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MAGNITUDE AND FACTORS ASSOCIATED WITH APPROPRIATE COMPLEMENTARY FEEDING PRACTICE AMONG MOTHERS OF CHILDREN AGE 6-23 MONTHS ATTENDING HEALTH CENTERS IN KOLFE KERANIO SUB CITY, ADDIS ABABA, ETHIOPIA

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BAHIR DAR UNIVERSITY

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SCHOOL OF RESEARCH AND POSTGRADUATE STUDIES

DEPARTMENT OF APPLIED HUMAN NUTRITION

Magnitude and factors associated with appropriate complementary feeding practice among mothers of children age 6-23 months attending health centers, Addis Ababa, Ethiopia

Investigator: Tesfamichael Demissie

July, 2017

Addis Ababa, Ethiopia

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CITY, ADDIS ABABA, ETHIOPIA

Investigator: Tesfamichael Demissie

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Adviser: Hirut Assaye(PhD)

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Addis Ababa, Ethiopia

DECLARATION

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

Tesfamichael Demissie

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Name of the student Signature

Date   of submission _____

Place: Addis Ababa

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

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ABSTRACT

Background: Malnutrition has been responsible for the death of millions of under five children annually. Majority of these deaths are often associated with inappropriate feeding practices and occur during the first year of life. In developing countries complementary feeding frequently begins too early or too late, and foods are often nutritionally inadequate and unsafe.

Objectives: The purpose of this study was to assess magnitude and factors associated with appropriate   complementary feeding practice among mothers with children age 6–23 monthsat health centers in Kolfe Keranio Sub City, Addis Ababa.

Methods: Institutional based cross sectional study design was conducted among 243 mothers who had children age 6–23 months in three selected health centers .Data were collected using pre-tested, pre-coded and interviewer-administered questionnaires from March 13-April 7, 2017. Data were cleaned with Epi Info^{TM} 7 version and analysis was done by using SPSS version 20. OR with 95% confidence interval was computed to measure the strength of association between the dependent and independent variables.

Result: The practice of timely initiation of complementary feeding, minimum dietary diversity and minimum meal frequency were 85.2%, and 27.6% and 85.2% respectively. Among the respondents 21.8% had practiced the minimum acceptable diet. The overall prevalence of appropriate complementary feeding practice in the study area was 18.5%.

Multivariable logistic regression showed that lower age of children [AOR=.131:95%CI: (.053 .327)], combination feeding i.e. spoon, hand and bottle feedings [AOR=3.535 95%CI: (1.013 12.339)], child who fed thin gruel [AOR= .090 95%CI: (.014 .561)] were negatively associated with appropriate complementary feed g practice.

Conclusion: The prevalence of appropriate complementary feeding of children aged 6-23 months was low. Age of the child, method of feeding, and texture of complementary food were factors that affect appropriate complementary feeding practice.

TABLE OF CONTENTS

ACRONYMS

ACFP: Appropriate Complementary Feeding Practice

ANC: Ante Natal Care

AOR: Adjusted Odd Ratio

CF: Complementary Food

CI: Confidence Interval

COR: Crude Odd Ratio

CSAE: Central Statistical Agency Ethiopia

EDHS: Ethiopian Demography and Health Survey

HC: Health Center

HEWs: Health Extension Workers

IYCF: Infant and Young Child Feeding

MOH: Ministry Of Health

OR: Odd Ratio

PNC: Post Natal Care

SPSS: Statistical Package for Social Science

UNICEF: United Nations Children's Fund

WHO: World Health Organization

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1Background

Adequate nutrition is essential in early childhood to ensure healthy growth, proper organ formation and function, a strong immune system, and neurological and cognitive development. Child malnutrition impacts cognitive function and contributes to poverty through impending individuals' ability to lead productive lives (UNICF,WHO, World Bank,2012).

Worldwide malnutrition estimates in 2015 showed stunting rates are dropping but 156 million children under 5 around the world were still affected. However, there were 42 million overweight children in the world– an increase of about 11 million the past 15 years. Also wasting continued to threaten the lives of 50 million children under 5 globally (UNICEF, WHO, World Bank., 2016). The first 1,000 days of life, from the first day of pregnancy until the child is 24 months old, is a critical window of opportunity for health and development. This is the period in which nutrition requirements are greatest (ENNP, 2013).

Proper nutrition contributes significantly to declines in under-five mortality rates. And nutrition has increasingly been recognized as a basic pillar for social and economic development. Economic growth and human development require well nourished populations who can learn new skills, think critically and contribute to their communities (UNICF, WHO, World Bank, 2012). That is why effects of malnutrition in developing

countries can translate into losses in GDP of up to 2-3 percent annually. Globally, the direct cost of malnutrition is estimated at $20 to $30 billion per year (Save the Children, 2012).

In 2015, 33.9 million children under five in Asia are wasted, of which 11.9 million are severely wasted. In Africa, 14.1 million children under five are wasted, of which 4.3 million are severely wasted (UNICEF, WHO, World Bank, 2016).

Stunting is the failure to grow both physically and cognitively and is the result of chronic or recurrent malnutrition. The devastating effects of stunting can last a lifetime. Wasting, or acute malnutrition, is the result of recent rapid weight loss or the failure to gain weight. A child who is moderately or severely wasted has an increased risk of death, but treatment is possible. Some children suffer from more than one form of malnutrition-such as stunting and overweight or stunting and wasting (UNICEF, WHO, World Bank, 2016).

The 2016 Ethiopia Demographic Health Survey (EDHS) data showed that 38 percent of children under 5 were stunted and 18 percent were severely stunted. The data showed in the first 6-8 months of life, the prevalence of stunting increased steadily from age 9 months through the first 4 years of life, before declining slightly in the fourth year of life. Children age 24-35 months have the highest proportion of stunting (48 percent). Stunting was slightly higher among male than female children (41 percent versus 35 percent). Also, 10 percent of children were wasted, and 3 percent were severely wasted. Besides the study revealed 24 percent of all children were underweight and 7 percent were severely underweight (EDHS, 2016).

These national levels mask geographic differences—malnutrition is higher in rural than urban areas, and some regions are more severely affected—but to a certain extent,

malnutrition cuts across all income levels. It is not exclusively an economic issue (USAID, 2011) (EDHS, 2016).

According to the 2011 Ethiopian Demographic Health survey early initiation of complementary feeding in Ethiopia before 6th month was 49% (EDHS, 2011).

Study in different regions of Ethiopia also showed that the prevalence of early initiation of complementary feeding were 59.6% in South west (Kampa woreda)(Agedew et al., 2014),19% in Eastern Ethiopia(Agumasie et al., 2014), 19.7% in Northern Ethiopia(Ashenafi et al., 2011) and 6.7%in Lalibela District (Saleh et al., 2014).The 2011 EDHS , indicated that only 5.2 % of children 6-23months old were given foods from four or more groups and also were fed at least the minimum number of times per day. The data points out that there is lower appropriate complementary feeding practice in the country.

1.2 Statement of the problem

Malnutrition rates remain alarming; stunting is declining too slowly while overweight continues to rise. Africa and Asia bear the greatest share of all forms of malnutrition. Both Asia and Latin America and Caribbean have cut stunting rates by over one third since 2000 while Africa saw a reduction of only one sixth during the same period. Low income countries are the only group with more stunted children today than 15 years ago. While less than half of all children under 5 live in lower – middle – income countries, two thirds of all stunted children live there. Twenty our percent of all children live in low- income countries (UNICEF, WHO, World Bank, 2016).

An estimated 80 percent of the world's 165 million stunted children live in just 14 countries including Ethiopia. More than 10 million children under the age of five die each

year; 41% of these deaths occur in Sub- Saharan Africa and another 34% in South Asia and the major contributor to their death is malnutrition which is commonly result of sub-optimal feeding practices (Black et al., 2008).

As a result, optimal infant and young child feeding practices rank among the most effective interventions to improve child health. Under-nutrition is associated with at least 35% of child deaths. It is also a major disabler preventing children who survive from reaching their full developmental potential. Around 32% of children less than 5 years of age in developing countries are stunted and 10% are wasted. It is estimated that sub-optimal breastfeeding, especially non-exclusive breastfeeding in the first 6 months of life, results in 1.4 million deaths and 10% of the disease burden in children younger than 5 years (WHO, 2009).

Complementary foods need to be nutritionally adequate, safe, and appropriately fed in order to meet the young child's energy and nutrient needs. However, complementary feeding is often fraught with problems, with foods being too dilute, not fed often enough or in too small amounts, or replacing breast milk while being of an inferior quality. Therefore during the period of complementary feeding, children are at high risk of under nutrition (WHO, 2009). Breastfeeding is nearly universal in Ethiopia and half of children are breastfed for about 25 months. More than half (52 percent) of children less than 6 months old are exclusively breastfed.

Complementary foods are not introduced in a timely fashion for all children. At 6-9 months only about half of children receive complementary foods. Overall, only 4 percent of children ages 6-23 months are fed appropriately, based on the recommended infant and young child feeding (IYCF) practices. Forty-four percent of children ages 6-59 months

are anaemic. Overall, nearly three children in every ten (27 percent) are given prelacteal feeds within the first three days of life (EDHS, 2011).

According to EDHS 2011the duration of breastfeeding in Ethiopia is long. The proportion of children who are breastfeeding is 95 percent or more for children up to age 12-17 months and then declines to 84 percent of children age 18-23 months (EDHS, 2011). The prevalence of exclusive breastfeeding until the infant is six months of age is 49%, and timely initiation of complementary feeding is 51%. In Ethiopia, only 5% of non-breastfed children are being fed in accordance with IYCF recommendations (EDHS, 2011).

The 2016 Ethiopian demographic healthy survey showed that about 38% of children under five age are stunted, 24% underweight and 10% children were wasted (EDHS, 2016).

As far as my knowledge, there are no published reports about the prevalence of appropriate complementary feeding practice in Addis Ababa, and in Kolfe Keranio Sub city in particular. Therefore, the aim of this study was to determine the magnitude and associated factors of appropriate complementary feeding practice among mothers with children age 6-23 months in Kolfe Keranio Sub city.

