 19	8	1.9
	20-24	81	19.4
	25-29	156	37.4
	30-34	124	29.7
	≥35	48	11.5
Marital status	Married	382	91.6
	Single	13	3.1
	Widowed	15	3.6
	Divorced	7	1.7
Educational status	No education	170	40.8
	Primary education	167	40.0
	Secondary education	60	14.4
	Higher education	20	4.8
Religion	Muslim	360	86.3
	Orthodox	28	6.7
	Protestant	29	7.0
Ethnicity	Oromo	368	88.2
	Amhara	25	6.0
	Others	24	5.8
Occupational status	House wife	228	54.7
	Farmer	111	26.6
	Private	62	14.9
	Government	16	3.8
Family size	1-3	46	11.0
	4-6	211	50.6
	≥7	160	38.4
Socio-economic status	Poorest	83	19.9
	Poorer	81	19.4
	Middle	86	20.6
	Richer	84	20.1
	Richest	83	19.9
Educational status of husband (n=382)	No education	38	9.9
	Primary education	205	53.7
	Secondary education	101	26.4
	Higher education	38	9.9
Occupational status of husband (n=382)	Farmer	230	60.2
	Merchant	69	18.1
	Private	52	13.6
	Government	31	8.1
Husband substance use (n=382)	Yes	149	39.0
	No	233	61.0

5.2 Child characteristics

More than half (51.6%) of children were males and more than one third (34.1%) of them were 6-11 months old. More than two in five (47.7%) of children were second to fourth in birth order. More than half of children (59.5%) birth intervals between youngest child (index child) and his immediate older were less than 24 months. The majority (63.8%) mothers perceived that their babies' birth weight was as normal (Table 2).

Table 2 Child characteristics in Shashemene Woreda, 2014

Variable (n=417)		Number	Percent
Sex	Male	215	51.6
	Female	202	48.4
Age(completed months)	0-5	90	21.6
	6-11	142	34.1
	12-17	125	30.0
	18-23	60	14.4
Birth order	First born	49	11.8
	2 nd – 4 th	199	47.7
	5 th or more	169	40.5
Preceding birth interval (month)	No previous birth	49	11.8
	Less than 24	248	59.5
	More or equal to 24	120	28.7
Mother's perception of birth weight of child	Small	46	11.0
	Normal	266	63.8
	Large	85	20.4
	Don't know	20	4.8

5.3 Maternal services use characteristics

A total of 264 (63.3%) mothers attended ante natal care. Among those who had ANC follow up, the majority 161(61.0%) had less than four visits and 103(39.0%) had four or more than four visit with mean frequency of 3.22 times. During ANC follow up one third (76.5%) of mothers didn't receive information about Infant and Young Child Feeding Practices, but only 62(23.5%) had information.

Majority (91.1%) of mothers had spontaneous vaginal delivery. With respect to delivery assistance, 159 (38.1%) mothers gave birth by the assistance of traditional birth attendants and 264 (63.3%) gave birth at home. Most (70.3%) of mothers didn't have PNC.

Most 369(88.5%) of mothers were multi-parous with mean of 4.2 live births and mean of total number of children they had was 3.96 (Table 3).

Table 3 Maternal Health characteristics in Shashemene Woreda, 2014.

Variable (n=417)		Number	Percent
ANC visit	No	153	36.7
	Less than four visit	161	38.6
	Four or more visit	103	24.7
Place delivery	Health Institutions	153	36.7
	Home	264	63.3
Mode of delivery	Vaginally	380	91.1
	Caesarean section	37	8.9
Birth attendant	Health professionals	140	33.6
	TBA	159	38.1
	Other	118	28.3
PNC Visit	Yes	124	29.7
	No	293	70.3
Number of children	1-2	103	24.7
	3-4	161	38.6
	>=5	153	36.7
Parity	Null-parous	49	11.5
	Multi-parous	369	88.5

5.4 Breast feeding practices

Result of this study showed that almost all mothers 414(99.3%) had breast feed their children at least once. The reasons for those who didn't ever breast fed their children were: 3 of them due to mother illness, 2 of them due to breast disease and 2 of them bottle feeding.

Among those who ever breast fed children, 382(92.3%) were still breast feeding during the survey (currently on breast feeding). All mothers who are currently breast feed, 382(92.3%), were also breast fed their children within 24 hour preceding the survey. Among mothers who were not breast feeding their children currently, more than half (53.1%) reported that they stopped breast feeding because it was time to stop, 8(25%) of them reported that because they are pregnant, 4(12.5%) of them reported because they are using family planning and the remain mothers reported that they sick (6.2%) and insufficient breast milk (3.1%).

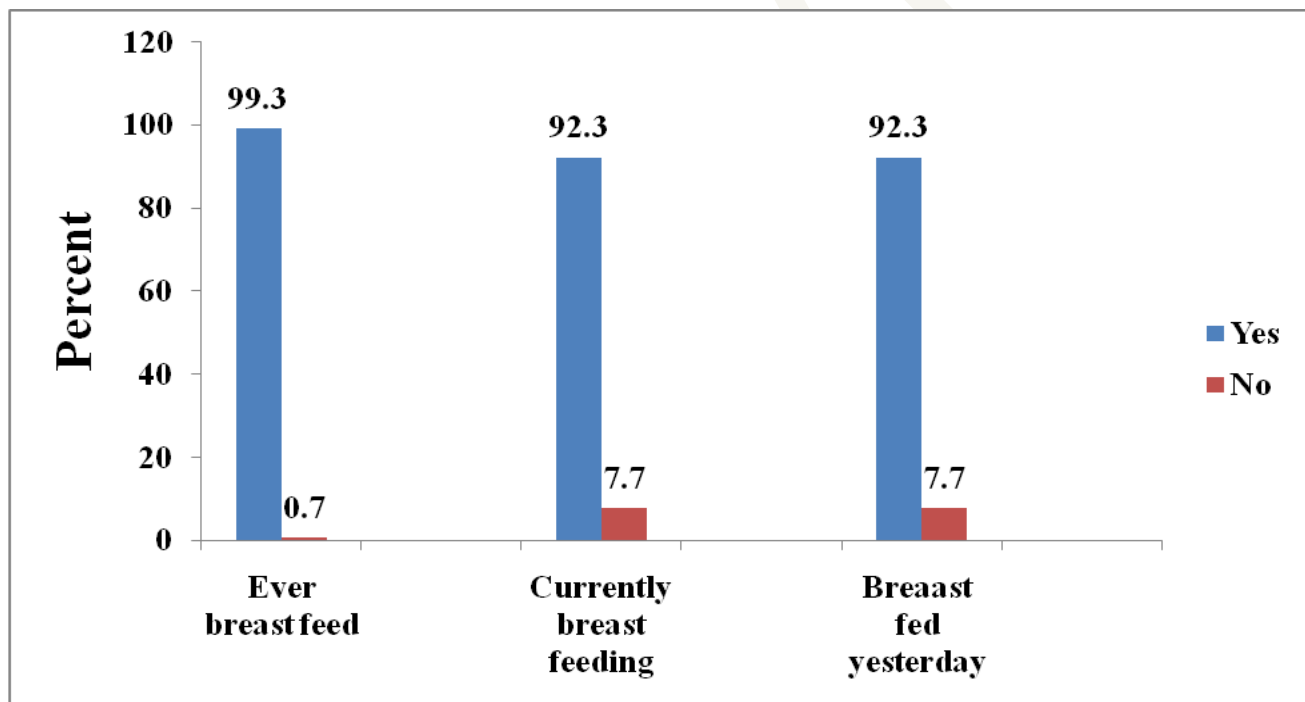


Fig 3 Breast feeding practices among under 24 months children, Shashemene Woreda, 2014

More than half of the mothers 246(58.0%) initiated breast-feeding within the 1st hour of delivery, but 271 (42.0%) of mothers initiated breast-feeding after an hour of delivery.

A two third (65.5%) of the mothers gave colostrum to their infants; whereas 244 (34.5%) mothers squeezed the colostrum out. Reasons for those mothers who did not feed colostrum include: - colostrum led to abdominal pain 82(56.9%), colostrum is dirty 38(26.4%) and other reasons 24(16.7%).

The study also showed that 206(49.4%) mothers provided pre lacteal foods for baby. The common pre lacteal foods given to the newborn soon after birth up to 3days of birth include: - water 204(79.7%), butter 31(12.1%) and cow’s milk 15 (5.9%).

Regarding to bottle feeding, more than three quarter (79.1%) of mothers didn’t feed their children using bottle. For those who used bottle to feed their children their main reason was little breast milk 25(28.7%).

