

## Complementary Feeding Practice and Associated Factors among Mothers of Children 6-23 Months of Age in Dejene District, Northwest, Ethiopia 2015

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### Abstract

**Background:** Infant and child feeding practices are the major determinants of nutritional status. The period of complementary feeding is the time of peak incidence of growth faltering, micronutrient deficiencies and infectious illnesses. The aim this study was to assess timely initiation complementary feeding and associated factors of mothers of children 6-23 months of age in Dejen District, Northwest Ethiopia 2015.

**Methods:** Community based cross-sectional study design was adopted on 558 mothers who randomly selected from eight kebeles based on population proportion. The data was collected using pretested structured questionnaire through face-to-face interview in July 2015. The collected data was entered and analyzed in to SPSS windows version 20.0. The analysis part contains descriptive and inferential statistics. Bivariate and multiple variable logistic regression analysis computed. A P-value <0.05 was considered to declare a result as statistically significant in this study.

**Result:** Out of 558 respondents, 380(68.1%) in 20-34 years age range and 312(55.9%) children in 12-23 months range of age. More than half of 209(52%) respondents were started complementary feeding timely. Use minimum dietary diversity and minimum meal frequency were 42.1% and 45.7% respectively. In multivariate analysis, respondents' higher level of awareness (AOR=3.08; 95%CI: 1.93-4.90), getting information from health care providers (AOR=2.82; 95%CI: 1.23-6.45), less frequently feeding (AOR=20%; 95%CI: 0.007-0.054) and minimum diet diversity (AOR=14%; 95%CI: 0.05-0.35) were associated with timely introducing complementary feeding. Reasons for not early initiation for complementary feeding was 447(80.1%) lack of knowledge, 39(7%) perceived insufficient breast milk production, working outdoor activities and 10(1.8%) child's illness.

**Conclusion:** The proportions of mothers who initiate timely complimentary feeding, acceptable meal frequency, and dietary diversity were found to be low. Level of awareness, getting information, less frequently feeding and minimum diet diversity were associated variables. Maternal health care utilization and health information should be strengthening to all expectant mothers.

**Keywords:** Children; Optimum; Complementary feeding practice; Breast feeding

**Abbreviations** AOR: Adjusted Odds Ratio; OCP: Optimal Complementary Feeding Practice; EDHS: Ethiopian Demographic and Health Survey

### Introduction

An appropriate diet is a critical component for proper growth and development of children [1,2]. The first two years of life are a critical window for ensuring optimal child growth and development [3]. Nutritional deficiencies during this period can lead to impaired cognitive development, compromised educational achievement and low economic productivity which become difficult to reverse later in life [3,4]. Improving infant and young child feeding practices in children 0-23 months of age is therefore critical to improved nutrition, health and development [5].

Scientific evidence indicates that inappropriate feeding practices can have profound consequences for the growth, development and survival of infants and children. Various inappropriate complementary feeding practices such as; untimely introduction of complementary food, improper feeding frequency and low dietary diversity of complementary foods have been shown to have numerous negative effects on children's health [1,6-8]. Appropriate complementary feeding entails; introduction of complementary foods at 6 months with continued breastfeeding up to at least 2 years and beyond, correct feeding frequency for age and consumption of diverse diet [9].

Globally, 50-60% of child deaths are attributable to under-nutrition; a third of these are due to inadequate complementary feeding followed by poor breast feeding practices and too low birth weight. Malnutrition has been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate complementary feeding practices and infectious disease, occur during the first year of life [8,10]. 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 poor optimal breastfeeding and complementary feeding practices [10]. It is estimated that sub-optimal complementary feeding 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 [11]. Early introduction of liquids and solid foods at too early age increases the risk of diarrheal disease and important causes of infants and young children morbidity and mortality in Africa [5,11].

Ethiopia is one of a country with highest infant and child mortality rates in the world. According to Ethiopian demographic and health survey (EDHS) 2011 report, the infant mortality rate was 59/1000 live births and under five mortality rate was 88/1000 live births. Optimal infant and young child feeding practices is the most effective interventions to improve child health [11,12].