1.3 Objective of the study

1.3.1. General Objective

To assess the magnitude of appropriate complementary feeding and associated factors among mothers of children 6-23months from Mar. 13-Apr.7, 2017 attending health centers in Kolfe Keranio Sub City, Addis Ababa.

1.3.2. Specific objectives

1. To determine the prevalence of appropriate complementary feeding among mothers of Children 6-23months attending health centers in Kolfe Keranio Sub City, Addis Ababa.

2. To assess factors that affect appropriate complementary feeding among mothers of children 6-23months attending health centers in Kolfe Keranio Sub City, Addis Ababa.

1.4 .Scope of the study

This study focus on firsthand information about the magnitude of appropriate complementary feeding practice in Kolfe Keranio Sub city of children age 6 - 23years and factors that affects the practice. And to point out/suggest the possible interventions which improve appropriate complementary feeding practice in the study area.

1.5. Significance of the study

Improved child care and infant feeding practices are important interventions for reducing infant and young child malnutrition. Since malnutrition cannot be tackled without understanding its causes scientific studies are necessary to identify the possible causes and innervations. The main reason to focus on the first 1ooo days is that good nutrition during the 1000 day period between the start of a women's pregnancy and her child's second birthday is critical to the future health, wellbeing and success of her child. The right nutrition during this window can have a profound impact on a child's ability to grow, learn and rise out of poverty. Therefore, good practice of complementary feeding of a child during the age of 6-24 months is critical.

In spite of the fact that there is significant variation of prevalence in the different part of Ethiopia there is almost no published research done on assessment of complementary feeding practice and associated factors in the capital city, Addis Ababa. The results of this study will point out the magnitude of appropriate complementary feeding practice of mothers and factors that affect complementary feeding in selected health centers of kolfe Sub city, Addis Ababa. The result is expected to be used by political leaders; health centers, health professionals, and health extension workers. Also findings will help to appreciate the magnitude of poor practice of complementary feeding by mothers and associated factors which help the planners to plan appropriate intervention. Health centers, health professionals, health extension workers will work against the factors that negatively affect complementary feeding practice. The findings of the study will be given to the concerned body and stakeholders. So the intervention based on the result of the findings will help to improve the practice of good complementary feeding which in turn reduce levels of wasting, stunting, morbidity and mortality. This will have positive impact on a child's ability to grow, learn and rise out of poverty. Evidences have shown that promotion of appropriate complementary feeding practices reduces the incidence of stunting and leads to better health and growth outcome.

2. LITERATURE REVIEW

2.1. Optimal infant and young child feeding practice

More than 80 countries in the developing world have child stunting rates of 20 percent or more. Thirty of these countries have what is considered to be "very high" stunting rates of 40 percent or more (WHO, 2012)(Figure1). While many countries are making progress in reducing child malnutrition, stunting prevalence is on the rise in at least 14 countries, most of them in sub-Saharan Africa. If current trends continue, Africa may overtake Asia as the region most heavily burdened by child malnutrition (Save the Children, 2012).Worldwide; malnutrition is an underlying cause in the deaths of more than 3.5 million children under the age of 5 each year(Black et al., 2008). Fifty five million children are wasted, and of these 19 million are severely wasted. About 178 million children around the world are stunted. Of the estimated 178 million, 90 percent live in 36 countries, one of which is Ethiopia (Black et al., 2008).

Thirty Countries Have Stunting Rates of 40% or More

Percent of children under age 5 who are moderately or severely stunted

| Data not available | Less than 5 percent | 5-19 percent | 20-29 percent | 30-39 percent | 40 percent or more |

Data sources: WHO Global Database on Child Growth and Malnutrition (who.int/nutgrowthdb/);
UNICEF Global Databases (childinfo.org); recent DHS and MICS surveys (as of April 2012)
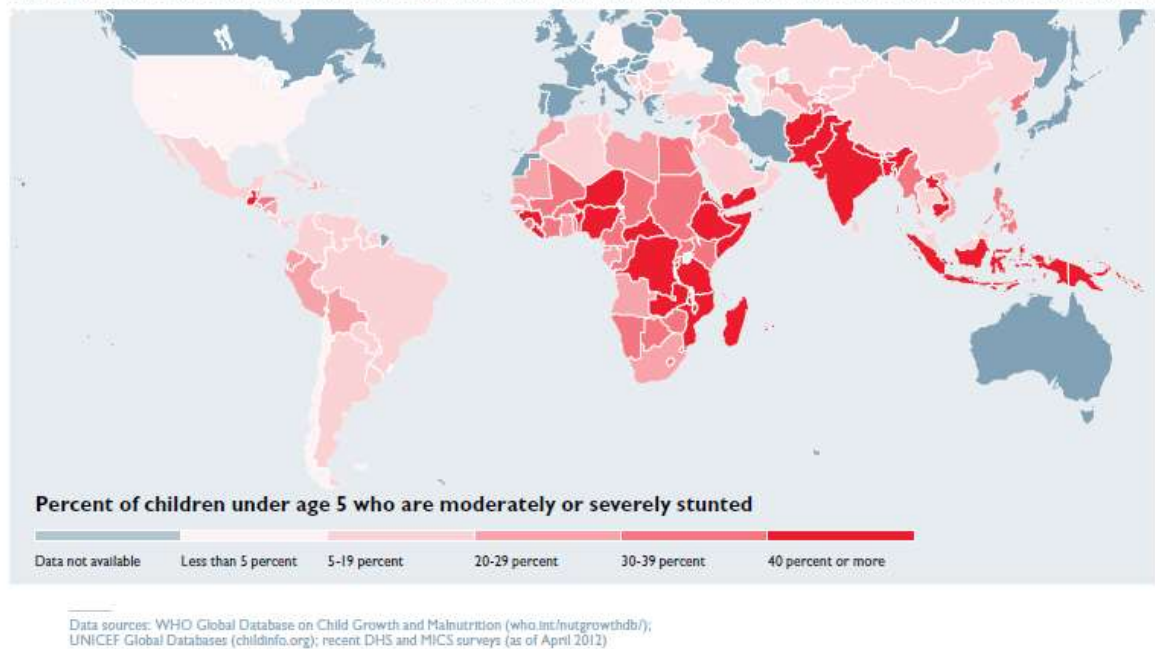
Figure 1: Global stunting rate

(Taken from WHO Global Database on Child Growth and Malnutrition (who.int/growthdb/):UNICEF Global Database (childinfo.org): recent DHS and MICS surveys (April 2012) (UNICEF 2012).

Economic growth is not enough to fight malnutrition. Political will and effective strategies are needed to reduce malnutrition and prevent stunting. A number of relatively poor countries are doing an admirable job of tackling this problem, while other countries with greater resources are not doing so well (Save the Children, 2012). Encouraging and supporting appropriate complementary feeding practices for children under age two are critical elements of efforts to address malnutrition (USAIDS, 2011).

In developing countries, breastfed children are at least 6 times more likely to survive in the early months of life than non-breastfed children (Save the Children, 2012).Examining the trend in malnutrition, national nutrition status data indicate that at birth, infants in

9

Ethiopia is at normal nutrition status, but their growth declines rapidly during the first year of life and stunting continues during the second year of life (USAIDS, 2011). Much of a child's future – and in fact much of a nation's future – is determined by the quality of nutrition in the first 1,000 days. The period from the start of a mother's pregnancy through her child's second birthday is a critical window when a child's brain and body are developing rapidly and good nutrition is essential to lay the foundation for a healthy and productive future. If children do not get the right nutrients during this period, the damage is often irreversible (Save the Children, 2012).

2.2. Complementary feeding

Complementary feeding means giving other foods in addition to breast milk starting when an infant is 6 months old since at this time breast milk alone is not sufficient to meet a growing infant's nutritional needs. Complementary foods are needed to fill the calorie, protein and micronutrient gap between the total nutritional needs of the child and the amount provided by breast milk .The target range for complementary feeding is generally taken to be 6 to 23 months of age, even though breastfeeding may continue beyond two years (MoH, 2006).

2.3. Indicators of appropriate complementary feeding

According to WHO recommendation complementary feeding practices are reviewed using the key indicators, which include introduction of solid, semi-solid or soft foods, minimum dietary diversity, minimum meal frequency and minimum acceptable diet (Ergib et al., 2014).

Dietary diversity as an indicator is a proxy for adequate micronutrient-density of foods and liquids other than breast milk. Consumption of foods from different groups

increases the likelihood that diverse nutrients will be provided in daily intake, which will help in meeting the nutritional requirements and minimize deficiencies (WHO, UNICEF, 2010).

The food groups that should constitute complementary foods include: grains, roots and tubers, legumes and nuts, dairy products (milk, yogurt, and cheese), flesh foods (meat, fish, poultry and liver/organ meats), eggs, vitamin-A rich fruits and vegetables and other fruits and vegetables (WHO, 2008).

Feeding frequency is a proxy for adequate energy intake for non-breast milk sources. For the average healthy breastfed infant, meals of complementary foods should be provided 2-3 times per day at 6-8 months of age and 3-4 times per day at 9-11 and 12-24 months of age, with additional nutritious snacks offered 1-2 times per day, as desired. This recommendation is based on standardized estimates of the caloric density of local foods, the nutritional demands of infants per kilogram body weight and the gastric capacity of infants and young children (WHO, 2010).

Minimum acceptable diet among breastfed and non-breastfed children is a composite indicator of dietary diversity and meal frequency (WHO, 2008 WHO, 2010). It is an indicator showing the proportion of infants receiving both minimum dietary frequency and minimum dietary diversity.

2.4. Prevalence of appropriate complementary feeding

Children in an alarming number of countries are not getting adequate nutrition during their first 1,000 days. Out of 73 developing countries which together account for 95 percent of child deaths – only four score "very good" on measures of young child nutrition (Save the Children, 2012).

National survey in Ethiopia shows that while exclusive breastfeeding for the first six months of life is recommended, often the practice of providing first foods prior to six months continues unabated (USAID, 2011).