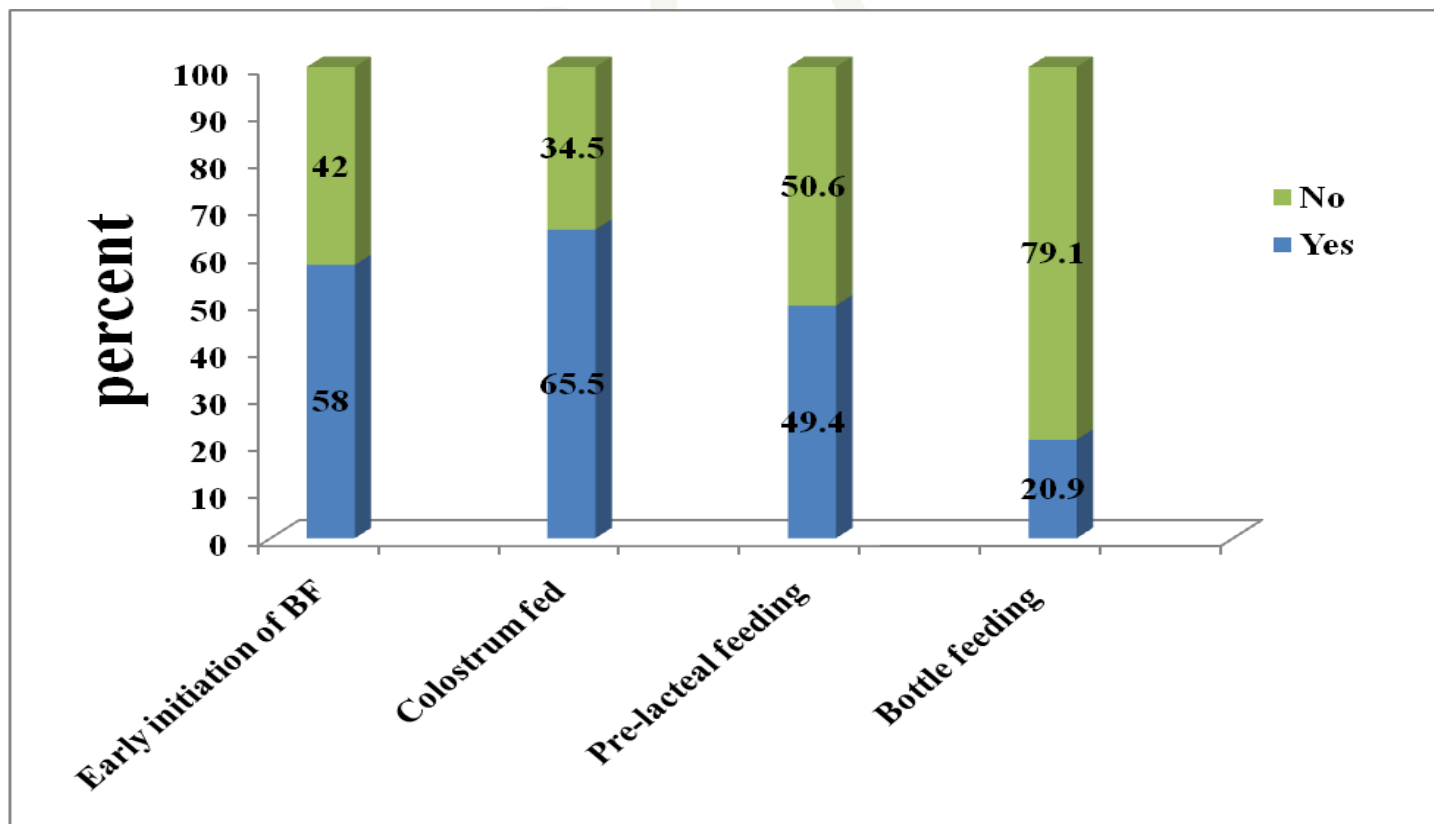


Fig 4 Breast feeding practices among mothers of under 24 months children in Shashemene Woreda, 2014.

Respondents were asked about time when they breast feed their child. They reported that they breast feed their child when child cries 331(86.6%), when child wants 162(42.4%) and when breast engorged 190(49.7%). The frequency of breast feeding for those mothers who were currently breast feeding, 239 (62.6%) of them reported that they were breastfeeding at least 8 times per day.

Table 4 breast feeding practices among mothers of under 24 months in Shashemene Woreda, 2014.

Variables		Number	Percent
Breast feeding frequency within 24 hour (n=382)	Less than 8 times	143	37.4
	At least 8 times	239	62.6
Reasons currently not breastfeeding(n=32)	Time to stop	17	53.1
	Pregnancy	8	25.0
	Family planning	4	12.5
	Mother sick	2	6.2
	Small breast milk	1	3.1
Reason not fed colostrum (n=144)	Abdominal pain	82	56.9
	Dirty	38	26.4
	Others	24	16.7
Type of pre lactation fed	Butter	31	12.1
	Cow's milk	15	5.9
	Water	204	79.7
	Other	6	2.3
Reason of bottle feeding	Small breast milk	25	28.7
	Best benefit	20	23.0
	Failure to grow	6	6.9
	Others	36	41.4
When do fed breast milk	Child wants	162	42.4
	Child cries	331	86.6
	As schedule	47	12.3
	Breast engorged	190	49.7
	On convenience	41	10.7
	Others	6	1.6
Type of weaned foods before 6 months	Cow's milk	125	38.2
	Fluid foods	10	2.4
	Water	5	1.5
	Formula milk	5	1.5
	Adult foods	3	.9
	Others	1	.2

Regarding exclusive breastfeeding, 79(87.8%) of infants in the age group 0 - 5 months were exclusively breastfed in the last 24 hours of the survey. During the survey mother with children age of 6-23 months were also asked retrospectively about exclusive breast feeding. One hundred forty nine (45.6%) of mothers reported that they introduced foods and fluids before the child reach 6 month. Over all exclusive breast feeding for both age groups (0-5 months and 6-23 months) were 106(38.4%) (Fig 5).

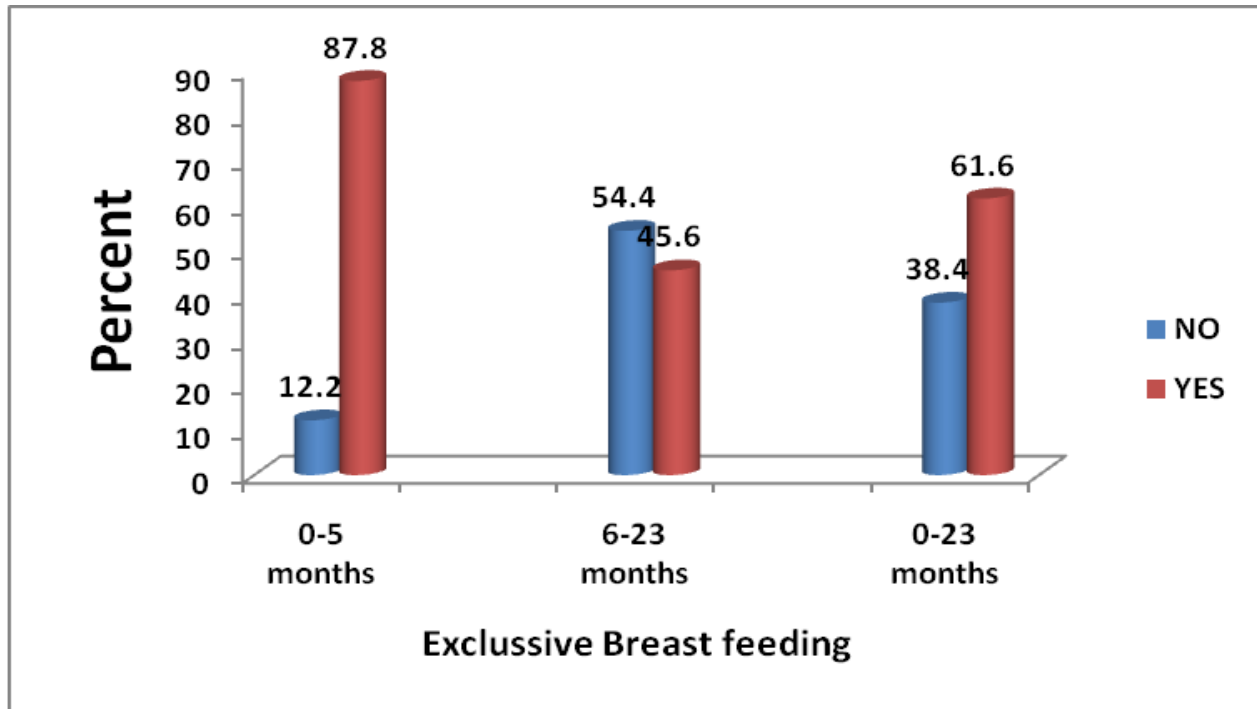


Fig 5 Exclusive breast feeding for different age category, Shashemene Woreda, 2014

The proportion of children age 6-23 months who were predominantly breastfed was 183(56.0%) and 144(44.0%) were not. Types of additional foods introduced before 6 month were, 125(38.2%) of them introduced cow's milk and 10(2.4%) fluid foods (Table 3).

Out of 106 mothers who had children age 12-15 months, almost all 103(97.2%) of mothers continued to breastfeed their children until the end of first year (breast feed during 12-15 months). However, among 48 children age 20-23 months, 29(60.4%) of them children continued to breast feed until the end of two years (breast feed during 20-23 months).

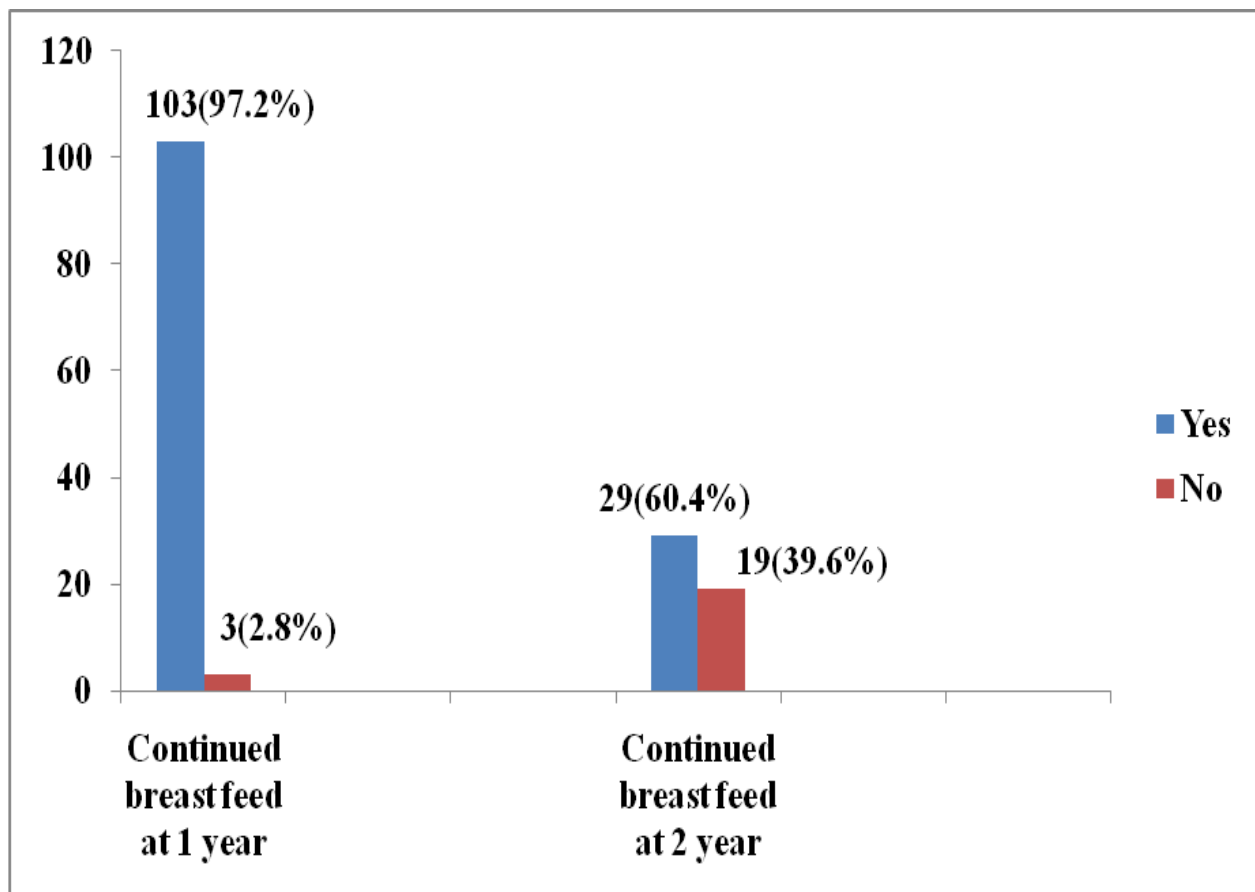


Fig 6 Continued breast feeding at one and two year, Shashemene woreda, 2014

5.5 Complementary feeding practices

The mean age for introduction of solid, semi-solid and soft foods was 5.6 (SD \pm 0.9) months. Among children age 6-23 months, 215(65.7%) started solid, semi-solid and soft foods when they were 6-8 months age.

