

# Compliance to Recommended Complementary Feeding and Associated Factors among Mothers of Children Aged 6-23 Months in Meta-Robi, Oro Abulu Waga Dinka1

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## ABSTRACT

### PURPOSE

Children's malnutrition is a major health concern in many developing countries including Ethiopia. Appropriate practices of infant and young child feeding practices including complementary feeding are critically important to improve this problem according to a recommendation by the World health organization. This study aimed to assess complementary feeding practices among mothers and caregivers of children aged 6-23 months in the Meta Robi district.

### METHODS AND FINDING

Community-based cross-sectional study was conducted in Meta Robi district, Oromia region between Februarys and March 2018. Accordingly, a total of 625 mothers of children aged 6 to 23 months were included in the study. The proportion of timely introduction of complementary feeding among children 6-23 months of age was 459(73.4%) whereas appropriate complementary feeding was 73 (13.0%). Lower age of Mothers [(AOR=0.37; 95%CI :( 1.22, 2.97)]; First birth order [(AOR=0.457; 95%CI: (0.155, 0.821)], and mothers who had formal education were found significantly associated with appropriate complementary feeding practices [(AOR= 1.571; 95%CI :( 1.536, 4.401)].

### CONCLUSION

The practice of the appropriate complementary feeding of complementary feeding was suboptimal in the study area. We also identified, more attention is important for young mothers, those who give birth for the first time, and no formal education to improve Infant and young children feeding practice according to recommended guidelines.

**Keywords:** complementary feeding; Infant and young children feeding; Meta Robi, Ethiopia

## INTRODUCTION

Nutrition intervention at a critical window of opportunity which starts from the period of pregnancy up to the age of 24 months or the first 1000 days of life has a high impact to break the cycle of malnutrition that affects 26% of under-five children's health globally [1]. Due to the lack of such proper intervention, the problem is more prevalent in developing countries and more than 90% of the world's stunted children live in Africa and Asia

due to a broad set of factors [2]. Similarly, the problem is prevalent in Ethiopia and according to a demographic health survey (EDHS 2016) about 38%, 24%, and 10% are stunted, underweight and wasted respectively [3].

Among effective interventions to tackle children's malnutrition, the World health organization recommends the introduction of appropriate complementary feeding around the age of 6 months following exclusive breastfeeding for optimal growth and

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development of an infant's [1, 4-5]. Complementary feeding is the transition from exclusive breastfeeding to additional foods and liquids along with breast milk which covers the period from 6–24 months [6, 7]. To ensure the nutritional requirements are enhanced, complementary feeding should be timely, adequate (provide sufficient energy, protein, and micronutrients to meet a growing child's nutritional needs), and properly fed [5–7].

However to early or late introduction of complementary feeding is a common problem infant and young child feeding in developing countries, providing a less diverse diet or infrequent, (3,6–10). Consequently, children are vulnerable to malnutrition due to inappropriate complementary feeding and breast milk alone is no longer sufficient to meet the nutritional and developmental requirements [5, 7, 11].

Among children 6-23 months In Ethiopia, only 7% met the minimum acceptable diet and 14% met minimum dietary diversity [3]. This Inadequate complementary feeding practice is a major contributor to childhood malnutrition such as stunting in Ethiopia [12]. Also, complementary foods are not adequate in energy and micronutrients and are limited to animal protein, fruits, and vegetables [9,13,14]. Earlier studies conducted on determinants of complementary feeding in Ethiopia indicated, maternal employment, improved knowledge on complementary feeding, frequent antenatal care(ANC) or postnatal care (PNC), and giving birth at the health facility were associated with the appropriate complementary feeding practices [9,10,15,16].

However, because there were no studies in the selected study area on complementary feeding and its determinants, this study was aimed to investigate complementary feeding practice among mothers and caregivers of children aged 6-23 months in the study area.

## METHODS AND MATERIALS

### Area and study periods

A community-based cross-sectional study design was conducted from April to May 2018, in Meta Robii district, Oromia region, Ethiopia which is 110 Km away from Addis Ababa (the capital city of Ethiopia). The district has 43 kebeles (lowest administrative division in Ethiopia) and a total population of more than 140,627 according to the central statistical agency.