A community-based cross-sectional study in Northern Ghana found the prevalence of appropriate complementary feeding 14.3 %. Similar study in Northern and Southern part of Ethiopia (Northwest of Mekelle and Arsi Negele Woreda) on prevalence of appropriate complementary feeding showed 10.75% (Ergib et al., 2014) and 9.5 % (Tigist et al., 2015)respectively. A study in Enemay district, Northwest Ethiopia showed the practice of optimal complementary feeding 40.5 % (Dessalew et al., 2014).Among South Asian countries, the rate of timely initiation of complementary feeding was lower than the WHO recommendation for good practice (80–94 %).In this regard 71 % in Bangladesh, and 55 % in India, of the infants have timely initiation of complementary feeding (Khan et al., 2013 Saleh et al., 2014) whereas 41 % in Nigeria (Ogunlesi et al., 2015). According to 2011 Ethiopian Demographic and Health Survey, timely initiation of complementary feeding in Ethiopia at the 6th month age was only 51 % (EDHS, 2011). However, there is a variation in the prevalence of timely initiate of complementary feeding(ranges between 52.6-72.5%)in the different parts of Ethiopia - 72.5% in Southern (Tigist et al., 2015), 56.4% in Northwest(Dessalew et al., 2014),60.5% in Eastern, (Agumasie et al.,2014),62.8% in Northern (Mekelle) (Ashenafi et al., 2011 ,63 % in Northeast (Wondimu et al., 2015) and 52.8% in North (Axum) (Samson et al., 2013).

The prevalence of the minimum meal frequency in Kenya was 58% (Kimani-Murage et al., 2011) and 57.3% in N.Ghana (Mahama et al., 2013) and 36.7% in Nigeria (Ekerette

and Olukemi, 2016). In Lalibela District, Northeast Ethiopia, below half (45.1 %) ate three times a day (Wondimu et al., 2015).

The prevalence of dietary diversity in Ghana, Malawi, Nigeria, and Kenya was more than 45% ,40% ,35%, and 30% respectively(USAIDS, 2011) but only 4.3% of children consumed the recommended four food groups in Ethiopia(ENNP, 2013).

The figure below shows the proportion of children (6–23 months) who consume the minimum number of food groups compared to other African countries. Ethiopia by far ranks the lowest on this measure, with less than five percent of children under two consuming the minimum number of food groups. The country with the next-worse result, Liberia, has more than 20 percent of children consuming the minimum number of food groups (USAIDS, 2011).

Figure 3: Percentage of Children (6-23 months) Consuming 4 or More Food Groups by Country
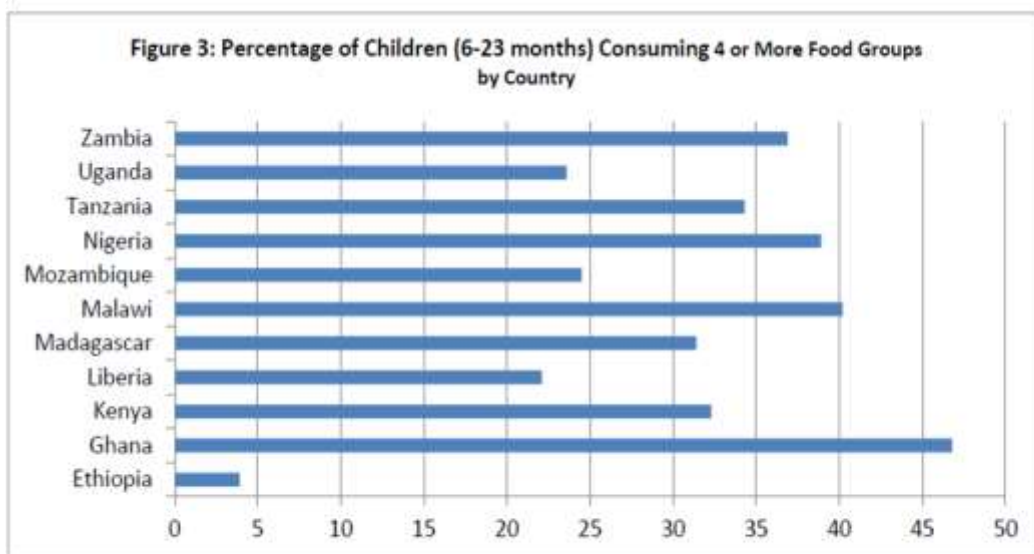
Source: Kothari, Monica and Noureddine, Abderrahim. 2010. *Nutrition Update 2010*. Calverton, Maryland, USA: ICF Macro.

Figure 2: Proportion of children (6–23 months) who consume the minimum number of food groups compared to other African countries

The Arsi Negele Woreda and Hiwot Fana Specialized Hospital studies found the practice of minimum dietary diversity to be 18.8 % (Tigist et al., 2015) and 8.5 % (Agumasie et al., 2014). The complementary food given by most of mothers was cereal based fluids (46.5%) followed by cow's milk (20.1%), formula milk (11.3%), family diet (8.7%) and the rest (13.4%) used the combination of two or more the above foods (Ashenafi et al., 2011).In Lalibela District, Northeast Ethiopia, the majority (87.6 %) of the children had poor dietary diversity, and below half (45.1 %) ate three times a day (Wondimu et al., 2015).

The prevalence of minimum acceptable diet for breastfed children was 30% in Kenya (Kimani-Murage et al., 2011),25.1% in N. Ghana (Mahama et al., 2013)and 7.3% in Nigeria (Ekerette et al.,2016) whereas it was only 4% in Ethiopia .This shows that appropriate complementary feeding practice was low in Ethiopia.

2.5. Factors associated with complementary feeding practice

There are different factors that causes poor child feeding practices. Age of the mother, level of education and employment of the mothers have been shown to influence complementary feeding practice. Mothers with younger age (Joshi, 2006), lower maternal education (Tigist et al., 2015),(Agumasie et al., 2014),(Wondimu et al., 2015),(Agedew et al., 2014), unemployment (Agumasie et al., 2014) (Dessalew, 2014), (Agedew et al., 2014) and limited access to mass media such as newspapers, radio or television (Joshi, 2006), (Kimani-Murage et al., 2011), were risk factors associated with inappropriate complementary feeding practice in developing countries.

Mothers post natal follow up was associated with timely initiation of complementary feeding in the studies done in Ethiopia(Agedew et al., 2014) ,(Ergib et al., 2014).In

Tanzania lower level of education, limited access to mass media, lack of post-natal follow up, and poor economic status are the risk factors for inappropriate complementary feeding practice (Rose et al., 2012), (Victor et al., 2012).

Mother's antennal follow up was a predictor of good practice of timely initiation of complementary feeding.(Ashenafi et al., 2011) , (Wondimu et al., 2015) (Samson et al., 2013) , (Kimani-Murage et al., 2011).

Similarly, the odds of timely initiation of complementary feeding were higher among mothers who gave birth at health facilities [AOR = 2.54, 95 % CI: 1.33, 4.82] as compared to those who gave birth at home (Wondimu et al., 2015). Marital status of the mother associated with sub-optimal infant breastfeeding and complementary feeding practices (Samson et al., 2013),(Kimani-Murag et al., 2011) .

Predictors of early introduction of complementary foods include the desirability of the pregnancy of the index child and the place of delivery (Kimani-Murage et al., 2011).

Birth order of the infant has been demonstrated to have a profound impact on infant feeding practices (Rao et al., 2011), (Kimani-Murage et al., 2011). The sex of the child has also been shown to influence complementary feeding practice with boys being likely to be introduced to complementary feeds earlier. Anecdotal evidence indicates that boys are introduced to complementary foods early because breast milk alone does not meet their feeding demands (Agumasie et al., 2014),(Kimani-Murage et al., 2011).

Employment of primary caregivers has been shown to influence complementary feeding.

Age of child was found to be significantly associated with appropriate complementary feeding practice from study done in Northern Ethiopia and Northern Ghana. It revealed that children within the age group 18-23 months were more likely to be appropriately fed as compared to infants in the age group 6-11 months (Ergib et al., 2014), (Mahama et al., 2013)(Kimani-Murage., 2011). Furthermore study done in Tanzania also found age of children as the most important factors for appropriate complementary feeding practice in the areas (Victor et al., 2012).

Besides, educational status of mothers was associated with appropriate complementary feeding from study done in northern Ethiopia (Ergib et al., 2014) as well as others countries like Nairobi Kenya (Kimani-Murage et al., 2011), Tanzania (Victor et al., 2012), India (Joshi et al., 2012), (Aggrawal , 2008), and Sirlanka (Senarath ,2012a) in which mothers who had educational status of secondary and above were more likely to practice appropriate complementary feeding than those mothers who had no education.

Maternal health service utilization like postnatal care was also associated with appropriate complementary feeding practice among mothers from study done in northern Ethiopia (Ergib et al.,2014, Dessalew et al., 2014). Institutional delivery of mothers found key determinant of timely initiation of complementary feeding in Ethiopia (Samson et al., 2013) (Wondimu et al., 2015) and in south India (Rao et al.,2011).

Higher household wealth increases diet diversity from study done in Ghana in which rich families are more likely to be able to afford and provide a variety of foods to their children more frequently (Mahama et al., 2013). Studies done in Ethiopia disclosed cereal dominated complementary fluids feeding risk factor for poor dietary diversity. (Tigist et al., 2015) (Agumasie et al., 2014), (Wondimu et al., 2015).

Poor knowledge of complementary feeding and maternal healthcare services utilization and family income of the mother in Northern and Northwest Ethiopia were negatively associated with complementary feeding practice (Dessalew et al., 2014). Study in Northern Ghana showed bottle feeding as risk factor for inappropriate feeding than not bottled-fed(Mahama et al.,2013). Mothers who work as daily workers, farmers, merchant and government employed initiated complementary feeding as compared earlier to house wives ((Dessalew et al., 2014), (Agedew et al., 2014). A study of the trials showed that many of the current poor feeding practices can be changed if mothers are encouraged and supported in the implementation of new, improved approaches to feeding their children. As the Trials of Improved Practices (TIPs) showed, in many cases the recommendation for a new practice required negotiation with the mother/caregiver (USAIDS, 2011).