Among children aged 6–23 months, only 128(39.1%) of children met the requirements for minimum dietary diversity because they consumed four or more than four food groups from seven food groups recommended by WHO.

Two hundred sixty eight (82.0%) of children met minimum meal frequency but 59(18%) of them consumed below minimum meal frequency requirement per day preceding 24 hour of survey.

The proportion of children age 6-23 months who met minimum acceptable diet, composite of minimum dietary diversity and minimum meal frequency, was 111 (33.9%) and 216 (66.1%) didn't met requirement.

Fig 7 presents the seven food groups recommended by the WHO and recorded in the EDHS 2011 survey. The primarily food source (99.4%) of children aged 6–23 months were grains, tubers and tubers whereas very smallest number (4.3%) of children were provided with flesh products.

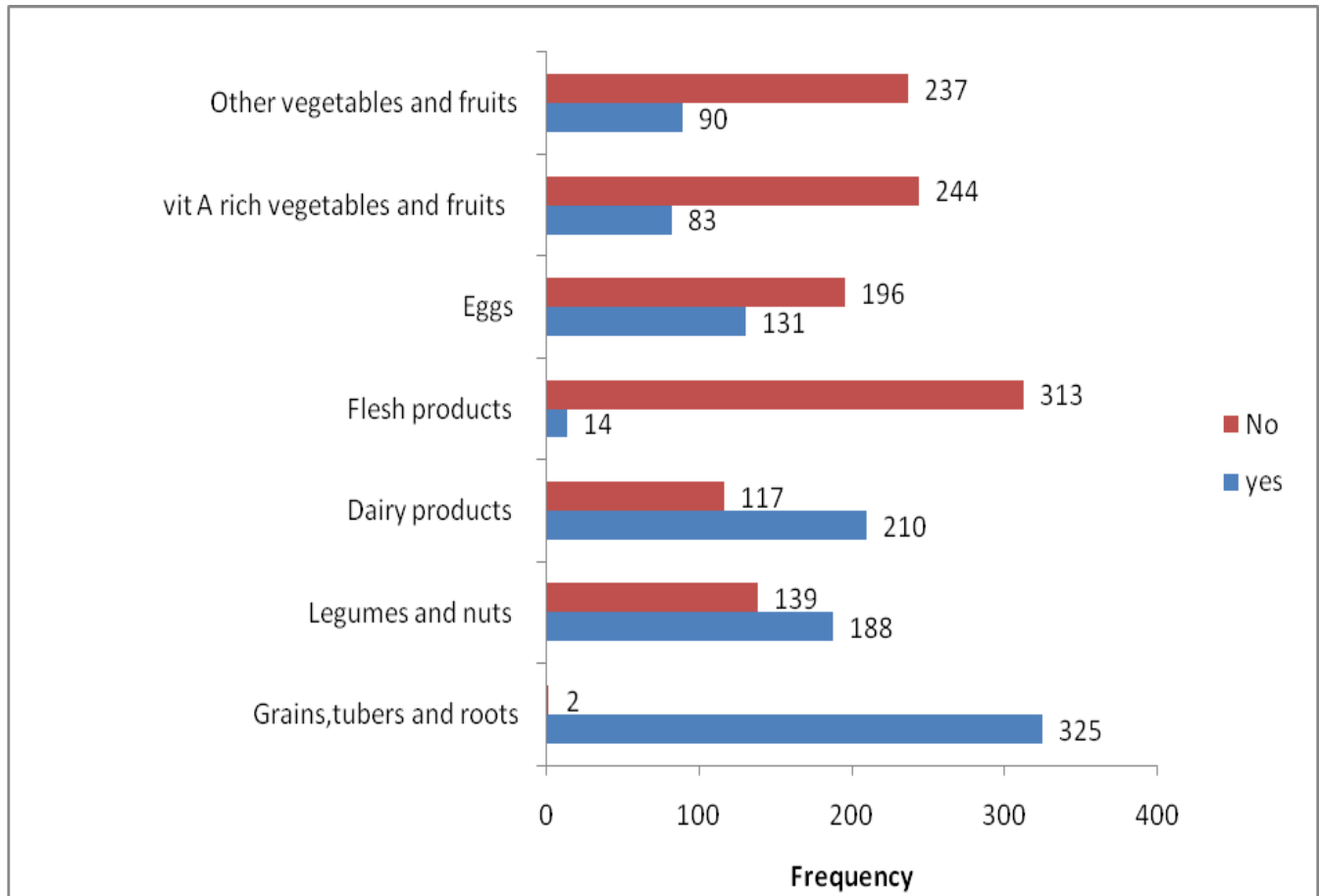


Fig 7 Types of food groups consumed within 24 hour prior to survey by children age 6-23 months in Shashemene Woreda, 2014

5.6. Knowledge of mother's on IYCFP

A total of sixty questions were included to assess the knowledge status about IYCFPs. The questions include about duration of exclusive breast feeding, duration of breast feeding, advantage and disadvantage of breast feeding, colostrum feeding, time of complementary feeding and time for initiation of breast feeding after birth.

Out of the total 417, 338(81.1%) of the respondents had sufficient knowledge on IYCFPs and 79(18.9%) of respondents had insufficient knowledge.

5.7. Attitude of mother's toward IYCFP

A total of eleven questions about IYCFP were asked to assess the attitude of respondents using Likert's scale.

Out of 417 respondents 188(45.1%) had positive attitude and 229 (54.9%) had negative attitude towards IYCFP.

5.8. Infant and Young Child Feeding practices status

Indicators used to construct comprehensive infant and young child feeding practices to classify into appropriate and inappropriate feeding were exclusively breast feeding, timely initiation of breast feeding, bottle feeding, timely introduction of solid, semi-solid and soft foods, minimum food diversification, minimum meal frequency and breast feeding.

Based on the above indicators of IYCFPs, 283(67.9%) of under 24 months children were fed inappropriately while 134(32.1%) were fed appropriately.

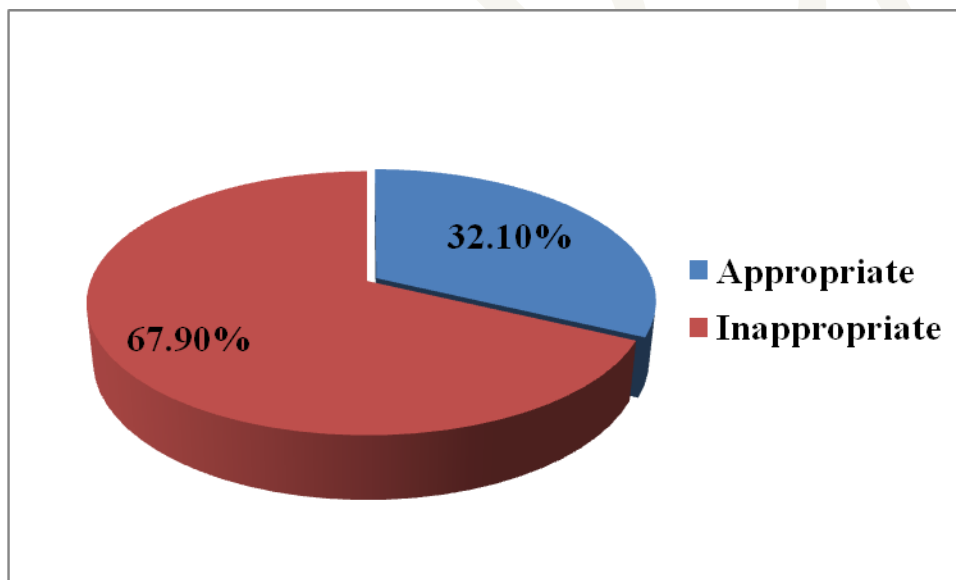


Fig 8 Infant and Young Child Feeding Practices status, Shashemene woreda, 2014

5.9. Factors associated with infant and young child feeding practices

Assessment of association between infant and young child feeding practices and socio-demographic status of respondent and husband, maternal health characteristics and child characteristics was made by employing binary logistic regression model.

In this study mother occupation, mother educational status, husband occupation, husband educational status, family size, socio economic status, ANC visit, IYCF information, place of delivery, birth attendant, PNC, number of children, age of child, birth order and attitude of mothers toward IYCFP were significantly associated ($P < 0.25$) and exported to multivariate logistic regression model to identify independent predictors of IYCFP and control confounding factors. However, marital status, husband substance use, mode of delivery, birth interval, perceived birth weight of child and knowledge of mothers on IYCFP were not significantly associated ($P > 0.25$) with infant and young child feeding practices in binary logistic regression and not selected for multivariate logistic regression model.

In multivariate analysis, adjusting possible confounding variables, husband occupation, socio economic status, ANC, number of children, age of child and attitude of mothers were significantly associated at $P < 0.05$ with infant and young child feeding practices. On the other hand, occupation of mothers, mother educational status, husband education status, family size, birth interval, birth order, birth attendant, IYCF information, place of delivery and PNC were not statistically associated ($P > 0.05$) with IYCFP in this study (Table 5).