### Study population and sample size

Mothers or caregivers of infants and young children (0–23 months) were included in the study. The sample size was calculated using single population formula with the following assumption; confidence interval of 95%, prevalence of timely initiation of complementary feeding 54.4%, a margin of error of 5%, and design effect 1.5. Finally, the sample size of 633 households was taken with a 10% non-respondent rate.

## SAMPLING PROCEDURE

From total kebeles in the woreda, thirteen woredas were selected by a simple random sampling method. After a total number of mothers or caregivers of infants and young children (6–23

months) in each selected kebeles obtained from the health posts, the total sample size was proportionally allocated to each kebele according to the size of mothers/caregivers in each selected kebeles. Study **participants** were recruited by systematic random sampling using sampling intervals.

## STANDARD OPERATIONAL DEFINITION

Indicators were defined according to a recommendation by the world health organization to assess complementary feeding practices of infant and young children [5, 17].

Timely introduction of complementary feeding: the proportion of children 6-23 months of age who started complementary foods at 6th month.

## 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 of the data collection date. Accordingly, the seven food groups used for tabulation of this indicator were: grains, roots and tubers; legumes and nuts; dairy products (milk, yogurt, cheese); flesh foods (meat, chicken, and liver/organ meats); eggs; vitamin A-rich fruits and vegetables; and other fruits and vegetables.

## 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 of the data collection date.

## 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 of data collection date, 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 of the data collection date.

## APPROPRIATE COMPLEMENTARY FEEDING

If the mother/caregiver replies correctly to all the above four indicators, it was coded as appropriate complementary feeding.

## DATA COLLECTION PROCEDURES AND QUALITY CONTROL

Structured questionnaires prepared in local language spoken by the community were used to collect numerous variables such as demographic factors, health service utilization, and child-related characteristics such as age, sex, and birth order, and birth interval. Additionally, complementary feeding practices were assessed using standard tools recommended to evaluate IYCF practices (17). A single 24-h dietary open recall approach was

used to obtain data on dietary diversity. Data were collected from mothers or caregivers of infants and young children.

## STATISTICAL ANALYSIS

The collected data was entered into EPI-INFO and exported to Statistical Package for Social Sciences software (SPSS) for cleaning, coding, and analysis. Descriptive statistics were used to observe the characteristics of data while logistic regressions were used to determine the association between dependent and independent variables. For all statistical significance tests between each independent and dependent variable, the p-value of less than 0.05 was considered statistically significant.

## RESULTS

### Characteristics of the sample

A total of 625 mothers or caregivers of children aged 6-23 months (98.7% response rate) were included in this study. Among study participants, 342 (54.7) of 6-23 months children were female while 221(35.4%) of them were with age intervals of 6-11 months old. The larger part of the participants 541(86.1%) were rural residents and was orthodox in religion 485(77.6%). Additionally, More than half of the children 341(54.6%) were second in their birth order and the majority of the respondents 375 (60.0%) did not attend formal education (Table 1).

**Table 1:** Description of the study participants, Meta Robi, Western Ethiopia, 2018

Variable		Frequency (N=625)	Percent (%)
Sex of child	Male	283	45.3
	Female	342	54.7
Age of child	6-11	221	35.4
	12-17	220	35.2
Age of Mother	18-23	184	29.4
	25-29	226	36.2
Residence of Mother	Rural	541	86.1
	Urban	84	13.9
Religion	Orthodox	485	77.6
	Protestant	133	21.3
Religion	protestant	7	1.1
	<20	51	8.2
Age of Mother	20-24	163	26.1

	30-34	122	19.5
	>35	63	10.0
Birth order of child	First	186	29.8
	Second	341	54.6
	Third and above	98	15.6
Family size	1	117	18.7
	2-4	341	54.6
Family size	5 and above	167	26.7
	Farmers	472	75.5
Maternal Occupation	housewife	124	19.8
	Others	29	4.7
Maternal Education	Formal education	375	60.0
	No formal education	250	40.0
Monthly Income	<999	271	43.4
	1000-1999	280	44.8
Monthly Income	2000-2999	58	9.3
	3000-3999	13	2.0
Monthly Income	>4000	3	0.5

### Health care utilization

As shown in the following table, the majority of respondents had a history of antenatal 595(95.2%) and postnatal follow-up 525 (84.0%). More than half of the respondents 447(71.4%) gave birth at health institutions and a higher proportion 545 (84.6%) of the respondents had received information on complementary feeding from Health workers or mass media (Table 2).