2.6. Conceptual framework
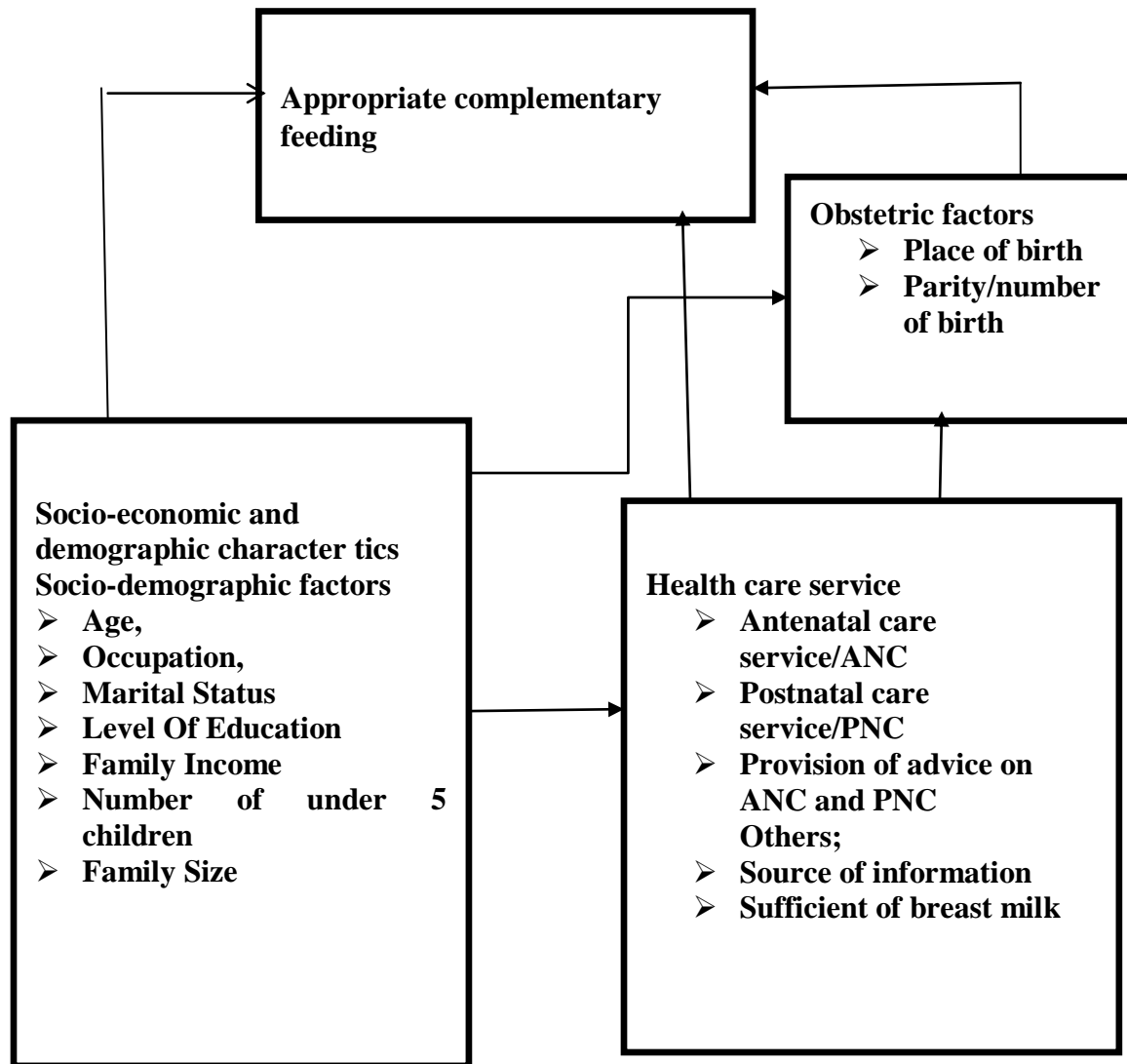
Figure 3: Conceptual framework for appropriate complementary feeding

Source: Adapted from Jacob (2010)

3. MATERIALS AND METHODS

3.1 Study design, period and area

Institution based cross-sectional study design was conducted from March 13-April 7, 2017. Mothers having children from 6 to 23 months of age were selected from three health centers found in Kolfe Keranio Sub city, Addis Ababa Ethiopia. Addis Ababa is structured into ten sub cities and Kolfe Keranio is one of the ten sub cities found in Addis Ababa. There are eleven health centers in Kolfe Keranio Sub city. The Kolfe Keranio sub- city with an area of 61.25sq.Km has a population of 546,219 as of 2011 of which 220,859 are males and 235,360 are females. The population density per square meter is 7,448.5. The sub city has 15 Weredas. The district is located in the western suburb of the city, near the Gefersa Reservoir. It borders with the districts of Gullele, Addis Ketema, Lideta and Nifas Silk-Lafto (Google Search, 2016).

3.2 Population

3.2.1. Source population

All mothers with children age 6-23 months and residing in the study area were source population of the study.

3.2.2. Study population

The study population included all mothers of 6-23 months age child and residing in the study area and who came for any service in selected health centers and whom the health center was their catchment.

3.2.3. Sampling Unit

All study participants selected from each health center by a consecutive sampling technique.

3.3. Selection criteria

3.3.1. Inclusion criteria

All mothers or caregivers with children age 6-23 months who visited the health centers for any service during the study period and willing to participate in the study were included.

3.4. Study variables

3.4.1. Dependent variables:

- Appropriate complementary feeding practice.

3.4.2. Independent variables:

- Socio-demographic (age, sex, residence, occupational status, educational, income).

- Mothers obstetric (reproductive) history (birth interval, place of delivery).

- Mothers health service utilization history (ANC, PNC).

- Sources of information on nutrition (Health Institution, radio, TV, newspapers).

3.5. Operational definition

Timely introduction of solid, semi-solid or soft foods: the proportion of children 6–23 months of age who starts complementary foods (solid, semi-solid or soft) at 6 month. (Ergib et al.,2014).

Minimum dietary diversity: the proportion of children 6–23 months of age who receive foods from four or more food groups during the previous day. The seven food groups used for tabulation of this indicator are: grains, roots and tubers; legumes and nuts; dairy products (milk, yoghurt and cheese); flesh foods (meat, fish, poultry and liver/organ meats); eggs; vitamin A-rich fruits and vegetables; and other fruits and vegetables . (Ergib et al., 2014).

Minimum meal frequency: the proportion of breastfed and non-breastfed children 6–23 months of age who receive solid, semi-solid or soft foods the minimum number of times or more (minimum is defined as: two times for breastfed infants 6–8 months; three times for breastfed children 9–23 months; and four times for non-breastfed children 6–23 months) in the previous day. (Ergib et al., 2014).

Minimum acceptable diet: the proportion of breastfed children 6–23 months of age who had at least the minimum dietary diversity and the minimum meal frequency during the previous day, and non-breastfed children 6–23 months of age who received at least two milk feedings and had at least the minimum dietary diversity not including milk feeds and the minimum meal frequency during the previous day. (Ergib et al., 2014).

Appropriate Complementary Feeding Practice: If the above four indicators were fulfilled as recommended by WHO.

Inappropriate Complementary Feeding Practice: Among the four indicators if at least one indicator was not fulfilled.

3.6 Sample Size and Sampling procedures

3.6.1. Sample size determination

The sample size of the study was determined by considering the prevalence of previous similar study at Northwest of Mekelle town, Northern Ethiopia, which reported 10.75% of mothers with appropriate complementary feeding practices. The sample size was calculated using single population proportion formula with the following assumptions; proportion 10.75%, margin of error 5% and 95% confidence level. Design effect of 1.5 was used as a multiplier to increase the sample size to account for the effect of the multistage sampling method. After considering 10 % non-responses and refusals, the total sample size required for the study was 405 mothers.

3.6.2. Sampling procedures

A multistage sampling technique was used to select the study subjects. Addis Ababa the capital city of Ethiopia structured into ten sub cities and each Sub city has Woredas. One of the sub cities in Addis Ababa is Kolfe Keranio. It is selected by convenient method. There are eleven health centers in Kolfe Keranio Sub city. Three health centers were selected by lottery method. Total population of the sub city, as to 2007 census, in 2016 is estimated to be 537,023. The calculated sample size was 405 which taken from each health center based on their flow rate. Based on the data taken from the sub city health center office the flow rate of the three health centers is 534, 597 and 1159 of wereda 9, Mikililand and Kolfe health center respectively. Hence the proportion of sample size for

the health centers were 95(23.3%), 105 (26%), and 205(50.6%) wereda 9, Mikililand and Kolfe health center respectively.

The study subjects were selected using a consecutive sampling technique (including all eligible mothers) tills the calculated sample size achieved.
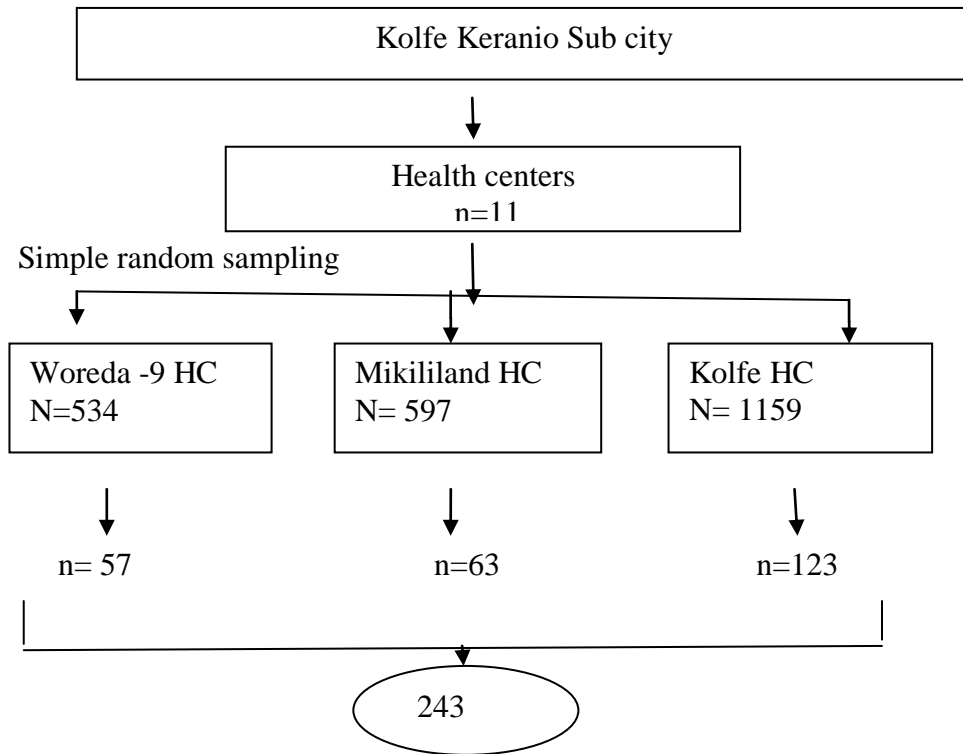
Figure 4: Schematic representation of sampling procedure

3.7. Data collection procedures and tools

Data were collected using pre-tested, pre-coded and interviewer-administered questionnaires. An interview using structured questionnaire was conducted on complementary feeding and related characteristics. Data were collected using face-to-face interview at waiting rooms of the

health centers before they get service they come for(except emergency) from mothers who had 6-23 months age children using structured questionnaire who came at the health

centers for medical case and routine immunization program. The questionnaire were originally prepared in English then translated to local Amharic language. The main sections of the questionnaire comprised of socio-demographic characteristics, maternal health care related information, feeding practices, and dietary assessment using 24 hr recall.