Mothers who were poorest had 1.4 times more likely to practice inappropriate infant and young child feeding when compared with richest [AOR= 1.39 (1.30, 6.48)]. The odds of inappropriate IYCFs are significantly higher for children their fathers were government and private employee than for merchant [AOR= 9.81(1.90, 50.65) and AOR=7.66(1.40, 41.94)]. Infants in the age group 0-5 months were 16 times more likely to practice inappropriate IYCF as compared to those children with age group 18-23 months ([16.01(5.01,50.03)]. Mothers who didn't had ANC visit 4.3 times more likely to practice inappropriate IYCF when compared to those who had ANC visit [AOR= 4.32(2.27, 8.21)]. Mothers who had negative attitude towards IYCFPs 2.5 times more likely to practice inappropriate IYCF when compared with those who have positive attitude [AOR=2.50 (1.14,5.47)]. Women with number of children 3-4 have an odds of inappropriate IYCFPs that are 5.4 times the odds of those number of children 1-2 [AOR=5.37,(1.65,7.42)].

Table 5 Independent variables versus IYCFPs status, Shashemene Woreda, 2014.

Variables		IYCFPs status		COR(95% C.I)	AOR(95% C.I)
		AppropriateN(%)	InappropriateN(%)		
Education status of mothers	No	30(17.6)	140(82.4)	8.67(3.19,23.56)*	2.63(0.23,29.59)
	Primary	60(35.9)	107(64.1)	3.31(1.25,8.75)*	1.85(0.19,18.14)
	Secondary	31(51.7)	29(48.3)	1.74(0.60,4.96)	2.59(0.30,22.17)
	Higher	13(65)	7(35)	1.00	1.00
Occupational status of mother	Government	11(68.8)	5(31.2)	1.00	1.00
	Private	35(56.5)	27(43.5)	1.70(0.53,5.47)	0.51(0.05,5.40)
	Farmer	30(27)	81(73)	5.94(1.91,18.52)*	0.25(0.02,3.10)
	Housewife	58(25.4)	170(74.6)	6.45(2.15,19.34)*	0.44(0.04,5.14)
Educational status of husband	No	6(15.8)	32(84.2)	10.26(3.42,30.80)*	0.81(0.09,7.50)
	Primary	45(22)	160(78)	6.84(3.24,14.44)*	1.56(0.32,7.62)
	Secondary	42(41.6)	59(58.4)	2.70(1.24,5.88)*	0.90(0.22,3.70)
	Higher	25(65.8)	13(34.2)	1.00	1.00
Occupational status of husband	Government	23(74.2)	8(25.8)	0.13(0.05,0.35)*	9.81(1.90,50.65)*
	Private	15(28.8)	37(71.2)	0.94(0.42,2.09)	7.66(1.40,41.94)*
	Farmer	61(26.5)	169(73.5)	1.05(0.58,1.92)	4.52(0.69,29.55)
	Merchant	19(27.5)	50(72.5)	1.00	1.00
Family size	1-3	29(63)	17(37)	1.00	1.00
	4-6	72(34.1)	139(65.9)	0.15(0.75,0.31)*	0.38(0.02,7.35)
	=>7	33(20.6)	127(79.4)	0.50(0.31,0.81)*	0.58(0.02,17.07)
Socio - economic status	Poorest	45(54.2)	38(45.8)	0.31(0.16,0.58)*	1.39(1.30,6.48)*
	Poorer	25(30.9)	56(69.1)	0.81(0.41,1.59)	2.71(0.66,11.07)
	Middle	27(31.4)	59(68.6)	0.79(0.40,1.54)	2.18(0.53,9.01)
	Richer	15(17.9)	69(82.1)	1.65(0.79,3.48)	2.57(0.78,8.48)
	Richest	22(26.5)	61(73.5)	1.00	1.00
Age of child (month)	0-5	4(4.4)	86(95.6)	15.36(4.98,47.36)*	16.01(5.01,51.03)*
	6-11	43(30.3)	99(69.7)	1.65(0.88,3.08)	2.00(0.67,5.96)
	12-17	62(49.6)	63(50.4)	0.73(0.39,1.35)	0.76(0.24,2.40)
	18-23	25(41.7)	35(58.3)	1.00	1.00
Birth order	1 st	31(63.3)	18(36.7)	0.13(0.07,0.26)*	0.18(0.00,8.09)
	2-4	72(36.2)	127(63.8)	0.40(0.24,0.64)*	0.54(0.05,6.43)
	=>5	31(18.3)	138(81.7)	1.00	1.00
No. of children	1-2	58(56.3)	45(43.7)	1.00	1.00
	3-4	46(28.6)	115(71.4)	3.22(1.92,5.41)*	5.37(1.65,17.42)*
	>=5	30(19.6)	123(80.4)	5.28(3.02,9.23)*	2.99(0.12,74.71)
ANC	Yes	113(42.8)	151(57.2)	1.00	1.00
	No	21(13.7)	132(86.3)	4.70(2.79,7.92)*	4.32(2.27,8.21)*
Place of delivery	HI	68(44.4)	85(55.6)	1.00	1.00
	Home	66(25)	198(75)	2.40(1.57,3.67)*	4.35(0.65,28.96)
Birth attendant	HP	63(45)	77(55)	1.00	1.00
	TBA	40(25.2)	119(74.8)	2.43(1.49,3.97)*	0.24(0.03,1.92)
	Others	31(26.3)	87(73.7)	2.30(1.35,3.89)*	0.29(0.04,2.11)
PNC	Yes	49(39.5)	75(60.5)	1.00	1.00
	No	85(29)	208(71)	1.60(1.03,2.48)*	0.76(0.34,1.72)
IYCF information	Yes	96(47.5)	106(52.5)	1.00	1.00
	No	17(27.4)	45(72.6)	2.40(1.29,4.47)*	1.79(0.71,4.51)
Attitude of mothers	Negative	61(26.6)	168(73.4)	1.75(1.16,2.65)*	2.50(1.14,5.47)*
	Positive	73(38.8)	115(61.2)	1.00	1.00

Chapter six Discussion

Inappropriate infant and young child feeding practices remain the major cause of poor growth and nutritional status in young children. Better understanding of the factors associated with inappropriate IYCFP is critical for planning nutritional interventions by targeting individuals, families and communities at risk of suboptimal infant and young child feeding practices. The aim of this thesis was to describe breastfeeding and complementary feeding practice and to determine factors associated with infant and young child feeding practices indicators in comprehensive way among children aged 0-23 months in Shashemene Woreda.

In this study, it was found that majority (99.3%) of mothers practiced ever breastfeeding. This result is nearly similar with the study done in Mekelle town in 2011 which was 98.9% (20) and Ethiopian ever breast feeding rate was 98% in 2011 (9). But it is higher than the ever breastfeeding in Arbaminch 95.8% in 2011(36). This high rate of breastfeeding could be due to the fact that breast feeding practice is a common, accessible and norm in the society.

Although WHO's, Global and National Infant, and Young Child Feeding Guidelines recommend that all newborns should start breastfeeding immediately (within the first hour after delivery), the current study shows that 58.0% mothers started to breastfeed immediately/ within one hour after birth. This finding is lower than study done in Mekelle 78% in 2011(35). This finding is better when compared to the study conducted in Turkey 35.2% in 2000; in Burkina Faso, 2003 (33.3%), in Chad, 2004 (43.3%), and in Colombia, 2005 (48.9%). This study finding nearly similar to Ethiopia (52%), DHS 2011 (9). This study finding is below HSDP IV targets (80%) (9). This low proportion of initiation of breast feeding within 1 hour of delivery according to recommendation of WHO may be due to socio-cultural constraints or may be due to the mothers don't know when to initiate breast feeding after delivery exactly.

Although Global strategy on infant and young child feeding recommends feeding colostrum and discourages pre-lacteal feeds, in this study 65.5% of mothers gave colostrums to their baby. This finding was lower than the finding of Mekelle town 82% in 2011(20) and higher than study done in Dabat town 51.9% (32). The prevalence of discarding colostrum in Arbaminch Zuria was very low (10.2%) (19) when compared with this study (34.5%). This result may be justified that in the study area mothers discarded colostrum as they considered that it cause of diseases and abdominal pain (56.9%), dirty (26.4%) and it is water (16.7%)

The practice of giving pre lacteal feeds is discouraged because it limits the infant's frequency of suckling and exposes the baby to the risk of infection. The prevalence of pre-lacteal feeding in this study is 49.4% which is much higher than the study done in Mekelle town (10.4%) in 2011(20), in south Gonder zone (11.1%) in 2007 (38) and 27% in EDHS 2011 (9). This result may be due to the tradition ("wubaxe") of introducing pre-lacteal feeding especially water (79.7%) in third day of birth and high home delivery (63.3%) in the study.

This study showed that the prevalence of exclusive breastfeeding for infants less than six months was 87.8%. This result is better when compared with the findings from Mekelle 60.8% in 2011(20). Nearly this study is similar to Madagascar (76.0%) (28). There is a wide range of variation in the practice of exclusive breastfeeding among developing countries, with the rates documented being: Brazil (58%), Bangalore (40%), Iran (Zahedan) (69%), Iran (28%) Beruwala (Kalutara) (15.5%), Lebanon (10.1%), Nigeria (20%), Bangladesh (34.5%), Jordan (77%)(11) and Ethiopia (52%) in EDHS 2011 (17). This finding also higher than the national targets of 70% in 2015 (9).

The reason for this high prevalence of exclusive breast feeding in study area might be the result of the current policy implementation on the use of health extension workers in rural areas to promote breastfeeding. The methods used to calculate exclusive breast feeding for 0-5 months children are only 24 hour recall of exclusiveness. This may contribute for high proportion of exclusive breast feeding. This way of determining of exclusive breast feeding may not show absolutely whether the child is on exclusive breast feeding.

Using a bottle with a nipple for feeding infant, a practice that is discouraged increases the child's risk of illness and reduces the child's interest in breastfeeding, with consequent potential decline in milk production. The prevalence of bottle feeding in this study was 20.9% which is higher than EDHS finding (12%) in 2011 (9) and 10% in Western Uganda (43) and Tanzania 2010 (29). This is may be due to many mothers in the study area perceived that bottle feeding has more benefit than breast feeding (23.8%) and increases growth of children (6.9%).

