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## **PRACTICES OF INITIATION OF COMPLIMENTARY FEEDING IN ETHIO-SOMALI REGION: A MIXED METHODS STUDY**

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### **ABSTRACT**

The study focuses on the practices of complimentary feeding in Ethio-Somali region using a mixed method study. Time to initiate complementary feeding is the time at which when breast milk or infant formula alone is no longer sufficient to meet the nutritional requirements of infants therefore other solid and semisolid foods and liquids are needed, along with breast milk or a breast milk substitute. The study has focused on the analysis of the way in which complimentary feeding was practiced. The study revealed all most one third (26.8%) of the respondents initiated complementary feeding early (before 6 months). Whilst (241, 67.89%) and (19, 5.35%) of the respondents introduced complementary feeding close to timely (6- 9 months) and lately above 9 months. This study also disclosed less than ten percent (24, 6.8%) of the children meet minimum dietary diversity in agro-pastoral communities of Somali region. Further the study evidenced that mother's characteristics like unemployment and postnatal care flow up are the predictors of early

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initiation of complementary feeding: [2.39, 1.14 -5.02] and [0.54, 0.32-0.91]. Moreover this study showed mother's absence in the home is a main reason for early initiation of complementary feeding in Agro-pastoral communities in Ethio-somali region according to qualitative study.

## 1. INTRODUCTION

Time to initiate complementary feeding can be defined as the time at which when breast milk or infant formula alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other solid and semisolid foods and liquids are needed, along with breast milk or a breast milk substitute. The time to initiate complementary feeding is exactly at 06 month and the target range for complementary feeding is generally taken to be 6 to 24 months and the World Health Organization(WHO) recommends timely initiation of complementary feeding to be 80% and above to achieve infants optimal growth and development.[1]

Adequate nutrition during infancy and early childhood is fundamental to the development of each child's full human potential. It is well recognized that the period from birth to two years of age is a "critical window" for the promotion of optimal growth, health and behavioral development [1].For optimal growth of an infant, World Health Organization recommends exclusive breast feeding for the first six months and

introduction of complementary feeding at the age of six months [2].

Initiation time of complementary feeding is associated with infant's optimal growth development in different aspects. Adherence to infant feeding recommendations is particularly important in low-income countries. In areas with poor food or water hygiene, early introduction of complementary foods is associated with increased morbidity for diarrheal diseases and development of malnutrition [4-6].

It is documented that poor infant feeding practice which is poor breastfeeding and poor complementary feeding contribute to 24% of infant deaths [14]. Similarly, only 51 % and 4% of the infant's initiates complementary feeding on time (at the age of 06 month). According to this Infant and young child feeding (IYCF) recommendations, respectively [9].

In addition to this, poor progress (4% to 7%) on minimum standards with respect to all three IYCF practices has been documented in Ethiopia for the last 5 years [24].

A lot of factors are associated with time to initiation of complementary feeding including mothers' educational status, fathers' occupation, fathers' educational status, husbands support, place of delivery, history of Ante Natal Care (ANC) and Post Natal Care (PNC) and sex of the child [3, 10], birth preparedness and number of live births [3], family size [11], birth order [12, 13], maternal age, marital status, mode of delivery, residence, wealth index and mothers access to newspapers, radio or television [4, 12, 14].

Despite the government develops the strategy timely initiation of complementary feeding is still only 51% which is below the national nutrition program target and WHO recommendation. There is also a considerable variability in the time to initiate complementary feeding in the different socio demographic groups. This would raise a question about the stability of findings across zones, districts and other administrative levels under regions. The exiting data also does not assess the factors which affect the time to initiate complementary feeding [9].

## **2. METHODS**

### **2.1 Study Area**

Somali region is located in the east and southeast part of Ethiopia, lies between 4 and 11 degrees' north latitude and 40 and 48