## Methods and Materials

Community based cross-sectional study design was adopted on 558 mothers/care givers who randomly selected from eight kebeles based on population proportion. The data was collected using pretested structured questionnaire through face-to-face interview in July 2015. The collected data was entered and cleaned in to epi data and transported to Statistics Package for social sciences (SPSS) windows version 20.0 then analyzed. The analysis part contains descriptive and inferential statistics. Bivariate and multiple variable logistic regression analysis computed to identify factors associated complementary feeding. A P-value <0.05 was considered to declare a result as statistically significant in this study. The study was carried out after getting ethical clearance from Debre Markos University, college of medicine and health sciences, Institutional Research Ethics Review Committee and further permission letter from Dejene district Health Office. Prior to the interview verbal consent was obtained from each respondents. The objective was informed to the study respondents.

## Results

A total of 558 mothers were interviewed from which 308(68.1%) of them were in the age range of 20-34 years. More than half 312(55.9%) of their children's age were in the range of 12-23 months. Most of family 327(58.6%) had more than four family size. A total 471(84.4%) mothers were unemployed and 210(37.6%) had more than four children. More than half 293(52.5%) of mothers were unable to read and write and 480(86%) mothers family average monthly income was less than 1,000 Ethiopian birr (Table 1).

Variable	Frequency (n=558)	Percent (%)
Maternal age in years		
<20	17	3
20-34	380	68.1
35-49	161	28.9
Number of live children		
1-2	152	27.2
3-4	196	35.1
>4	210	37.6
Age of child in months		
6-8	132	23.7

9-11	114	20.4
12-23	312	55.9
Family size		
1-2	34	36.1
3-4	197	35.3
>4	327	58.6
Family average monthly income in ETB		
Less than 1000 birr	480	86
From 1000-1500 birr	54	9.7
Greater than 1500 birr	24	4.3
Mother's current occupation		
Unemployed	471	84.4
Employed	87	15.6

**Table 1:** Socio-demographic characteristics of mothers of children 6-23 months of age in Dejene district, 2015.

## Maternal health care utilization

In this study, 401(71.9%) and 436(78.1%) of the respondents have visited health institution for antenatal care (ANC) and postnatal care (PNC) services for their children respectively. Almost two third 382(68.5%) of mothers gave birth at health institutions and the rest at home. During PNC service attendants were 438(78.5%) have got information about complementary feeding practice from health facility staffs and 120(21.5%) from other sources. Out of the total respondents 427(76.5%) mothers have information about complementary feeding practice. The source of information for 452(81%) mothers were health care providers, 106(19%) mothers were not have information from anybody on Complementary feeding practice. on the other hand 427(76.5%) mothers have sufficient knowledge about optimal complementary feeding practice and 131(23.5%) have insufficient knowledge about CFP .

## Timely initiation of complementary feeding practices

About half 209(52%) mothers introduced complementary foods at six months and above of child age, while 268(48%) earlier to six months of child age. Most of children 425(76.2%) were supplemented with vitamin A and a few mothers 17(3%) practice hand washing habit during feeding their children with soap and water while the rest 541(97%) wash their hand only with water. Majority of 400(70.7%) respondents' family use iodized salts regularly in their food and when to use. The mothers/care givers reasons for not early initiation of complementary foods were 447(80.1%) lack of knowledge on complementary feeding practice, 39(7%) were perceived insufficient breast milk production, 62(11.1%) mothers' working condition/ outdoor activities, 10(1.8%) mothers and child illness.

## Type and dietary diversity of complementary foods

Initiation of complementary food types in the first time, 169(30.3%) of mothers used cow milk, 106(19%) used soup, 216(38.7%) used porridge, 9(1.6%) used "InjeraFitfit", 36(6.5%) used tea/sugar with water/salt with water and 22(3.9%) used other complementary food staffs. Ingredients used to made soup or porridge were 342(61.3%)

grains, 184(33%) were grain and legumes, 2(5.2%) were grains, legumes, livestock by products and 3(0.5%) used four types (grain, legumes, livestock by products and vegetable, fruits) to prepare porridge for child meal. While the density of porridge preparation were 293(52.5%) thick and 265(47.5%) were fluid/mashed. Majority of mothers 499(78.7%) used glass or cup as fluid food feeding materials for their children, and 119(21.3%) of mothers used bottle nipple complementary food.