Introduction of nutritionally adequate and safe complementary foods promotes growth and good nutritional status among infants and young children. This study revealed that, 65.7% of children aged 6-8 months receive complementary foods. The finding of this study is higher when compared with EDHS (49%) in 2011 (9). This is low when compared with Tanzania (92.3%)

(29), Kenya (81%) (8) and Uganda (75%) in 2010 (43). This is may be due to mothers' knowledge on what and when to start additional foods to child and their perception that the child is unable to digest foods in this age.

This study also showed that the majority 82.0% of children received minimum meal frequency. However, very few 39.1% children aged 6-23 months met the requirements for minimum dietary diversity in the previous day. This is higher than in Tanzania, 38.0% of children age received minimum dietary diversity and 35% of children ages 6-23 months meet minimum meal frequency in 2010 (29). In Western Uganda 49% of 6-23 months children complemented 3 or 4 times (43). Similarly in South Asia, the minimum meal frequency and dietary diversity was reported by WHO in 2010 to be less than 50% in all countries except Sri Lanka (29). The finding of this study also high when compared to EDHS 2011 (minimum meal frequency 4% and minimum dietary diversity 5%) (9). This is may be due to difference used to calculate minimum meal frequency. In this study the proportion of minimum meal frequency was calculated for 6-23 months without considering age specific meal frequency i.e. 6-8 months, 9-11 months and 12-23 months.

In this study we found that, 99.4% the food groups given to children are mainly made from grains, roots and tubers, which have relatively low nutrient density. This study also found that, meat products (4.3%), eggs (40.1%) and vitamin A rich foods (25.4%). This is similar with India, consumption of animal origins foods was found to be poor especially for younger age group and less than 8% of all children aged 6-23 months had consumed eggs, meat, poultry and fish during the past 24 hours (11). In Tanzania 2010, Proportion of children who were given food made of grains, roots and tubers (93%) and vitamin A rich fruits and vegetables (67.2%) and animal origin food was very low (29). According to EDHS 2011, foods made from grains are consumed more often than foods from any other food group which is similar with this study. 66% of foods made from grains consumed, only 15% consumed fruits and vegetables rich in vitamin A which is too lower than our study, similarly only 5% of children consumed meat and 8% consumed eggs (9).

This is may be negative beliefs of mothers or caregivers or lack of affordability of these foods or inadequate knowledge about the importance of feeding young children variety of foods among mothers and caregivers or associated with household food security.

Seven infant and young child feeding practices indicators were assessed based on WHO recommendation and used to develop composite variable. Identification of factors affecting IYCFPs is important as it can guide implementation of appropriate programs to improve IYCF practices. In this study it was found that only 32.1% of children received appropriate feeding practices.

The WHO guidelines on infant and young child feeding practices do not provide the baseline or the minimum standard that needs to be reached nor what percentage should be considered alarming for public health significance. Logically, it is desirable that all children 0–23 months meet the recommended feeding practices.

In the binary logistic regression model association test was done to identify predictors of inappropriate infant and young child feeding practices. In this study mother occupation, mother educational status, husband occupation, husband educational status, family size, socio economic status, ANC visit, IYCF information, place of delivery, birth attendant, PNC, number of children, age of child, birth order and attitude of mothers toward IYCFP were significantly associated with IYCFPs ($P < 0.25$).

Inappropriate infant and young child feeding practices were significantly associated with husband occupation, socio economic status, ANC, number of children, age of child and attitude of mothers after controlling other predictors in the multiple logistic regression model.

However, to appreciate similarities and differences of factors associated with inappropriate infant and young child feeding practices in logistic regression with other studies are impossible due to lack of study on IYCFPs in composite of similar indicators.

The differences in the measurement of the feeding practices, and the real meaning of each practice could be sources of difficulty for building and interpreting composite feeding practices, and perhaps this is also a source of confusion for defining its indices. Despite the lack of a standard definition and the variations in the methods used to construct scores.

Limitation of the study

- A mother may have difficulty of remembering exactly when she initiated breastfeeding, time of introduction complementary feeding, whether fed colostrum for her child; as a result, it is subjected to potential recall bias.
- Social desirability on dietary diversity and meal frequency.
- During the determination of exclusive breastfeeding in under six month children using a 24-hour recall period that measures current status, may cause the proportion of exclusively breastfed infants to be slightly overestimated, since some infants who were given other liquids regularly may not have received them in the 24 hours before the survey.
- To determine minimum meal frequency and minimum dietary diversity for children age 6 – 23 months by using 24 hour food recall only this is not show accurate calculation of nutrient density and nutrient content. This current recommendation is based on mean energy density of diet is 0.6 K/cal per gram.
- The nature of study design (cross sectional study design) didn't show cause effect relationship.
- Lack of published work on IYCFPs as composite variables.
- Lack of clear and specific international recommendations for several dimensions of infant and child feeding practices to construct an index that could be used universally.

Chapter seven Conclusion and Recommendation

7.1 Conclusions

This study revealed that prevalence rate for children breastfed at least once times or ever breast fed were high. The prevalence of early initiation of breast feeding was good. The rates of exclusive breastfeeding 0-5 months of children were good.

This study showed that high proportion of mothers gave pre-lacteal fed and discards colostrums. But, the global WHO recommendation is colostrum feeding and avoiding pre lacteal feeding to the baby. In study area high number of children also used nipple bottle for feeding.

In terms of complementary feeding practices, a fair percentage of children aged 6-8 months received solid, semi-solid or soft foods as per WHO recommendations. However, very few children aged 6-23 months met the minimum requirements (4 or more food groups) for indicators for dietary diversity and meal frequency which have great importance role in improving nutritional status of children after the age of 6 months.

The most common food groups consumed are food made from grains, roots and tubers, which have relatively low nutrient density and content; and very small number of children consumed meat and Vitamin A rich vegetables and fruits.

Based on composite variables to construct IYCFPs status, a large number (69.7%) women practices inappropriate feeding based on WHO recommendations for IYCF. This prevalence is not acceptable to ensure good health and better nutritional status of children and to achieve 4th MDGs.

Being Government [AOR=9.81(1.90, 50.65) and private [AOR=7.66(1.40, 41.94)] employee of husband positively associated with inappropriate IYCFPs. In multivariate analysis poorest socio-economical status [AOR=1.39(1.30,6.48)], not attending ANC visit (AOR=4.4.32(2.27,8.21)], child age 0-5 months [AOR=16.01(5.01,50.03)], negative attitude of mothers [AOR=2.50(1.14,5.47)] and number of children 3-4 [AOR=5.37(1.67,7.42)] were also significantly associated at $P<0.05$ with infant and young child feeding practices.

7.2 Recommendations

Based on the study findings the following recommendations are forwarded:

❖ ***Policy/ program /Decision makers***

- ✓ Ensure house hold assets distribution, accessibility and availability

❖ ***Regional /Zonal / Woreda Health Office***

- ✓ Should increase ANC coverage and institutional delivery.
- ✓ Training for Health professions working in delivery room on counseling of IYCF
- ✓ Should work to reduce number of children by promoting family planning

❖ ***Health Professionals / HEWs***

- ✓ Should provide IEC/BCC on IYCF especially to change attitude of mothers
- ✓ Encourage mothers to attend ANC

❖ ***Researcher***

- ✓ Longitudinal studies also needed to carefully track IYCF practices from birth to 24 months of age, and causally link these practices with individual child
- ✓ More research is needed in terms of constituting composite index variables.
- ✓ Further research on socio-cultural factors at individual level, group level and societal level, food security and validation study on complementary feeding needed
- ✓ Qualitative study also needed for certain variables beside of quantitative
- ✓ Additional research required to identify predictors of infant and young child feeding practices and other ways of constructing IYCFP composite.
- ✓ To describe exclusive breast feeding using combination of 24 hour recall and since birth recall to generates more accurate information for policy and programme design.

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Annexes

Screening

1. Is the child's mother or caregiver's here? (If no, Take appointment)
2. Is the child healthy? (If no, go to the next house hold)

Annex I: Information sheet

Jimma University

College of Public Health and Medical sciences

Department of Population and Family Health

Study on Infant and Young Child Feeding Practice

Greeting:

Hello, My name is_____. I am here today to collect data on Infant and Young Child Feeding Practices and Associated Factors. The study is being conducted by Mr. Fanos Yonas from Jimma University, post graduate program. The objective of this study is to assess infant and young child feeding practice and its associated factors here in Shashemene Woreda. I request you to take part in this study and to respond genuinely.

Your cooperation and willingness is greatly helpful in identifying problems related to infants and young children feeding practice. The study will be conducted through interviews and you are being asked for a little of your time, about 30 min, to help us in this study.

Your name will not be written in this form and will never be used in connection with any information you tell us. There is no possible risk associated with participating in this study except the time spent for responding to the questionnaire. All information given by you will be kept strictly confidential. Your participation is voluntary and you are not obligated to answer any question you do not wish to answer. If you feel discomfort with the question, it is your right to drop it any time you want. If you have questions regarding this study or would like to be informed of the results after its completion, please feel free to contact the principal investigator.

Address of the principal investigator:

Fanos Yonas

Cell phone: +251 911 96 18 71, E-mail: fanosyonas@yahoo.com

Are you willing to participate in this study?

1. Yes - Continue to the next page
2. No- Skip to the next participant

Annex II: Consent form

In signing this document, I am giving my consent to participate in the study titled “Assessment of Infant and Young Child Feeding Practices and associated factors among mothers or caregivers of children aged less than 24 months of Shashemene Woreda”

I have been informed that the purpose of this study is to assess infant and young child feeding practice and its associated factors. I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I have also been informed that my participation or non-participation or my refusal to answer questions will have no effect on me. I understood that participation in this study does not involve risks.