**Table 2:** Health care utilization of study participants, Meta Robi, Western Ethiopia, 2018

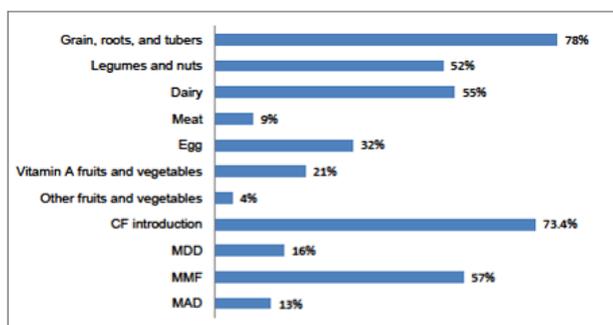
Variable		Frequency(N=625)	Percent (%)
Antenatal care	Yes	595	95.2
	No	30	4.8

Postnatal care	Yes	525	84.0
	No	100	16.0
Place of Delivery	Home	179	28.6
	Health Institution	447	71.4
Had received information on CF	Yes	545	84.8
	No	80	15.2
Main source of information about CF	Health workers	534	98.0
	Mass Media	11	2.0

## COMPLEMENTARY FEEDING PRACTICES

Generally, 78% of children aged 6-23 months were introduced to complementary foods at age of 6-8 months. However, only 16% of children fulfilled minimum dietary diversity (MDD) while 13 % fulfilled minimum acceptable diet (MAD). As indicated in the following figure, about 57% of children met minimum meal frequency (MMF), and the majority of children (78%) consumed from grains, roots, and tubers food groups. In another way, foods classified under other fruits and vegetables were consumed by children (Figure 1).

**Figure 1:** Complementary feeding of study participants, Meta Robi, Western Ethiopia, 2018



## FACTORS ASSOCIATED WITH COMPLEMENTARY FEEDING

This study although raised factors associated with compliance to internationally recommended infant and young children feeding practices in the study area using bivariate and multivariable logistic regression model. Thus, being in a lower age category, birth order and educational status of the mother were found to be significantly associated with appropriate complementary feeding.

Those mothers who were less than twenty years were 63 % less likely to practice appropriate complementary feeding than those who were more than thirty-five years old [(AOR=0.37; 95%CI : ( 1.22, 2.97)]. Additionally, those who give birth for the first time were 55% less likely to practice complementary feeding

according to the required guideline [(AOR=0.45; 95%CI: (0.155, 0.821)]. Moreover, Mothers who had formal education were found 1.57 more likely to practice appropriate complementary feeding for their children than those who had no history of formal education [(AOR= 1.57; 95%CI :( 1.536, 4.401)].

**Table 3:** Factors Associated with appropriate complementary Feeding Practice in Meta Robi Woreda, West Shewa March 2018

Variable	Appropriate CF	COR ( 95 AOR 95 %CI )		AOR	95 CI (%)
		Yes (%)	No (%)		
Sex of child	Male	35(12.7)	248(87.3)	1.87(0.80-1.93)	1.21(0.86-1.70)
	Female	37(10.8)	305(89.2)	1	1
Age of child	6-11	25(11.3)	196(88.7)	0.99(0.65-1.44)	0.89(0.57-1.37)
	12-17	26(12.8)	194(88.2)	1.08(0.62-1.38)	0.84(0.54-1.30)
ANC follow up	Yes	66(11.1)	529(88.9)	1.67(1.04-1.82)	0.75(0.31-1.84)
	No	6(20.0)	24(80.0)	1	1
PNC Follow up	Yes	57(15.8)	468(89.1)	1.79(0.67-1.82)	1.09(0.63-1.88)
	No	15(8.9)	85(10.9)	1	1
Age of Mother	<20	12(23.5)	39(76.5)	1.13(1.05-2.22)	0.37(0.22-0.98)*
	20-24	17(10.4)	146(89.6)	0.44(0.37-1.83)	2.38(0.97-5.79)
	25-29	18(12.4)	198(87.6)	0.37(0.25-1.65)	2.26(0.04-4.93)
	30-34	12(9.8)	110(90.2)	0.41(0.39-2.16)	1.38(0.71-2.69)
	>35	13(20.6)	50(79.4)	1	1
Family size	First	24(20.2)	93(79.5)	0.24(0.18-0.89)	0.45(0.16-0.82)*
	Second	22(9.0)	319(93.5)	0.53(0.48-1.46)	0.69(0.38-1.26)
	Third and above	26(15.6)	141(84.4)	1	1
Place of Delivery	Health Institution	61(14.0)	386(86.0)	0.95(0.69-1.33)	1.29(0.86-1.94)