To proceed with data collection, three diploma nurses as data collector and one health officer as supervisor were recruited.

3.8. Data quality management

Pretest was done to check accuracy and consistency before data collection. The questionnaires were adapted from WHO standard questions to suit the study setting. The questionnaires were pretested among 20(5%) mothers of similar subjects at Lomi Meda health center. Training was given to data collectors and supervisor for one day on the objective, relevance of the study, confidentiality of information, respondent's right, about pre-test, informed consent and techniques of interview.

All questioners were checked by the supervisor daily for completeness and the principal investigator monitored the overall quality of data collection. Besides this, the investigator was carefully entered and thoroughly cleans the data before the commencement of the analysis.

3.9. Data Analysis, Presentation and Interpretation procedures

The collected data were cleaned, coded, entered into EPI-INFO version 7 software and transferred and analyzed using SPSS version 20.Univarate analysis was done to describe dependent and independent variable; percentage ,frequency distribution. Then bivarate analysis was done to see the crude significant relation of each variables with dependant

variable .Finally, independent variables with p-value less than 0.2 were included in the multiple logistic regression analysis to control the effect of confounding. Crude and adjusted odds ratio with 95% Confidence Interval was calculated. For all statistical significance tests between each independent and dependent variables, significance level was fixed at $P < 0.05$.

3.10. Ethical Consideration

Ethical clearance was obtained from Institutional Review Board (IRB) of BDU and Addis Ababa Health Office. The offices of Addis Ababa Health Office and the selected health centers communicated with formal letters. All the study participants were reassured that they would be anonymous. Names or any personal identifiers were not recoded. Respondents were clearly told about the study and the variety of information needed from them. They were given the chance to ask anything about the study and made free to refuse or stop the interview at any moment they want if that was their choice. Respondents were informed that their data would be used to understand better the problems and how to reduce poor complementary feeding practice.

3.11. Dissemination of results

The results of the study will be presented to Bahir Dar University (BDU), Institute of Technology, Faculty of Food and Chemical Engineering as part of MSc thesis and it will also be shared to Addis Ababa regional health bureau, Kolfe Keranio Sub city health office and Health Centers (Kolfe, Woreda and Mikililand). Efforts will be made to present the results on scientific conferences and to publish on peer reviewed journals.

4. RESULTS

4.1. Socio-demographic characteristics of mothers/primary caregivers

Of the 243 respondents 94.2 %(229/243) were mothers of the child who are responsible for the child care and majority were Orthodox Christian 54.7 %(133) by religion. More than 43.6% (106) of mother's/care givers were between 25-29 years old. The study showed 92.6% were married. Regarding birth order 63.8 %(155) of children were first born. The sex ratio was 49% males and 51% females. Of the children 6-11 months olds were 42.8 %(104), 12-17months olds were 32.1 %(78) and 25.1 %(61) were18-23 months. About 98(40.3%) of mothers have attended primary schools. Majority of mothers were house wife (71.2%) and 17.7% employee. About 43% of husbands were government employees and 31% were merchants. About 38 %(92) study participants' family had monthly income >=3000ETB.

Table 1: Socio-demographic characteristics of mothers/care givers of children age 6-23 months at Kolfe Keranio, sub city Addis Ababa, 2017

Variables	categories	frequency	percentage
Responsible for the child	Mother	229	94.2
	Grandmother	11	4.5
	Sister	3	1.2
Religion	Orthodox	133	54.7
	Protestant	28	11.5
	Muslim	82	33.7
Age of mother (years)	< 20	2	0.8
	20-24	55	22.6
	25-29	106	43.6
	30-35	55	22.6
	>35	25	10.3
Marital	Married	225	92.6
	Other	18	7.4
Family size	1-3	96	39.5
	4-7	143	58.8
	8-12	4	1.6
No of under 5	1	185	76.1
	2	51	21
	3	7	29
Birth order	1-2	155	63.8
	3-5	88	36.2
Birth interval	no previous birth	155	63.8
	1-2	42	17.3
	3-5	41	16.9
	6-12	5	2.1
Sex	Male	119	49
	Female	124	51

Variables	categories	frequency	percentage
Age of child	6-11	104	42.8
	12-17	78	32.1
	18-23	61	25.1
Mother/care giver education	no formula educ	23	9.5
	Grade 1-8	98	40.3
	Grade 9-12	69	28.4
	Diploma & above	53	21.8
Mother/care giver occupation	day labour	9	3.7
	Trade	14	5.8
	Employee	43	17.7
	House wife	173	71.2
	Other	4	1.6
Husband education	no formal	3	1.2
	Grade 1-8	73	30
	Grade 9-12	88	36.2
	Diploma & above	69	28.4
Income	0-999	36	14.8
	1000-1999	58	23.9
	2000-2999	57	23.5
	>= 3000	92	37.9

4.2. Obstetrics and health care related variables

Almost all mothers 242 (99.6%) had ANC follow up history. Concerning delivery place, 98.3% mothers were delivered at health institutions. Those who had postnatal follow up were 75%.

Table 2: Obstetrics and health service related variables of mothers/care givers of who had children of age 6-23 months at Kolfe Keranio, sub city Addis Ababa, 2017

Variables	Categories	Frequency	Percentage
ANC	No	1	0.4
	Yes	242	99.64
Place of delivery	Home	4	1.6
	Hospital	72	29.6
	Health center	167	68.7
PNC	No	61	25.1
	Yes	182	74.9

4.3. Complementary Feeding practice

Majority of mothers (84.8%) initiated complementary feeding at 6 month (i.e. timely initiation of complementary feeding) and 6.6% (14) after 6 months. Only 27.6% mothers offered four or more food groups to their child meeting the minimum dietary diversity criteria on the day preceding the study. About 85.2 %(207) mothers, fed their child more than two times a day.

Among the respondents 21.8%, (53/243) of mothers/care givers practiced the minimum acceptable diet.

In general, the overall prevalence of appropriate complementary feeding practice in the study area was 18.5%.

Among mothers who initiated complementary feeding early, 77.3% (17/22) respondents indicated insufficient breast milk as their main reason and 18% (4/22) indicated lack of time to prepare complementary foods. On the other hand, lack of knowledge 58.3%, and community influence 33.3%were the major reasons given by respondent for late initiation of complementary food.3

Majority of study participants 66.7 %(162) feed their child based on program. About 82.3% (200) of children were fed complementary food by biological mothers and spoon feeding (51.4%) was the major feeding method.

Among the study subjects, 56% used four and more food items, whereas 44 %(107) less than four food groups to prepare complementary foods. Twenty eight percent did not fed meat for the children during fasting period and the two major reasons were religion and lack of knowledge (26% each). In addition, 11.5 % did not have the skill to prepare complementary food containing both meat and plant products.

Regarding texture of foods, 42.4% prepare food-thin like gruel, 45.7% food- thick like porridge and 11.9% solid foods were given by the mothers and care givers of the child. About 206(84.8%) study participants used factory foods, of which 59.3% (144) was cereal based, 20.6% powder milk and 17.7% fruit based foods.

Table 3: Complementary feeding practice of mothers/care givers of who had children of age 6-23 months at Kolfe Keranio, sub city Addis Ababa, 2017

Variables	Category	Frequency	Percent
Age of starting CF	Before 6 month	21	8.6
	At 6 month	207	85.2
	Later 6 month	14	6.6
Currently breastfed	Yes	221	90.9
	No	22	9.1
Timely CF	Yes	207	85.2
	No	36	14.8
Minimum dietary diversity	Yes	67	27.57
	No	176	72.4
Minimum meal frequency	Yes	207	85.2
	No	36	14.8
Minimum acceptable diet	Yes	53	21.8
	No	190	78.2
Appropriate complementary feeding	Yes	45	18.5
	No	198	81.5

Table 4 below presents the seven food groups recommended by the WHO. In this study, dairy products 186(76%) and legumes and nuts 178(72.3%), followed by grains, roots and tubers were the most common food items consumed by children while flesh foods 82(33.3%) and other fruits and vegetables 39 (21%) were less offered by children in this study area. The proportion of food items consumed by children is uniformly decreased with age of child. The result shows that the proportion of children offered different food

groups is low in age group of 18-23 children as compared those children age group of 6-11 months age.

Table 4: Types of food groups offered by children 6-23 months age at Kolfe Keranio, sub city Addis Ababa, 2017

Food groups	Proportion of children who were offered food items according to their age category			
	6-11months (n=105)	12-17months (n=77)	18-23 months (n=61)	6-23months (n=243)
	Yes (%)	Yes (%)	Yes (%)	Yes (%)
Grain , root and tubers	65(62)	47(61)	45(74)	157(65.7)
Legumes and nuts	53(69)	42(69)	178(72.3)	83(79)
Dairy products	82(78)	62(81)	42(69)	186(76)
Vitamin A rich foods	53(51)	35(45)	27(44)	115(46.67)
Other fruits and vegetables	17(16)	15(19)	7(11)	39(21)
Flesh foods	36(34)	25(32)	21(34)	82(33.3)
Egg	55(52)	46(60)	33(54)	134(53)

4.4. Factors Associated with Appropriate Complementary Feeding Practice

Variables having P. value less than 0.2 in bivariate analyses were re-entered in to multivariate analysis to control for possible potential confounders. In multiple logistic regressions, three variables were found to be significantly associated with appropriate complementary feeding. Those variables which were significantly associated with

appropriate complementary feeding practice in multiple logistic regressions were child's age, method of feeding and texture of food.