Respondent’s signature _____

Date of interview: _____ Time started: _____ Time finished: _____

Interviewer Name _____ Signature _____ Date _____

Supervisor’s name _____ signature _____ Date _____

Results of interview questionnaire

1. Completed
2. Refused
3. Partially completed

Annex III English version Questionnaire

Questionnaire ID _____

Sr.no.	Questions	Respondent options	Remark
Part 1: socio-demographic and economic characteristics of respondent			
101	What is your age?	_____	
102	What is your marital status?	1. Married 2. Single 3. Divorced 4. Widowed	
103	What is your education status?	1. No education 2. Primary 3. Secondary 4. More than secondary	

104	What is your religion?	<ol style="list-style-type: none"> 1. Muslim 2. Orthodox 3. Protestant 4. Others (specify)_____ 	
105	What is your ethnicity?	<ol style="list-style-type: none"> 1. Oromo 2. Amhara 3. Others (specify)_____ 	
106	What is your current occupational status?	<ol style="list-style-type: none"> 1. Government employee 2. Private employee 3. Farmer 4. House wife 5. Others (specify)_____ 	
107	Family size	_____	
108	What is the average monthly income of the house hold?	_____ (in birr)	
109	Does any member of this household have a bank or microfinance saving account?	<ol style="list-style-type: none"> 1. Yes 2. No 	
110	Do you have agricultural lands?	<ol style="list-style-type: none"> 1. Yes 2. No (if no skip to Q 112) 3. Don't know / not sure 	
111	If yes for Q110, How many agricultural lands do you have?	_____ hectares	
112	Do you have livestock, herd or farm animal or poultry?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know /not sure 	
113	If yes for Q 112, how many :	<ol style="list-style-type: none"> 1. Milk cow, Oxen and /or bulls? _____ 2. Goat and/or Sheep? ____ 3. Chicken? _____ 4. Horse, donkey and/or mule? _ 5. In total? _____ 	

114	Does any member of this household own any of the following?(more than one answer is possible)	1. Bicycle 2. Motorcycle/scooter 3. Animal-drawn cart 4. Car/truck 5. Others (specify)_____	
115	Do you have Electricity?	1. Yes 2. No	
116	Do you have a watch/clock?	1. Yes 2. No	
117	Do you have a radio?	1. Yes 2. No	
118	Do you have a television?	1. Yes 2. No	
119	Do you have a mobile telephone?	1. Yes 2. No	
120	Do you have a non-mobile telephone?	1. Yes 2. No	
121	Do you have a refrigerator?	1. Yes 2. No	
122	Do you have a table?	1. Yes 2. No	
123	Do you have a chair?	1. Yes 2. No	
124	Do you have a bed with cotton/sponge/spring mattress?	1. Yes 2. No	
125	Do you have an electric mitad?	1. Yes 2. No	
126	Do you have a kerosene lamp/pressure lamp?	1. Yes 2. No	

Part two : Husband characteristics

201	What is your husband's educational status?	1. No education 2. Primary 3. Secondary 4. More than secondary	
202	What is your husband occupational status?	1. Government employee 2. Private employee 3. Farmer 4. Others (specify)_____	

203	Does your husband smoke cigarette?	1. Yes 2. No	
204	Does your husband drink alcohol?	1. Yes 2. No	
205	Does your husband chew khat?	1. Yes 2. No	
Part Three Maternal health service factors and child characteristics			
301	How many children born alive?	_____	
302	Do you have ANC visit for youngest (NAME) child?	1. Yes 2. No	
303	If yes for Q302, how many visit?	_____	
304	If yes for Q302, Have receive information during ANC visit about IYCF?	1. Yes 2. No	
305	Place of delivery for youngest (NAME) child	1. Health institution 2. Home 3. Others	
306	What was mode of delivery for youngest (NAME) child?	1. Vaginally 2. Caesarean section	
307	Who assisted you during delivery youngest (NAME) child?	1. Health professionals 2. Traditional birth attendant 3. Others	
308	Do you have PNC follow up for youngest (NAME) child?	1. Yes 2. No	
309	Perceived weight of youngest (NAME) child during birth (estimated)	1. Normal 2. Smaller than normal 3. Larger than normal 4. Not known	
310	What is sex of your youngest child (NAME)?	1. Male 2. Female	
311	What is date of birth for youngest child (NAME)?	____/____/____	If available calculate for age and check

			consistent with age mother reported.
312	How old youngest child (NAME)?	_____ (By completed Month)	
313	How many children do you have?	_____	
314	What is birth order for youngest child (NAME)?	_____th	
315	How many birth intervals are there between youngest child and his/her immediate elder?	_____ months/years	
Part four Breast feeding practices			
401	Have you ever breast-fed the youngest child?	1. Yes (If yes skip to Q 403) 2. No	
402	If no for Q401, reason for not breastfeeding? (More than one answer is possible)	1. Breast disease 2. Mother sick 3. Breastfeeding will make my breasts sag 4. Breastfeeding is painful 5. Too small to breastfeed/No breast milk 6. Other(specify)_____	
403	Is the child currently on breast feeding?	1. Yes 2. No	
404	If yes for Q403, does the child breast fed during night or day (yesterday) preceding the interview?	1. Yes 2. No	
405	If yes for Q404, How many times did you breast-feed yesterday between sunset and sunrise (night)?	_____	
406	If yes for Q404, How many times did you breast-feed yesterday between sunrise and sunset (day)?	_____	
407	If yes for Q 403, When did you usually breast fed the youngest child (NAME)?	1. When the child likes to have (on demand)	

	(multiple responses are possible)	<ol style="list-style-type: none"> 2. When the child cries 3. On schedule 4. When breast engorged 5. On convenience 6. Other (Specify)_____ 	
408	If no for Q 403, What is your reason for cessation of breast feeding? (multiple responses are possible)	<ol style="list-style-type: none"> 1. Pregnancy 2. Oral contraceptive use 3. Felt it was time to stop 4. Inadequate breast milk 5. Other(specify)_____ 	
409	If no for Q 403, For how many months did you feed your last child with breast milk only?	_____	
410	If no for Q 403, What is your last child age when you stop breast feeding?	_____	
411	How long after birth did you first put the youngest child (NAME) to the breast?	<ol style="list-style-type: none"> 1. Immediately(00) 2. Hours _____ 3. Days_____ 4. Don't know 	
412	Did you fed the youngest child (NAME) the colostrum (first milk) that came from your breasts?	<ol style="list-style-type: none"> 1. Yes 2. No 	
413	If no for Q412, Why didn't give it for your child? (multiple responses are possible)	<ol style="list-style-type: none"> 1. it is dirty 2. it creates abdominal pain to the baby 3.others(specify)_____ 	
414	Did you give the youngest child (NAME) pre-lactation food/fluid?	<ol style="list-style-type: none"> 1. Yes 2. No (If no, skip to Q416) 	
415	If yes for Q 414, what did you give him (her)? (multiple responses are possible)	<ol style="list-style-type: none"> 1. Butter 2. Cow's milk 3. Water 4. Others (specify)_____ 	

416	If the age of youngest child (NAME) is older than 6 month, starting from the date of birth up to 6 month, what do you fed your child? (multiple responses are possible)	<ol style="list-style-type: none"> 1. Nothing is fed? 2. Water/tea? 3. Cow's milk? 4. Cereal based fluid? 5. Adult food? 6. Drops or syrups or other medicines 7. Other (Specify)_____ 	
417	If the age of youngest child (NAME) is less than six month, did child fed anything other than breast milk yesterday or last night?	<ol style="list-style-type: none"> 1. Yes 2. No 3. Don't know 	
418	Do you use nipple bottle for feeding your youngest child (NAME)?	<ol style="list-style-type: none"> 1. Yes 2. No 	
419	If yes for Q 418, what is/are your reasons for bottle feeding? (multiple responses are possible)	<ol style="list-style-type: none"> 1. Inadequate breast milk 2. bottle feeding is more nutritious than breast milk 3. unable to breast feed 4. poor weight gain of baby 5. Others (specify)_____ 	

Part Five Complementary feeding [only If they child is start additional foods other than fluid]

501	When did (NAME) you offer with additional diet besides your breast milk?	_____	
502	Did (NAME) eat mashed or pureed food or solid or semi-solid or soft foods in the past 24 hours?	<ol style="list-style-type: none"> 1. Yes 2. No 	Other than liquids
503	IF 'YES' for Q502, What kind of solid, semi-solid, or soft foods did (NAME) eat? (Recall all foods consumed within 24 hr at home or outside home)	<hr/> <hr/>	Probe for ingredients of <i>mixed dish</i>
504	How many times the child was fed mashed food/solid/semi-solid or soft foods yesterday during the day or at night? (Within 24 hr)	_____	Not include liquid foods

		Ate yesterday this food groups	How many days in the last 7 days was given (food groups)?	Q505-518 used to verify child had such food previous day
505	Has(NAME) eaten any food made from grains such as maize, millet, wheat, barley, sorghum, rice, teff	1. Yes 2. No		
506	Has (NAME) eaten any food made from legumes such as lentils, beans, guaya, peas, nuts (lewz), sesame(selyit), chickpea	1. Yes 2. No		
507	Has (NAME) eaten any roots or tubers such as white potatoes, white yams, cassava, false banana (kocho)	1. Yes 2. No		
508	Has (NAME) eaten any milk or milk products such as milk, yoghurt, cheese, or other milk products [excluding breast milk]	1. Yes 2. No		
509	Has (NAME) eaten any tinned, powdered, infant formula, milk [excluding breast milk]	1. Yes 2. No		
510	Has (NAME) eaten any dark green leafy vegetables such as, spinach (kosta), lettuce(salada)	1. Yes 2. No		
511	Has (NAME) eaten any food made from fruits or vegetables that have yellow or orange flesh such as carrots, pumpkin, orange/red sweet potatoes, ripe mangoes, or papaya?	1. Yes 2. No		
512	Has (NAME) eaten any other fruits or vegetables such as eggplant, tomatoes, peppers, onions, fosoliya, avocado, lemon, green mango, banana, cabbage (tikil golmen), gishta?	1. Yes 2. No		
513	Has (NAME) eaten any meat such as beef, lamb, goat, chicken, duck or fish/sardines?	1. Yes 2. No		
514	Has (NAME) eaten any organ meat such as liver, kidney, heart, or other organ meats?	1. Yes 2. No		
515	Has (NAME) eaten Eggs?	1. Yes 2. No		
516	Has (NAME) eaten any sweetened or	1. Yes		