	Home	11(6.2)	168(93.8)	1	1
	Farmers	53(11.2)	419(88.8)	1.98(0.36-2.67)	1.57(0.45-5.51)
Maternal occupation	Housewife	16(7.1)	108(92.9)	2.33(0.39-2.43)	0.40(0.03-6.39)
	Others	3(10.3)	26(89.7)	0.11(0.10-1.15)	0.69(0.17-2.76)
Maternal Education	Noformal education	11(4.3)	243(95.7)	1	1
	Formal education	61(16.4)	310(83.6)	1.35(0.17-4.90)	1.57(1.53-4.40)*
	<999	13(4.8)	258(95.2)	0.62(0.54-3.18)	1.55(1.06-4.24)
Monthly income	1000-1999	24(8.6)	256(91.4)	0.02(0.01-3.66)	1.08(0.04-2.53)
	2000-2999	23(39.7)	35(60.3)	0.20(0.20-7.59)	0.20(0.31-2.71)
	3000-3999	10(76.9)	3(13.1)	1.66(0.31-6.22)	3.79(0.22-65.67)
	>4000	2(66.7)	1(33.3)	1	1

\*P-value is significant at  $\alpha < 0.05$ ; OR- Odds Ratio; CI- Confidence Interval

## DISCUSSION

In Ethiopia, a comprehensive approach that focuses on children undernutrition has been implementing to prevent malnutrition, including Infant and young child feeding practices. However Reports in Ethiopia showed that the IYCF indicators related to complementary feeding for under two children such as minimum diet diversity (MDD), minimum meal frequency (MMF), and minimum acceptable diet (MAD) are suboptimal.

Timely introduction of complementary feeding was found 73.4% in the study area. This finding is higher than the study done in southwest Ethiopia (72%), National prevalence (51%), Nepal (70%), Bangladesh (71%), and India (55%) (3,15,18-20). However, the current finding is lower than the study done in north Ethiopia (80%), Tanzania (92.3%), and Sir Lanka (84%) [21-23].

The present study also showed that only 13% of children less than two years fulfill the minimum acceptable diet while 16% and 57% fulfill MDD and MMF respectively. This finding is better than the national prevalence report from health and demographic health survey in which the prevalence of MAD, MDD, and MMF is 7%, 14%, and 45% respectively [3]. Additionally, the prevalence of current is greater than the study done in northern Ethiopia with MAD of 10.7%[21], a study conducted in Southern Ethiopia with MAD of 12.3%[24].

On the contrary, the prevalence of minimum acceptable diet is lower than the study conducted in Southern Ethiopia with MMF, MDD of 67.3% and 18.8%, respectively (24), and the study conducted in Nepal with MAD, MDD, and MMF is 32%, 34% and 82% respectively (18), and a study conducted in Mosul city with MDD, MMF, and MAD is 45.5%, 79.1%, and 40.5% respectively [25].

Mothers who are young and low no formal education were found to be significantly associated with appropriate complementary feeding. Similar to this finding, a study was done in northern Ethiopia India, Bangladesh, Srilanka, Nepal, and Tanzania [18-22] showed complementary feeding is associated with the educational status of the mother which might be due to improved awareness from a different source of information and decision making among educated mothers.

## CONCLUSION

Generally, the practice of the appropriate complementary feeding of complementary feeding was suboptimal in the study area. Based on the finding, mothers who are early in an age category, first birth order, and not the improved educational status of mothers were associated with inappropriate complementary feeding. Therefore community health workers should give attention to this group to improve Infant and young children feeding practices according to recommended guidelines.

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