Mothers/care givers of children 6-11 months were 86.9 %times less likely to be fed appropriately than those with age group 18-23 months[AOR=.131;95%CI:(0.272 1.735)]. Besides, mothers who practiced spoon feeding were 3.466 times [AOR=3.466; 95%CI:(1.548 7.759)] and bottle feeding 3.535times [AOR=3.535; 95%CI:(1.013 12.339)] were more likely to practice appropriate complementary feeding than those who practice combination of the three methods. The other significant associations were texture of the food. Mothers/care givers who provided solid foods were 91% [AOR= .090; 95%CI:(0.014 .561)] less risk to practice appropriate complementary feeding than those who fed thin like gruel complementary food.

Table 5: Bivariate and multivariate logistic regression output showing factors associated with appropriate complementary feeding practice among mothers/care givers of children age 6-23 months at Kolfe Keranio sub city, Addis Ababa, 2017

Variables	Complementary feeding		COR[95% CI]	AOR[95%CI]
	Appropriate N(%)	Inappropriate N(%)		
Method of feeding				
Spoon	17(33.3)	108(56.2)	2.562(1.284 5.11)	3.466(1.548 7.759)
Hand	4(7.8)	1(0.5)	0.101(0.011 0.947)	0.063(0.066 0.630)
Bottle	5(9.8)	21(10.9)	1.694(.575 4.988)	3.535(1.013 12.339)
Combination	25(49.0)	62(32.3)	1	1
Texture				
Thin like gruel	19(37.3)	84(43.8)	1	1
Thick like porridge	30(58.8)	81(42.2)	0.611(0.319 1.171)	0.162(0.025 1.033)
Solid foods	2(3.9)	27(14.1)	3.054(0.668 13.964)	0.090(0.014 0.561)
Age of child (months)				
6-11	13(28.9)	91(46)	1	1
12-17	12(26.7)	66(33.3)	1.273(0.546 2.966)	0.687(0.272 1.735)
18-23	20(44.4)	41(20.7)	3.415(1.550 7.521)	0.131(0.053 0.327)
Source of Information for CF				
Health workers	27(52.9)	96(50.0)	0.209(.027 1.643)	
Mass media	7(13.7)	36(18.8)	0.303(.034 2.658)	
Peers	10(19.6)	28(14.6)	0.165(.019 1.403)	
Relatives	6(11.8)	15(7.8)	0.147 (.016 1.365)	
Others	1(2)	17(8.9)	1	
Feeding time				
Programmed	24(53.3)	138(69.7)	1	
Demand	21(46.7)	60(30.3)	0.497(0.257 0.961)	

5. DISCUSSION

This study was attempted to quantify appropriate complementary feeding using a composite indicator comprising three of the WHO recommended core IYCF indicators. It also investigated factors associated with appropriate complementary feeding.

The overall prevalence of appropriate complementary feeding practice in this study area was 18.5%. This was similar with a study done in Northern Ghana (14.3%) but higher than in Northern Ethiopia (10.75%) (Ergib et al., 2014) and Southern Ethiopia (9.5%) (Tigist et al., 2015). However the prevalence obtained in our study was lower than that reported in Enemay district, Northwest Ethiopia (40.5%) (Dessalew et al., 2014).

The study also showed that 85.2% of mothers/care givers initiated complementary feeding at 6 month which coincides with the WHO recommendation for good practice (80–94 %) of timely initiation. Our result was also higher than studies in Bangladesh 71% (Saleh et al., 2014), India 55%(Khan et al., 2013) , and Nigeria 41% (Ogunlesi et al., 2015), also from Ethiopia national prevalence (51%) and in the different parts of the country (ranges between 52.6-72.5%) - in Southern(Tigist et al., 2015),Northwest (Dessaiew, 2014),Eastern (Agumasie et al.,2014), Northern (Mekelle) (Ashenafi et al., 2011), Northeast (Wondimu et al., 2015) and North (Axum) (Samson et al., 2013).

The prevalence of minimum acceptable diet, a combination of minimum meal frequency and minimum dietary diversity, in this study was 21.8%. This was lower than in Northern

Ghana (25.2%) (Mahama et al., 2013).It was higher to the national prevalence (4.2 %) (EDHS, 2011) as well as in Northern Ethiopia (11.9%)(Ergib et al., 2014), and in Southern Ethiopia 12.3 %   (Tigist et al., 2015). However, this finding is lower than studies conducted in Sri Lanka (68 %) (Senarrath et al., 2012a), Bangladesh (40 %) (Iqbal et al., 2012) and Nepal (32 %) (Nira et al., 2012).

The prevalence of minimum dietary diversity in the current study was 27.6%. However, the current finding was lower to other similar studies done such as in Northern Ghana (35.6 %)(Mahama et al., 2013) , 32.58% in Tanzania (Victor et al., 2012), 34% in Nepal (Nira et al., 2012) , 71.1% in Siri Lanka (Senarrath et al.,2012a) and 41.9% in Bangladesh (Iqbal et al., 2012). However, our finding was higher than other studies conducted in other parts of Ethiopia- 19 % in Southern Ethiopia (Tigist et al., 2015), 17.8% and8.5% in Northern Ethiopia (Ergib et al., 2014),(Ashenafi et al., 2011), 12.4% in Northeast Ethiopia, (Wondimu et al., 2015).This might be due to the m,.fact that the current study was conducted in urban area where there is a better access to healthcare services and better maternal literacy compared to other study areas.

The current study found 85.2%of respondents practiced the minimum meal frequency. This finding was similar to studies conducted in Sri Lanka (88.3 %) (Senarrath et al., 2012a), Bangladesh (81 %) (Iqbal et al., 2012), Nepal (82 %) (Nira et al.,2012), and Derashe in Southern Ethiopia (95 %) (Wondafrash et al., 2012). This might be as a result of social, cultural and educational differences existed between the current study and others. The result of our study was higher to studies in Northern Ghana (57.3%) (Mahama et al., 2013). Likewise in Southern Ethiopia (67.3%) (Tigist et al., 2015), Northeast Ethiopia, (45.1%) (Wondimu et al., 2015) , in Northern Ethiopia (40%) (Ergib

et al., 2014). Furthermore, the higher figure observed in this study may be due to current expansion of HEWs in the study area that focused on antenatal, postnatal and child care education which in turn increases maternal exposure to healthcare workers so that increases their practices.

Child age was found to be a predictor variable as older children (18–23 months) were about 86.9 % times more likely to be fed appropriately compared with younger children (6–11 months). Similarly, studies conducted in five Asian countries (Senarath et al., 2012b) and Tanzania (Victor et al., 2012) and Northern part of Ethiopia (Ergib et al., 2014) reported child age as a predictor variable. This might be due to the misunderstanding of mothers that young children could not be able to digest different forms of foods. This could give an opportunity for the health program planners to pay more attention to the feeding of younger children.

Another important determinant factor associated with appropriate complementary feeding practices were texture of the food. Mothers/care givers who provided solid foods were 91% times more likely to practice appropriate complementary feeding than those who fed complementary food with gruel texture.

This study revealed that there was no association between maternal educational levels with complementary feeding practices. The lack of association   may be attributed to the little variation of these variables in the study sample. In other studies, higher maternal education attainment was reported to associate positively with appropriate complementary feeding (Ashenafi et al., 2011),(Wondimu et al., 2015), (Mahama et al., 2013).

6. LIMITATIONS OF THE STUDY

Like other observational studies, this study has some limitations. The cross sectional nature of the study prevents it from making causal inference.

Another limitation related to the four infant feeding practices included in this study is the quality and amount of food given. Although the definition of the indicators deals with the variety and frequency of food, it does not take account of the quality and amount of food provided. For instance, a child who has been provided all four recommended infant feedings criteria might still not have a nutritionally adequate diet.

7. CONCLUSION AND RECOMMENDATION

7.1. Conclusion

In conclusion, the overall prevalence of appropriate complementary feeding practices in the study areas was low. This is an indication that appropriate complementary feeding by mothers/ caregivers remains a challenge for most households. Almost 80% of mothers were not feeding complementary foods appropriately considering, timely introduction, minimum dietary diversity, minimum meal frequency and minimum acceptable diet, which would have negative implication on the health of infants and young children. Age of the child, especially lower age method of feeding, and texture of complementary food, were factors that affect appropriate complementary feeding practice.

7.2. Recommendation

It is important to evaluate the effectiveness, approaches and coverage of nutrition interventions being implemented to promote complementary feeding practice.

The prevalence of appropriate complementary feeding practice including minimum dietary diversity and minimum acceptable diet was very low in this study area, therefore it is important to:

Training should be given on appropriate complementary feeding practice for all health workers especially on minimum dietary diversity.

Also, maternal health service outlets should be used to transmit child feeding information and hence, proper counseling on an appropriate complementary feeding practice should be given to mothers/caregivers by health workers.

Community based study may provide better picture of appropriate complementary feeding practice in the study area.

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9. ANNEXES

Bahir Dar University, Bahir Dar Institute of Technology Faculty of

Chemical and Food Engineering Department of Applied Human Nutrition

Questionnaire prepared to assess magnitude and associated factors of appropriate complementary feeding practice among mothers of children aged 6-23 months in selected Kolfe Keranio Sub city, Addis Ababa

Section 01: Survey General Information

QUESTIONIARE FOR MOTHERS/PRIMARY CAREGIVERS OF CHILDREN 6-23 MONTHS OLD

Section 01: General Information

Interviewer Name & Signature --   --------------------

Supervisor Name & Signature------------------------------------   ------------------

INTRODUCTION AND CONSENT FORM

Annex I Verbal informed conent

Information and Consent

Dear respondent

Good morning/Good afternoon. Thank you for your interest to talk with me today. I am _Tesfamichael Demissie Who is a student of MSc by Applied Human Nutrition in Bahir Dar University. I study on   "Magnitude and associated factors of appropriate complementary feeding practice among mothers of children aged 6-23 months in selected Kolfe Keranio Sub city, Addis Ababa.The purpose of my interview is to take information from you on the aforementioned issue. If you are willing to participate in the study, I will ask you few questions for 10-15 minutes. Your name will not be written on this form and will never be used in connection with any of your information. You do not have to answer any question that you are not comfortable with, and you may end this task at any time you want to. However, your honest answers to these

questions will help us in better understanding of the child feeding practice in your locality, and will eventually help in designing and implementing appropriate interventions to alleviate related problems. Hence, I greatly appreciate your participation in the study.