	flavoured water, 'soda' drink, tea or infusion, soup, coffee, broth or homemade beer?	2. No	
517	Has (NAME) eaten any sugary foods such as sweets, candies, chocolate, cakes, and biscuits	1. Yes 2. No	
518	Has (NAME) eaten any food made with oil, fat, or butter	1. Yes 2. No	
519	Who assist the child at meals times?	1. Mothers 2. Others (specify)_____	
Part Six Sanitation and water facility			
601	Do you have access to safe/drinking water?	1. Yes 2. No	
602	What is the source drinking water?	1. Pipe 2. Protected well 3. Unprotected well 4. Protected spring 5. Unprotected spring 6. Others (specify) _____	
603	How long does it take to get and come back for water?	_____ (minutes)	
604	Do you have toilet facility?	1. Yes 2. No	
605	If yes for Q 606, What kind of toilet facility household members use?(If respondent doesn't know, observe it)	1. Pit latrine 2. VIP 3. Flush 4. Others (specify)_____	
606	How many rooms in this house?	_____	
607	Main material of the floor (record observation)	1. Earth/sand 2. Dung 3. Wood 4. Cement 5. Others (specify)_____	
608	Main material of the roof (record	1. Corrugated iron	

	observation)	<ol style="list-style-type: none"> 2. Cement 3. Wood 4. Thatch / mud /leaf 5. Others(specify)_____ 	
609	Main material of the exterior walls (record observation)	<ol style="list-style-type: none"> 1. Stone with mud 2. Stone with lime 3. Cement blocks 4. Wood 5. Others(specify)_____ 	
Part seven Knowledge of mothers' or caregivers' on IYCF			
701	How long a child is totally breastfed?	_____	
702	How long a child fed breast milk only?	_____	
703	What is appropriate time for initiation of breast feeding after birth?	<ol style="list-style-type: none"> 1. Within 1 hr 2. 1-24hr 3. 1-3 day 4. >3 day 5. Do not know 	
704	What is advantage of breast feeding to child?	<ol style="list-style-type: none"> 1. Grows best 2. Prevents disease 3. Provide complete and perfect nutrition 4. Bonds mother & child 5. Do not know 6. Other (specify) _____ 	
705	What is the advantage of breastfeeding to a mother?	<ol style="list-style-type: none"> 1. Prevents disease 2. Prevents pregnancy 3. Saves money 4. Bonds mother and child 5. Don't know 6. Other (specify) _____ 	
706	At what age of the baby complementary feeding should be started (in months)?	<ol style="list-style-type: none"> 1. Before 6 month 2. At 6 month 3. 7 month-1 year 4. Do not know 	

707	Colostrum should be given to the newborn?	1. Yes 2. No 3. Do not know	
708	What is time for initiation of breast feeding after birth?	1. Immediately 2. Within 1 hour 3. After 1 hour 4. Don't know	

Part Eight Attitude of mothers' or caregivers' towards IYCF

		Strongly disagree	disagree	neutral	agree	Strongly agree	
801	In your opinion after birth breast feeding should start within 1 hour?						
802	In your opinion the child should fed breast milk only up to 6 month						
803	In your opinion complementary feeding should start at 6 months?						
804	In your opinion totally child should fed breast milk for 2 year?						
805	In your opinion colostrums should given to baby?						
806	In your opinion breast milk prevents disease?						
807	In your opinion breast milk prevents pregnancy?						
808	In your opinion breast milk provide complete and prefect nutrition?						
809	In your opinion breast milk increase bond between mother and baby?						
810	In your opinion breast milk help baby to grow well and best?						
811	In your opinion breast milk save money?						

Annex IV Afan Oromo version questionnaire

YUUNIVERSSTII JIMMAA

Qorannoo Soorata Daa'immanii

Negayaa?

Maqaa koo _____ . Kaneen dhufaaf waa'ee soorata daa'immanii irratti odeeffannoo funaanuu dhaaf. Odeeffannoo haqa irratti hunda'ee naaf kennuudhaan akka hirmaattu si gaafaadha.

Hirmaannaafii deeggarsi ati naaf battu rakkoo soorata daa'immanii furuuf gargaara. Qorannoon kan taasifamu gaafii fi deebii dhaan. Kanaafuu, Yeroo murtaa'e akka naaf laattu si gaafadha. Odeeffannoon ati naaf kennitu icciitiidhaan eeggama.

Yoo gaafileen koo sitti hin tolee addaan kutuu dandeessa. Yoo wanti ifa sihin ta'in jiraata qulqulleeffachuuf abbaa qorqniichaa Obbo Faanoos Yoonas (0911961871) gaafachuu dandeessa.

Waliigaltee odeeffannoo Kennuu

Ani odeeffanno soorata daa'immanii ilaalu keennuuf feedhi kootiin waalii galtee kana mallattessera.

Mallattoo odeeffannoo Kennaa _____

Maqaa fi Mallattoo odeeffannoo fudhataa _____

Saa'a jalqabaa _____ saa'a xumuraa _____

Suupparvizarii _____

L.K	Gaaffii	Deebii	Yaada
Kuta 1 Haala jiiruuf jireenya kan gafatamuu			
101	Umrii kee meqaa?	_____	
102	Ga' ilii kee maalii?	1. Fudhera 2. Hin funnee 3. Hiikeera 4. Du'era	
103	Sadarkaan barnoota kee maalii	1. Hinbaranne 2. Sadarkaa dura 3. Sadarkaa 2ffaa 4. Sadarkaa 2ffaa ol	

104	Amantaan kee maalii?	<ol style="list-style-type: none"> 1. Musiliima 2. Ortoodokssii 3. Pirotestaantii 4. Kan biraa (ibsi)_____ 	
105	Sabni kee maalii?	<ol style="list-style-type: none"> 1. Oromoo 2. Amaaraa 3. Kan biraa (ibsi)_____ 	
106	Yeroo ammaa maal hojjatta?	<ol style="list-style-type: none"> 1. Hojjata mootummaa 2. Hojjataa dhuunfaa 3. Qonnaan bulaa 4. Hadhaa manaa 5. Kan biraa (ibsi)_____ 	
107	Baay'inna maatii	_____	
108	Galiin ji'aa kee meeqa?	_____ (qarshii)	
109	Miseensa maatii keessanii keessa namni quusanaa qarshii bankii qabuu jiraa?	<ol style="list-style-type: none"> 1. Eeyyen 2. Miti 	
110	Lafaa qonna qabduu ?	<ol style="list-style-type: none"> 1. Eeyyen 2. Miti 3. Hin beekuu 	
111	Gaafii L110 eeyyeen yoo ta'e, lafa meeqa qabdu?	_____ heektaara/olchaa	
112	Horii ykn lukku qabdu?	<ol style="list-style-type: none"> 1. Eeyyeen 2. Miti 	
113	Gaafii L112f deebiin kee eeyyeen yoo ta'e meeqa qabda?	<ol style="list-style-type: none"> 1. Sa'a ananii,qoliyyo/korma_ 2. Re'ee holaa _____ 3. Lukkuu _____ 4. Farda, harree ykn gaangee 5. Walii gala_____ 	
114	Miseensa maatii keessa kaniin kan qabuu jiraa?	<ol style="list-style-type: none"> 1. Saayikilii 2. Motoraa 3. Garii 	

		4. Konkolataa 5. Kan biraa (ibsi)_____	
115	Ibsaa qabduu?	1. Eeyyeen 2. Miti	
116	Sa'aati qabduu?	1. Eeyyeen 2. Miti	
117	Radi'o qabdu Televisiin qabdu?	1. Eeyyeen 2. Miti	
118	Bilibilaa ykn mobayilii qabduu?	1. Eeyyeen 2. Miti	
119	Firjii qabduu?	1. Eeyyeen 2. Miti	
120	Teessoo qabduu ?	1. Eeyyeen 2. Miti	
121	Siree farashi wajiin qabduu?	1. Eeyyeen 2. Miti	
122	Elee elektiriika qabduu?	1. Eeyyeen 2. Miti	
123	Kurazii qabduu?	1. Eeyyeen 2. Miti	
<i>Kutaa 2 Haala abba manaa</i>			
201	Hojii abba waraa kee maalii?	1. Hojjata mootummaa 2. Hojjataa dhuunfaa 3. Qonnaan bulaa 4. Kan biraa (ibsi)_____	
202	Abba manaa kee sigaraa xuxa?	1. Eeyyeen 2. Miti	
203	Abba manaa kee alkoolii dhuga?	1. Eeyyeen 2. Miti	
204	Abba manaa kee chati qama'a?	1. Eeyyeen 2. Miti	
205	Sadarkaan barnoota abba	1. Hinbaranne	

	manaa kee maalii	2. Sadarkaa dura 3. Sadarkaa 2ffaa 4. Sadarkaa 2ffaa ol	
Kutaa 3 wa'ee fayya hadhaa fi daa'iima			
301	Daa'iiman hagaami lubbun dhaalitee ?	_____	
302	daa'ima booda kana deeseef, mana yaalatti ilaalamaa turteertaa?	1. Eeyyee 2. Miti	
303	Yeeroo meeqaaf ilaalamittee?	_____ -	
304	Yeeroo ilaalamittu barumsaa waa'ee soorataa daa'imaan fudhateera?	1. Eeyyee 2. Miti	
305	Eessati deesse ?	1. Manaa yaala 2. Manaa kootti	
306	Akkamitti deesse?	1. Ciniinsifattee /Naggayanii 2. Garaa baqaqsanii	
307	Eennitu si deesse?	1. Eegessa fayya 2. Deessitu gandaa	
308	Daa'ima quxusuu eerga deesse booda horduuf mana fayya qabda?	1. Eeyyee 2. Miti	
309	Akka huubanno keeti daa'imni yoo dhalatuu hagaami ulfataa?	1. Miisha 2. Xiiqa 3. Gudda 4. Hin beekamuu	
310	Salaa daa'ima quxusuu maalii?	1. Dhiiraa 2. Duubaraa	
311	Guyyaa daa'ima deesse?	_____/_____/_____	
312	Umrii daa'ima?	_____	
313	Ijoollee meeqa qabda?	_____	
314	Daa'imnii booda deese issa	_____	

	meeqafa dha?		
315	Daa'ima booda deese fi isaa duraa jiddu haggaa tuuritte?	_____	
<i>Kutaa 4 waa'ee harma hosisuu?</i>			
401	Daa'ima quxisuu harma hosfitee bekkita?	1. Eeyyee 2. Miti	
402	Sabaabni harma hin hosifnaaf maalii?	1. Dhukkuba harmaa waan qabuf 2. Waan naa dhukkubefi 3. Waan harma dhukkubisuuf 4. Kaani birro _____	
403	Daa'ima quuxisuuf amma harmaa hosisaa jirta?	1. Eeyyee 2. Miti	
404	Yoo deebii kee G403 eeyyee yoo ta'ee, Kaalessa galgalaa fi ganamaa daa'imni harma hodheera?	1. Eeyyee 2. Miti	
405	Yoo hosiferta ta'ee halkaan harka meeqa hosisftee ?	_____	
406	Yoo hosiferta ta'ee guyya harka meeqa hosisftee ?	_____	
407	Yoomi daa'ima quxisuuf harma keenita?	1. Yoo daa'imni barbadaa 2. Yoo da'imnii booyee 3. Akka sagantaatti 4. Yoo harmi naa qabee 5. Yoo naa tolee 6. Kaani birro _____	
408	Yoo L403 miti, maalif hin keeninee?	1. Ulfa 2. Quusana maati 3. Yeroo dhabatuu waan ta'eef 4. Aannani harmaa xiqqa 5. Hadhaa dhukubba 6. Kaani biro _____	