Variables	Frequency(N=558)	Percentage (%)
Dietary diversification		
Less than four variety food	323	57.9
Four and above variety foods	235	42.1
Minimum meal frequency		
Less than four times	303	53
Four and above times	255	45.7
Minimum meal acceptance		
Less than four times and variety of food	242	43.4
Four and above times and variety	15	2.7
None		
Type of food used first time CFP		
Milk	169	30.3
Tea/sugar/salt	36	6.5
Soup	106	19
Porridge	216	38.7
"Injerafitfit"	9	1.6
Others	22	3.9
Density of porridge preparation		
Thick	293	52.5
Fluid/mashed	265	47.5

**Table 2:** Reason for early initiation of complementary feeding, meal frequency and dietary diversification in 6-23 months of age in Dejene district 2015.

Out of the total respondents, 255(45.7%) applied the minimum standard number of meal frequency of complementary feeding practice and the minimum standard dietary diversity of CFP was only 235(42.1%), while the minimum acceptable diet was 242(43.4%). The overall optimal complementary feeding practices of the respondents were 290(52%). In case of dietary diversity of complementary food

variety were 290(52%) of mothers used grains, roots and tubers, 117(21%) legumes/pulse used, 95(17%) used dairy and livestock byproducts), while only 56(10%) respondents used vegetable and fruits used for meal preparation (Table 2).

## Discussion

In this study, the proportion of mothers who introduce timely complementary feeding at six months was 52%. This finding was lower than WHO recommendation for timely initiation of complementary feeding which is between 80%-94% for good practice of complementary feeding [13]. This finding was also slightly lower than findings at Axum town, Ethiopia and Harar, Ethiopia [14,15]. The possible explanation for this difference could be due to socio demographic, method of the study, time of the study. Mothers who have enough awareness on complementary feeding practice were 2.07 (p=0.03) times more likely than who have less information. This finding was found high as compare to study conducted in Harar, Ethiopia [15]. This difference could be due to socio demographic, health care seeking behavior and access to health care.

The study revealed that those mothers who get information from health care providers were 2.8 times more likely to apply complementary feeding practice when compared with those from other than health professional's sources. This might be due to the fact that nutrition counseling and other services are provided at the antenatal, delivery and postnatal service which can enhance mother's complementary feeding practice. In addition, this could be due to the fact that home deviled mothers would not have sufficient information about recommended child feeding practices and they are more influenced by communities' inappropriate child feeding practices.

The proportion of mothers who practiced four or more meal frequency was 80% more likely to practice complementary feeding practice when compared with less than four times. This study is found to be low as compared to in Ethiopia 49% slightly high in Amhara 66% [12]. The differences occurred due to lack of community awareness, low potential and accessibility of health coverage through time and population differences between this study and Ethiopia as a whole. The other reason was due to lack of integration to implement the infant and young children nutrition with government and nongovernmental organization to work together and to alleviate nutrition problem in this study area.

Mothers who feed their children four or more than four dietary diversity practice were 86% more likely when compared to mothers who feed less than four diet diversity practice. This could be due to deference in socio-economic, knowledge, cultural issues about complementary feeding practice. The possible limitation of this study could be recall-bias during interview of the mothers and did not show temporal relationship with cause (Table 3).

Variables	OFCF Yes	OFCF No	COR(95%CI)	P value	AOR(95%CI)	P value
Mother awareness CFP						
Have information	257	60	2.64(1.80-3.87)	0	2.07(1.04-4.13)	0.03
No information	149	92	1		1	
Source of information CFP						
Health care provider	285	167	3.95(2.50-6.23)	0	2.82(1.23-6.45)	0.001

Media and other persons	32	74	1		1	
Meal frequency						
Less than four times	67	236	0.01(0.10-0.22)	0	0.20(0.007-0.05)	0.000
Four and above times	250	5	1		1	
Dietary diversity						
<4 variety of foods	91	9	0.02(0.01-0.30)	0	0.14(0.05-0.35)	0.000
≥ 4 variety of foods	226	232	1		1	

**Table 3:** Bivariate and multiple variable logistic regression of selected variables with complementary feeding practice, among mothers of children 6-23 months of age in Dejene district, 2015.

## Conclusion

The proportion of mothers who initiate complementary feeding timely was low compared to WHO standards. Mothers' awareness status about complementary feeding practice, getting information from health care providers, provision of children four and more times meal frequency, four or more diet diversity were statistical significant factors for complementary feeding practices. Therefore, current efforts should be strengthened to improve optimal complementary feeding practices by providing strong nutrition counseling utilization during ANC, delivery and institutional delivery.

## Competing Interest

The authors declare they have no competing interests.

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## Authors' Contributions

The authors made an equal contribution to research and development of this manuscript.

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