Problems connected with the study: There is no risk to your child, and he/she would not experience any discomfort at all.

Benefit of the study : Personally you will not get any benefit from the study but your views during the study may provide information that benefits others.

Involvement compensation: By involving in the study you wouldn't get any payment

Confidentiality

No matter what information you provide will be kept strictly confidential In the questionnaire format we will use your code than your name. Also, no identifying information about you or your name will be kept with the study responses. Similarly, when the study finding is communicated or published none of the information's that may identifies you or your name will not be used. Any information that may identify you will keep out of the questionnaire and your views will be kept in secrecy to be used by researchers to organize the study result.

Interruption of voluntary participation Participation in this survey is completely voluntary and you can chose not to talk with me, not to answer any/all the questions or command me to leave your home. You may stop participation at any time. There is no right or wrong answer for the questions I will ask you during the interview, what we need is to know your view and experience. Even you can make your views not included in the study after the interview is completed. Any service from alive and thrive are by no means affected or decided by your participation or rejection not to participate in this study.

Responsible person of the study:

- If you have any questions about the study I am ready to respond.

- Do you have any questions about the study? Please let me know if anything I have stated is not clear and I will be happy to explain it further to ensure you understand.

_____   _____   _____

Witness Signature (if only the participant unable to write)   Date   Time

Are you willing to participate in the study?

 Yes_____   No_____

After the participant verbal consent is taken   confirm by check box

_____   _____   _____

Signature of a person who take the consent   Date   Time

_____

Name of a person who take the consent

Interviewee Code _____

AnnexII: Questionnaire (English Version)

Section 02: Background information about the mother/primary caregiver and socio-economic information about the household

01 .Who is mainly responsible for child? Mother(01)   Grand-mother(02)   Sister(03) Servant(04)

02. What is your religion?   Orthodox Christian (01)   Protestant (02)   Muslim   (03) Non-believer (04)   Other (specify) _____ (05)

03.What is your ethnicity?   Oromo (01)   Amhara(02)   Gurage(03)   Others (specify)_____(04)

04. How old are you? (Age in completed years)_____

05. What is your current marital status?   Married/Living together(01)   Single (02)

Widowed (03)

Divorced (04)   Separated (05)

06.How many Family members are there in your Home? _____

07.How many under five children are found in   your house? _____

08.Birth order _____ If the 1st child skip to Q10

09. If the child is not the first for you; In what birth interval (year) do you give the child

birth?

10. What is the sex of child? Male(01)   Female(02)

11. What is the age of child?   _____

12. What is your highest educational status?   No formal education (01)   Grade $1 - 8$(02)

   Grade $9 - 12$(03)   Diploma and above (04)

13. What is your occupation? Farmer/Agricultural worker (01)   Daily laborer (02)

    Trader (03)   employee (04)   House wife (05)   other (specify) _____ (06)

14. What is the occupation of your Husband?   Farmer/ Agricultural worker (01)

employee (02)

    Daily laborer (03)   Trader (04)   Other (specify) _____ (05)

15.Husband educational status   No formal education (01)   Grade $1 - 8$(02)

            Grade $9 -$ 12(03)   Diploma and above(04)

16.How much is your Monthly Income of the household?(in Eth. Birr)?   0-999(01)

    1000-1999(02)   2000-2999(03)   >3000(04)

Section 3: Health service related questioner

17.Did you visit health facility for ANC during your pregnancy for this child? Yes(01)

>Q18   No(02)

18.If your answer is **yes** to Question**No**17, how many times did you receive(number of

antenatal care) during your time of pregnancy for this child? -----------------------

19.Where did you gave birth to this child /Place of delivery/ ?   Home(01)   Hospital(02)

   Health Center(03)   Other (specify)(04)

20.Have you received post natal care within the first 7 days?   Yes(01)   No(02)

Section 04: knowledge based questionnaire

21Did you get health education on complementary feeding at any of your visit? Yes(01)

>Q22   No(02)

22. If your answer is yes to Q-21 What was the information that you acquired during your

visit(more than one answer is possible   To start complementary food alongside breast

milk at 6 month(01)   The type and diversity of food to give the child(02)   The

consistence of the food(03)

 The amount and frequency of feeding(04) The safety and hygiene of complementary

foods(05)

 How to feed your child actively (06) To continue breast feeding till two Years (07) To

Continue

feeding during illness and feed more after illness(08) others(specify)-----------------------

(09)

23. Did you receive advice on CF when immunizing your child? Yes(01)   No(02)

24. What is the source of nutrition information about complementary feeding for your child?

Health professional(01)   Mass media(02) >Q25 Per-group(03)   Health development arm(04)

25.If your answer is mass media, which one? Radio(01) Television(02) Newspaper(03)

   Internet access(04)

Section 05: practice based questionnaire

26.Have you started complementary foods for your child? Yes   (01) >31   No(02) >Q30

27.At what age did you start giving him/her these foods? < 6 month(01) >Q28   at 6 month(02) after 6 month(03) >Q 29

28.Why you start before (early) of six month? Due to my occupation outside, I haven't time to give breast milk(01)

Due to insufficient of breast milk(02)

Due to community influence (03)

Due to existence of large family in house.(04)

Due to lack of knowledge/information on time of initiation (05)

Medical and breast illness(06)

29.If she response, after six month ask why she start late? Due to lack of financial (01)

Due to lack of food in house(02)

Due to lack of knowledge on when infant / child start complementary feed (03)

Due to community influence(04)

30.What was the reason for not giving additional foods at six month?(Ask, If the respondent response after six month) Mothers felt breast milk alone was sufficient(01)

Mother think child is young to start(02)

Mother think that the child may be chocked (03)

Others(specify)(04)

31.If your answer is yes on question **No**26, what was the additional food or fluid that you gave in the past 24 hour? Cow's milk (01) Sugar solution.(02) Formula milk(03) Porridge(04)

  Injera   with   wot(05)   fruit   and   vegetable   porridge(06)   Other (specify)_____(07)

32.How many times in a day do you feed the child additional food or fluid other than milk?   _____ Times

33.How do you feed the complementary food to your child? Based on schedule (01)

Based on demand (02)

34.If the response on Demand, what is the possible reason not to gives by schedule? Cultural(01)

Lack of time (02) Lack of knowledge(03) Lack of caregiver(04)   Health problem (05)

35.Who will give complementary feeding for child? Caregiver (01) Husband(02)

Grandmother(03)   mother (04)

36.What method do you use for feeding? Spoon(01)   Hand(02)   Bottle(03) Combination of   above(04)

37.What are the main sources of complementary food for your child? Cereals (01) Pulse(02)

  cereal and pulse(03)   cereal, pulse and nuts(04)   cereals, pulse, nuts and dairy product(04)

Root and tubers(05)   Egg (05)   Meat (06)   Others(07)

38.Can you feed complementary food prepared from animal product mix with plant product during fasting? Yes (01)   No (02) >Q39

39.If not prepare what is the main reason, do not prepare it? Due to religion(01)   Due to cultural   reason (02)   Due to contamination of material(03)   Due to lack of knowledge (04)There is no   budget, only for child (05)

40.Can you prepare complementary foods from both meat and plant products? Yes(01) >Q41 No(02)

41.By which form/texture) you prepare it? Thin like gruel(01)   Thick like porridge (02) Solid foods(03)

42. Does the child on breast feeding?   Yes(01)   No(02)

43.Do you use factory food as complementary feeding? yes (01) >Q43 no(02)

44.If yes, which type of processed food used as complementary feeding? powder milk(01)

  pasteurized milk (02)   cereal based(03)   fruit based (mango juice etc.) (04)

That is the end of our questionnaire.

Thank you very much for your participation and time

Annex III Amharic version consent form

01.ለህፃኑ/ ዋና ሃላፊ ማን ነው እናት(01) ሴት አያት(02)   እህት(03)   የቤት ሰራተኛ(04)

02.ሃየማኖትዎ ምንድን ነው ኦርቶዶክስ ክርሲትያን(01)   ፕሮቴስታንት (02)   ሙስሊም (03) እምነት የለኝም (04) ሌላ(የጠቀስ)------------------(05)

03. ብሄርዎት ምንድነው   ኦሮሞ(01) አማራ(02) ጉራጌ(03) ሌላ(የጠቀስ)------------------(04)

04.እድሜዎት ስንት ነው (በአመት ይገለፅ) ---------

05.የጋብቻዎት ሁኔታ ያገባ(01)   ያላገባ(02)   የሞተበት(03)   የፈታ(04)   የተለያየ(05)

06.የቤተሰብዎ ብዛት ስንት ነው   --------------------------

07.በቤትዎ እድሚያቸው ከአምስት አመት በታች የሆነ ስንት ልጆች አሉ   -------------

08.ይህ ልጅ ስንተኛ ልጅዎት ነው ----------- (የመጀመርያ ልጅ ከሆነ 09 ጥየቄ የዘለል)

09.ከዚህ በፊት ከተወለደው/ችው ልጅ ከምን ያህል ግዜ በሁላ ነው ይህኛው የተወለደው----------

10.ልጁ ፆታው ምንድን ነው   ወንድ(01)   ሴት(02)

11.የልጁ እድሜው ስንት ነው   -----------------

12.የትምህርት ደረጃዎት ስንት ነው   ምንም መደበኛ ትምህርት አልተማርኩም(01)   ከ1-8ክፍል(02)   ከ9-12(03)   ዲፕሎማና ከዛ በላይ(04)

13.ስራሽ ምንድን ነው ?   ገበሬ(01)   የቀን ሰራተኛ (02)   ነጋዴ(03)

ተቀጣሪ(04)   የቤት እመቤት(05)   ሌላ (ይገለፅ)--------------------(06)