409	Yoo L403 miti, hangaa yoomii harmaa qoofa kennite?	_____	
410	Yoo L403 miti, harmaa hanga yoomii kennite?	_____	
411	Akkumaa dhalatte yoomii harma keeniteef?	1. Hatatamaanii 2. Sa'ti _____ 3. Guyya _____ 4. Hin beekku	
412	Silgaa daa'imafi keeniterta?	1. Eeyyee 2. Miti	
413	Yoo hin keeninee maaliif?	1. Badda waan ta'eef 2. Garra daa'ima waan dhukkusuuf	
414	Daa'imni akka dhalateen nyaata ykn bishaan keeniteera?	1. Eeyyee 2. Miti	
415	Gaafii L411 eeyyeen yoo ta'e, maalii keenite?	1. Dhaadha 2. Aanaan horii 3. Bishaan 4. Kan biroo _____	
416	Yoo daa'imni ji'a jaha ol yoo ta'ee , hanga ji'a jaha maalii keenite turitte?	1. Womma 2. Bishaan / shaayii 3. Aannaan horii 4. Nyaata namaa ga'eesota 5. Kan biroo _____	
417	Yoo daa'imni ji'a jaha gadii yoo ta'ee kaleessa harma malee waanii birra keeniteera?	1. Eeyyee 2. Miti	
418	Daa'ima nyaachisuuf dhullee fayyadamita?	1. Eeyyee 2. Miti	
419	Gaafii L 415 yoo eeyyee ta'ee saababi maaliif?	1. Aanaan harma xiqaa 2. Fayida irra caala waan qabuuf 3. Kan biroo _____	

<i>Kutaa 5 waa'ee dabalataa nyaata</i>			
501	Nyaata dabalatamaa harma waajiin yomii jalqabdee ?	_____	
502	Daa'imichi (maqaasaa ibsi) guyyatii sa'aa maqa soorata daakame ykn bulbulame ykn jajjaboo fudhate?	1. Eeyyee 2. Miti	Hub; Dhugaatii hin dabalatu!
503	Yoo fudhatee maaliifa?	_____	
504	Sa'aati 24 darbe keessatti yeroo meeqafi nyaate?	_____	
		Sa'aati 24 keessatti kannin armaan gadii fudhateera	TORBAN YEROO MEEQAF FUDHATE?
505	NYAATA ADDA ADDAA MISIRA ,QAMADDII GARBUU,BISINGA,RUZI XAAFII YKN BOQOLO IRRA QOPHA 'E NYATEE JIRA?	1. Eeyyee 2. Miti	
506	daa'imichi sooratoota akka mijiraa, baaqelaa, ataaraa, gwwaayyaa, loozii, saliixii, ykn shumburaa nyaateeraa?	1. Eeyyee 2. Miti	
507	MIDHAAN HIDDA KEESSA AKKA DINIICHA ADII GODARRE ,KAAZABAA,QOCHOO NYAATEERAA)?	1. Eeyyee 2. Miti	
508	ITTO SA'A ANNAN ITTITTU (URGOO) YKN ANNAN KAN BIRA DHUGEERA?	1. Eeyyee 2. Miti	
509	Daa'imichi harma haadhaatin alatti aanan daakuu ykn saamsame fayyedameraa?	1. Eeyyee 2. Miti	
510	NYAATA MAGARIISA TA'AN KEESSA KAN AKKA RAAAFU,QOSXAA FI SALAAXA IRRA KAN QOPHA 'E NYAATEERAA?)	1. Eeyyee 2. Miti	
511	NYAATA KUDURA FI MUDURA ADDDA ADDA KAN AKKA BURTUKAAANA,KAROOTII BUQQEE HIDHA DHIMAA PAAPAAYYA+,MANGO FI KKF IRRA QOPHA 'EE NYAATEERAA?	1. Eeyyee 2. Miti	
512	Daa'imichi gosoota muduraa fi fuduraa kanneen akka timaatimaa, qaraa, shunkurtii, hundee diimaa, fosoliyaa, avokaadoo, loonii, mango, muzii, raafuu maraa fi quushxaa nyaateeraa?	1. Eeyyee 2. Miti	
513	DAA'IMICHI FOON SANGAA, LLUKUU, RE'EE, GOGORRII, DAAKIYYEE KKF NYAATEERAA?	1. Eeyyee	

		2. Miti	
514	Foon qaama kanneen akka tiruu, kalee, onne, fi kkf nyaateeraa?	1. Eeyyee 2. Miti	
515	Daa'imichi nyaata hanqaaguu irrafophaa'an nyaateeraa?	1. Eeyyee 2. Miti	
516	Daa'imichi bishan mileesitunitti dabalame yka waan bishan keesatti bulbulame, dhugaati laalaafaa, shayee, mooqa, buna ykn dhanqala'oo manatti hojjetamu kamiyyuu fudhateerra	1. Eeyyee 2. Miti	
517	NYAATA SHUKKAARA OF KEESSAA QABAN KAN NEEN AKKA KARMEELLAA, CHOKOLAATAA, KAKII, BUSKUTAAFI KKF NYAATEERAA.	1. Eeyyee 2. Miti	
518	DAA'IMICHI NYAATAAWWAN AKKA ZAYITAA, COOMAA, DHADHAAFI KKF NYAATEERAA?	1. Eeyyee 2. Miti	
519	Yeroo nyaatu gargaarisaa enyatuu godhaaf?	1. Hadhaa 2. Kan biro_	

Kutaa 6 waa'ee qulqulinaa fi bishaan

601	Bishaan qulqulu ta'ee gahaa argataa?	1. Eeyyee 2. Miti	
602	Bishaani dhugaati maalii irra fayyadamta?	1. Kan boomba 2. Boola kan qulqulina qabuu 3. Lagaa seeran egame 4. Kan biroo ____	
603	Bishaan argatuu fi warabdee dhuufuf hagamii siirra fudhata?	_____(daqiqaa)	
604	Mana fincaanii qabdu?	1. Eeyyee 2. Miti	
605	Yoo qabate mana fincaani akkaami?	1. Boolaa 2. Kan qileenssa seensisuu 3. Kan bishaan 4. Kan biroo	
606	Manni kee kutaa meeqa qaba?	_____ -	
607	Lafti manaa kee maaliin afamee?	1. Biyyee 2. Dhagaa	

		3. Kan biro_____	
608	Guubaa mana kee maalii irra hojatamee?	1. Korkoroo 2. Ciittaa 3. Kan biro_____	
609	Dhabbiin mana kee maalii irra hojatame?	1. Dhakee fi dhagaa 2. Dhagaa fi cimintuu 3. Muuka kan biroo _____	
<i>Kutaa 7 beekumsaa hadha</i>			
701	Daa'imni harma hagamiif hodhu qaba?	_____	
702	Harma qofa hangamif hodhu qaba?	_____	
703	Fayidaan harma hosisuun daa'imaf qabu maali?	1. Haala gaarin akka guddatu 2. Dhukkuba akka ittisuf 3. Nyaata gaha 4. Hin beekuu 5. Kan biroo_____ -	
704	Fayidan hosisuun hadhaaf qabu maalii?	1. Dhukkuba akka ittisuf 2. Ulfa ittisaa 3. Hin beekuu 4. Kan biroo_____	
705	Daa'imnii nyaata dabalatamaa ji'a meeqatti eegalu qaba?	1. Ji'a jaha dura 2. Ji'a jahatti 3. Ji'a jaha booda	
706	Silgii daa'imaf keenamuu qaba?	1. Eeyyee 2. Miti	
707	Daa'imnii eega dhalatee booda yeroo harma hoodhu qabu yoomi?	1. Hatatamani 2. Sa'aa 1 keessatti 3. Sa'aa 1 booda 4. Hin beekuu	

Kutaa 8 Ilaalcha haadha ykn guddiftuu daa'ima gara soorata daa'imanitti

		Gutuman gututi hin amanu	hin amanu	giddugaleessa	Hamaa tokko amana	Baay'ee amana
801	Akka yaada keetitti daa'imnii eerga dhalate booda sa'a tokko keessati harma hodhu qaba jeete yaada?					
802	Akka yaada keetitti daa'imnii hanga ji'aa jaha harma qoofa hodhu qaba jeete yaada?					
803	Akka yaada keetitti daa'imnii ji'aa jahatti nyaata dabalatama jalqabuu qaba jeete yaada?					
804	Akka yaada keetitti daa'imnii hangaa wagga lamaatti harma hodhu qaba jeete yaada?					
805	Akka yaada keetitti daa'imnii silgii hodhu qaba jeete yaada?					
806	Akka yaada keetitti harmi haadha dhukkuba ittisa jeete yaada?					
807	Akka yaada keetitti harmi haadha ulfa ittisa jeete yaada?					
808	Akka yaada keetitti harmi haadha nyaata gutuu jeete yaada?					
809	Akka yaada keetitti harmi hadha jalaala hadhaa fi daa'ima jeete yaada?					
810	Akka yaada keetitti harmi haadha daa'imni haalan akka guddatu gargara jeete yaada?					
811	Akka yaada keetitti harmi haadha mallaqaa ni qusata jeete yaada?					