degrees east longitude. It lies over an area of about 350,000 Km<sup>2</sup>. It is bordered by Oromia Regional State in the West and Southwest, and Afar National Regional State in the Northeast. Internationally, it has border with Kenya in the South, Somalia in the East, and Djibouti in the northwest. Weather is hot most of the year. Temperature ranges between 18 and 45 degrees Centigrade. Annual rainfall is between 386 and 660 mm. Administratively, Somali region consists of twelve administrative zones namely Fafan, Sity, Nogob, Jarar, Korrahe, Dollo, Shebele, Afer and Liban, Erer, Dawo zones. The two administrative cities of the region are Jigjiga and Gode. According to the population projections of the Central Statistical Authority (CSA) based on the 2007 Population and Housing Census, the total population of Somali region was estimated as 4.4 million (CSA, 2007). According to this data, the population is projected to be 5,748,998 million in 2016 GC. The average household size is 6.6. The total urban population of the region is estimated at 14%. While the rest 86% are pastoralists and agro-pastoralists. The average population density is calculated at 13 persons per square km, with great variation among districts of the region. Population densities are highest in

agro-pastoral zones including Shebele, Fafan and Liban.

Most of the people in the Somali region lead pastoral - nomadic lifestyle. The main income of the region's population is driven from livestock rearing and petty trading

## 2.2. Study Design

A community based cross sectional study was conducted from July, 15, 2017 to August, 2017. Data was collected using RED CAP and all completed forms were checked for completeness and consistency of responses visually. The cleaned data was exported to SPSS version 20.

### Definitions

**Time to initiate complementary feeding:** is the time at which the mother starts giving the child either solid, semisolid or liquids other than breast milk or formula feeding. .

**Early initiation complementary feeding:** it is time of initiation of additional supplementary food for young child before six months after birth[2]

During descriptive analysis, continuous variables were summarized using mean, median and standard deviation while categorical variables was summarized using proportions and then presented in tables and graphs.

Bi-variable logistic regression was done to test for associations between the dependent

variable and independent variables. After inclusion of independent to multivariable binary logistic regression analysis, fulfillment of model assumption was checked using goodness -of-fit test or hosmer-lemmishow test.

Both Bi-Variable and Multi variable binary logistic regression model were used to identify factors that associated with early initiation of complementary feeding

## 3. RESULTS

### Socio-demographic and service utilization characteristics

A total of 355 mothers participated in the study; all of the participants gave complete response with the response rate of 100%. The median age of the mother was 28 years, ranging from 17 to 45 years. The median ages of the children were 18 months.

One hundred eighty nine (53.2%) of mothers were age 20-29, 279 (79%) were Unemployed and two hundred thirty one (65.1%) were Illiterate in their Education. Besides, 325 (91.8%) mothers were attending ANC. Regarding to PNC, one hundred ninety nine (56.1%) of mothers had follow post natal care. Two hundred forty eight (70.1%) of mothers were delivery in health facility.

Table 1: Socio-demographic and Service Utilization characteristics of the mothers with their children age of 6 to 24 months in Ethio-Somali region, Ethiopia (N=355)

Variables	Frequency	Percent (%)
<b>Age of the mother</b>		
≤ 19	22	6.2
20 -29	189	53.2
≥ 30	144	40.6
<b>Occupation</b>		
Employed	74	21.0
Unemployed	279	79.0
<b>Education of the mother</b>		
Illiterate	231	65.1
Primary (1-8)	72	20.3
Secondary and above	52	14.6
<b>ANC attendant</b>		
No	29	8.2
Yes	325	91.8
<b>PNC attendants</b>		
Yes	199	56.1
No	156	43.9
<b>Place of delivery</b>		
Home	106	29.9
Health facility	248	70.1
<b>First choice of child treatment</b>		
Traditional	12	3.5
Modern	328	96.5

### Prevalence of early initiation of complementary feeding

Among 1332 respondents, 355 were giving complementary feeding to the child during the survey. Nearly one third (95, 26.8%) of the respondents initiated complementary feeding early(before 6 months) whilst two third of the respondents (260, 73.2%) initiated complementary feeding at 6-9 months and above 9 months. Moreover mothers who were introduced to solid, semi solid or soft food at 6-9 months(close to timely initiation) alone was (241, 67.89%), whilst; those introduced above 9 months(late initiation). whilst; those introduced above 9

months(late initiation) alone was (19, 5.35%).

Mothers who were introduced complementary feeding to their children, only (114, 32.1%), (207, 58.3%), (142, 40%) and (24, 6.8%) of them use porridge, formula milk, animal milk and other diversity diets respectively.