14.የባለቤትሽ ስራ ምንድን ነው   ገበሬ(01)   የቀን ሰራተኛ(02)   ነጋዴ(03)   ተቀጣሪ(04)   ሌላ (ይገላፅ)

15. የባለቤትሽ የትምህርት ደረጃ መደበኛ ትምህርት ያልተማር(01)   ከ1-8ክፍል(02) ከ9-12ክፍል(03)
ዲፕሎማና ከዘበላይ(04)

16.የቤተሰብሽ ወራሃዊ ገቢ ምንያህል ነው (በብር)   0-999(01)   1000-1999(02) 2000-2999(03)
ከ3000በላይ(04)

ክፍል03፡ ከጤና አግልግሎት አጠቃቀም ጋር የተያያዙ ጥያቄዎች

17.ነፍሰጡር በነበርሽበት ወቅት ለፅንሱ የእርግዝና ክትትል ታደርጊ ነበር አዎ(01)   ወደ ጥ18
አይደለም(02)

18.ለጥያቄ 17 አዎ ከሆነ መልስዎ ምን ያህል ግዜ የነፍሰጡር ክትትል አካሂደዋል   ------------

19. የህ ልጁ የት ነበር የተወለደው   ቤት(01)   ሆስፒታል(02)   ጤና ጣቢያ(03)   ሌላ(ይጠቀስ)------------

20.ከወለዱ በሁላ በሰባት ቀናት ውስጥ የደህረ ወሊድ ክትትል አድርገዋል   አዎ(01)   አይደለም(02)

ክፍል04፡የግንዛቤ(እውቀት) ጥያቄዎች

21.በህክምና ተቋሙ ውስጥ ስለ ተጨማሪ የህፃናት ምግብ አመጋገብ ትምህርት አግኝተው ያውቃሉ   አዎ(01)

ወደ ጥያቄ 22   አይደለም(02)

22.ለ21ው ጥያቄ አዎ ከሆነ መልስዎ በህክምናው ጣቢያው ውስጥ ስለ ተጨማሪ የህፃናት ምግብ አመጋገብ

ትምህርት ያገኙትስለምን ነበር (ከ 1 በላይ መልስ ይቻላል) ተጨማሪ የህፃናት ምግብ ከቱት ማጥባት ጋር በ6 ወር

መጀመር(01) የሚሰጡ ተጨመሪ ምግቦች አይነቶችና ስብጥር(02) ስለሚሰጠው የምግብ መጠንና ምን ያህል

ግዜ በቀን እንደሚሰጥ(03) ስለተጨማሪ ምግብ አዘገጃጀትና አመጋገብ መደረድ ስለሚገባው ንፅህናና

ጥንቃቄ/ደህንነት(04)   ልጅዎን እንዴት እያዩት በአግባቡ ስለመመገብ (05) ስለቱት እስከ 2 አመት ማጥባት

(06) ልጆዎት ሲታመም መመገብ መቀጠል እንዳለበትና ከዳነ በሁላ የበለጠ ተጨማሪ ስለመመገብ(07)

ሌላ(የእግለፁ)--(08)

23.ልጅዎን ሲያስከትቡ ስለተጨማሪ ምግብ ለልጅ ተነገሮዎት የወቃል አዎ(01) አይደለም(02)

24. ስለ ተጨማሪ የህፃናት ምግብ አመጋገብ መረጃ ያገኙሸው ከማን ነው የጤና ባለሙያ (01) ሚዲያ(ራዲዮ

ቲቪ…)(02) ወደ ጥ25

 ከአቻ (ከጋደኛ)(03) ከሌላ(የጠቀስ)--------------------(04)

25.ለጥያቄ24 ማስሚድያ ከሆነ የትኛው ነው ራዲዮ(01)   ቲቪ(02)   ጋዜጣ(03) ኢንተርኔት(04)

ሌላ(ይገለፅ)-----------------(05)

ክፍል05፡ተግባር ተኮር ጥያቄዎች

26.ተጨማሪ ምግብ ለልጅዎ መመገብ ጀምረዋል   አዎ(01) ወደ ጥያቄ (31)   አየደለም(02) ወደ ጥያቄ (30)

27. .ተጨማሪ ምግብ ለልጅዎ መመገብ መቼ ጀምሩለት   ከ6ወሩ በፊት(01)   ወደ ጥያቄ28   በ6ወሩ(02)

ከ6ወሩ በሁላ(03)ወደ ጥያቄ29

28.ከ6 ወሩ በፊት ለምን ተጨመሪ ምግብ እንዲጀምር አደረገት በስራ በሀርዬ ምክንያት ለማጥባት ግዜ

ስለሌለኝ(01) የቱት ወተት በቂ ስላልሆነ(02)   በማህበረሰቡ ተፅእኖ(03) የቤተሰቤ ብዛት ብዙ ስለሆነ(04)

በስድስት ወሩ ልጅ ተጨማሪ ምግብ መጀመር እንዳለበት እወቀት ወይም መረጃ አለመኖር (05) በቱት

ህመምና በህክምና ምክንያት(06)

57

29.ከ6 ወራት በሆላ ተጨማሪ ምግብ ለልጅዎ መመገብ የጀመሩብት ምክንያት   በገንዘብ እጦት(01)   በቤት ውስጥ ምግብ እጥረት ስላላ(02)   መቼ ተጨማሪ ምግብ ልጅ መጀመር እንዳለበት ስለማላውቅ(03) በማህበረሰቡ ተፅእኖ(04)

30.ለምን ነበር ተጨማሪ ምግብ ልክ በ6ወሩ ያላስጀመርሽው(ከ6 ወራት በሁላ ለጀመሩ) የጡት ወተት በቂ ነው በሚል(01)   ለተጨማሪ ምግብ እድሜው አልደረሰም በሚል(02)   ትን ይለዋል በሚል(03) ሌላ ምክንያት(ይገለፅ)-----------(08)

31.ለ26 ጥያቄ አዎ ከሆነ፡፡ምን አይነት ምግብ ወይም ፈሳሽ ምግብ ነበር ባለፈው 24 ሰአት ውስጥ የመገብሽው የላም ወተት(01)   ስኳር ያለው ውሀ(02)   የቆርቆሮ ወተት(ፎርሙላ ወተት)(03)   ገንፎ(04)   እንጀራ በወጥ(05) አታክልትና ፍራፍሬ ገንፎ(06)

ሌላ(ይገለፅ)------------------------(07)

32.ከወተት ውጪ ተጨማሪ ምግብ ወይም ፈሳሽ በቀን(ባለፈው 24 ሰአት)ምን ያህል ግዜ ተመግቧል/ተመግባለች........

33.በምን መልክ ነው ህፃኑን የሚመግቡት በፕሮግራም(01)   ልጁ መመገብ ሲፈልግ(02)

34. ልጁ መመገብ ሲፈልግ ከሆነ በፕሮግራም ላለመገብ ምክንያቱ ምንድን ነው   ባህል(01)   ግዜ ስለሌለኝ(02) እውቀት ስላልነበረኝ(03)   ልጁን ተንከባካቢ ሰራተኛ ስለሌለኝ(04)   የጤና ችግር ስላለብኝ(05)

35. ተጨማሪ ምግቡን ለልጁ ማን ነው የሚመግበው   ተንከባካቢ ሰራተኛ(01)   ባለቤቴ(02)   ሴት አያት(03) ወላጅ እናት(04)

36.በምን መንገድ ነው ህፃኑ የሚመገበው   በማንኪያ(01)   በእጅ(02)   በጡጦ(03) 3ቱንም በመጠቀም(04)

37.የተጨማሪ ምግቦቹ የያዙት ዋናዎቹ የምግብ አይነቶች የትኞቹ ናቸው   ጥራጥሬ(01) የቅባት እህል(02) ጥራጥሬና የቅባት እህል(03)   ጥራጥሬ የቅባት እህል ና ለውዝ(04)   ጥራጥሬ የቅባት እህል ለውዝ ና የወተት ተዋጽዖ(05)   ስራስር እንደ ካሮት ናከብ ስር ያላቸው እንደ ቀይ ስር(06)   እንቁላሎች(07)   ስጋ(08) ሌሎች(09)

38. በጾም ወቅት የስጋና የእፅዋት ተዋፅአ የተቀላቀለ ተጨማሪ ምግብ ለልጆችሽ ትመግቢዋለሽ አዎ(01) አይደለም(02) ወደ ጥያቄ 39. በጾም ወቅት የስጋና የእፅዋት ተዋፅአ የተቀላቀለ ተጨማሪ ምግብ ለልጆችሽ የማታዘጋጅበት ምክንያት ምንድን ነው በሃይማኖት ምክንያት(01) በባህል ምክንያት(02) እቃዎች ይነካካሉ በሚል(03) ባለማወቅ(04) ለህፃኑ ብቻ የሚሆን ቤጀት ወይም ገንዘብ ስለሌለ(05)

40. የስጋና የእፅዋት ተዋፅአ የተቀላቀለ ተጨማሪ ምግብ ለልጆችሽ ማዘጋጀት ትችያለሽ አዎ(01) አይደለም(02) ወደ ጥያቄ 41

41. በየትኛው መልክ ነው ማዘጋጀት የምትችይው በቀጭን አጥሚት መልክ(01) እንደ ገንፎ ወፍራም(02) ጠጣር ምግብ(03)

42. ህጻኑ/ዋ ጡት አየጠባ/ች ነው አዎ(01) አይደለም(02)

43.በተጨማሪ ምግብነት ለልጆችሽ .የፋፍብሪካ ምግብ ትጠቀሚያለሽ አዎ(01) አይደለም(02) ወደ ጥያቄ 43

44.ለ42ኛው ጥያቄ አዎ ከሆነ የትኛውን የተዘጋጀ ተጨማሪ ምግብ ነው የምትሰጭው ዱቄት ወተት(01) ፓስተራይዝድ ወተት(02) ከጥራጥሬ የተዘጋጀ(03) ከፍራፍሬ የተዘጋጀ(እንደ ማነጎ ወዘተ)(04)

ጥያቄው አብቅቶል

እጅግ በጣም አመሰግናለሁ ላደረጉልኝ ትብብርና ለግዜዎት