Reportedly, less than ten percent (24, 6.8%) of the children had an adequately diverse diet which meets the criteria of minimum dietary diversity in agro-pastoral communities of Somali region. The reason for low proportion of dietary diversity is may be due to accessibility issue for certain diets. One key

informant said: *“One of the barriers regarding infant and young child feeding as recommended for complementary feeding is that fruit is not available here. Fruits such as mangoes, papayas, oranges are not available.”* **KII Health Office Rep. Degehabour.**

Another reason for poor dietary diversity for less than two years old children in Somali region may be due to recurrent drought as one of the key informant said: *“There are no practices of growing vegetables and fruits in the house hold/ community. Because there is long drought here. This year 2009 EC(Ethiopian calendar) is the worst drought in the history of my life. The main barriers to sustain household/ community garden is for one thing is drought”* **KII DA Kebridahar.**

Another focus group discussant said: *“Milk, Meat, Chickens and Eggs were eaten widely, but drought affected our animals, cause water shortage (P3,P2,P5,P4,P1,P6)”* **FGD shinile.**

### **Factors associated with early initiation of complementary feeding in Ethiopian Somali region, August, 2017**

To determine factors associated with the early to initiate complementary feeding variables were screened using bi- variable binary logistic regression with the (p\_ value  $\leq 0.2$ ) as a cut of point. In this regard,

variables were found to be significant at 0.2 level of significance. Therefore, we took these variables in to the multivariable binary logistic regression model.

In the multi variable binary logistic regression analysis two variables were found to be significantly associated with the early to initiate complementary feeding. These were mother’s occupation (Unemployed (AOR =2.39)), Post natal care (mother follow PNC (AOR =0.54)), were significantly associated with the time to initiate complementary feeding at ( $p < 0.05$ ) and confidence interval (95%).

Specifically, the Odd of introducing early complementary feeding among Unemployed mothers was 2.39 times higher as compared with employed mothers (AHR=2.47, 95% CI 1.14, 5.02).

the Odd of introducing early complementary feeding among mothers follow PNC was 0.54 times less likely as compared with mothers who did not attend PNC (AHR=0.62, 95% CI 0.32, 0.91).

Table 2: Early initiation of complementary feeding and associated factors in Agro pastoral Communities, Ethiopian Somali region, 2017

Variables	Initiation of complementary feeding at $\geq 6$ Months	Initiation of complementary feeding at $< 6$ Months	Crude OR (95%)	Adjusted OR(95% CI)	X <sup>2</sup> P-value
<b>Age of the mother</b>					
≤ 19	18(81.8%)	4(18.2%)	1	1	0.635
20 -29	138(73%)	51(27%)	1.66(0.53, 5.15)	2.03(0.61,6.7)	
≥ 30	104(72.2%)	40(27.8%)	1.73(0.5, 5.43)	2.3(0.68, 7.93)	
<b>Occupation</b>					0.005
Employed	63(85.1%)	11(14.9%)	1	1	
Unemployed	195(69.9%)	84(30.1%)	2.47(1.24, 4.92)	2.39(1.14, 5.02)	
<b>Education</b>					0.021
Illiterate	171(74%)	60(26%)	1	1	
Primary(1-8)	45(62.5%)	27(37.5%)	1.71(0.97, 2.99)	1.87(0.99, 3.54)	
Secondary and above	44(84.5%)	8(15.4%)	0.52(0.23, 1.16)	0.75(0.29, 1.97)	
<b>Place of delivery</b>					0.034
Home delivery	70(66%)	36(34%)	1	1	
HF delivery	44(76.2%)	59(23.8%)	0.61(0.37, 0.99)	0.6(0.34, 1.06)	
<b>ANC attendants</b>					0.300
No	23(79.3%)	6(20.7%)	1	1	
Yes	237(72.9%)	88(27.1%)	1.423(0.56, 3.61)	2.35(0.79, 6.98)	
<b>PNC attendants</b>					0.031
Yes	154(77.4%)	45(22.6%)	0.619(0.38, 0.99)	0.54(0.32, 0.91)	
No	106(67.9%)	50(32.1%)	1	1	
<b>First choice of child treatment</b>					0.397
Traditional	8(66.7%)	4(33.3%)	1	1	
Modern	242(73.8%)	86(26.2%)	0.711(0.21, 2.42)	0.6(0.15, 2.4)	

#### 4. DISCUSSION

The study reveals almost one third (26.8%) of the respondents initiated complementary feeding early (before 6 months). Whilst (241, 67.89%) and (19, 5.35%) of the respondents introduced complementary feeding close to timely (6- 9 months) and lately (above 9 months) respectively. However less than ten percent (24, 6.8%) of the children meet minimum dietary diversity in agro-pastoral communities of Somali region. Moreover,

employment and post natal care are the predictors of early initiation of complementary feeding: [2.39, 1.14 -5.02] and [0.54, 0.32-0.91] respectively. Whilst qualitative finding shows mother's absence in the home is a main reason for early initiation of complementary feeding in pastoral communities.

Studies conducted in Harar town (19%), Bishoftu town of Oromia (32.9%) and Kamba district of Southern Ethiopia(30.4% )

[10], [26] and [17] respectively some comparable in this study .The prevalence is also comparable with studies conducted overseas like China, 27%, [15], United Kingdom, 21% [4], and Kuwait, 32.9% [16]. However, this prevalence (26.8%) this study is much lower than cross sectional study conducted in Nigeria, which showed that 53% of mothers initiated complementary feeding early (before 6 months) [13], it's also lower than research conducted in Jima arjo district of Ethiopia, which shows 42.9% of early initiation of complementary feeding [25]. This is may be due to that Somali nomads believe early initiation of solid or semi solid foods to infants will result illness like vomiting and diarrhea.

This study pointed out that Mother's absence in the home as main reason for early initiation of complementary feeding in pastoral communities as focus group discussion indicated *"She gives semi-solid soup before six months because child can't stay till she come back from market and different activities like fetching water, taking out dung, preparing food etc. In our community, a woman can't take rest and care as recommended but she is busy with different activities to fill shortages in family"*. The reason of early initiation of complementary feeding in line with study

conducted in Kamba woreda, Southern Ethiopia [17] and Jima arjo, Ethiopia [25].

In addition to this, our study shows that 67.89% of mothers initiated complementary feeding at 6-9 months. This prevalence in this study is slightly higher than prevalence reported by Ethiopia Health and Demographic survey, which 60% of children are introduced to solid, semi-solid, or soft foods at 6-8 months [9].

About 6.8% meets the criteria of minimum dietary diversity in agro-pastoral communities of Somali region. The reason for low proportion of dietary diversity may be due to accessibility issue for certain diets. One key informant said: *"One of the barriers regarding infant and young child feeding as recommended for complementary feeding is that fruit is not available here. Fruits such as mangoes, papayas, oranges are not available."*

Another reason for poor dietary diversity for less than two years old children in Somali region may be due to recurrent drought as one of the key informant claimed.

This study indicated that unemployed mothers were more likely to initiate complementary feeding early than employed mothers. This study is supported by other studies conducted in Kamba district of Southern Ethiopia [26], four western African

countries [20] and China [15]. The possible explanation for this association is unemployed mother may be engaged more intensive daily labor and long-distance merchant works.

Furthermore, this study exhibits that there is linkage between post-natal follow up and early initiation of breastfeeding. Mothers who have no post-natal follow up in health institution were more likely to start early complementary feeding as compared to mothers who have follow up. This finding is in line with studies conducted in Kamba district of Southern Ethiopia [26], Ethiopia [27] India [28] and Nepal [29]. This may be explained Mothers who get advice and health education on complementary feeding during Post-natal has favorable impact on the promotion of timely initiation of complementary feeding.

#### CONCLUSIONS AND RECOMMENDATIONS

##### Conclusions

Based on the study findings the following points are concluded. The study revealed all most one third (26.8%) of the respondents initiated complementary feeding early (before 6 months). Whilst (241, 67.89%) and (19, 5.35%) of the respondents introduced complementary feeding close to timely (6- 9 months) and lately (above 9 months) respectively.

This study also disclosed less than ten percent (24, 6.8%) of the children meet minimum dietary diversity in agro-pastoral communities of Somali region.

Likewise this study evidenced that mother's characteristics like unemployment and posts natal care flow up are the predictors of early initiation of complementary feeding: [2.39, 1.14 -5.02] and [0.54, 0.32-0.91] respectively.

In nutshell this study showed mother's absence in the home is a main reason for early initiation of complementary feeding in Agro-pastoral communities in Ethio -somali region according to qualitative study.

##### Recommendations

By taking into account the results of this study, the following recommendations are forwarded.

Concerned organizations should promote timely initiation (at 6 months) of solid, semi solid and soft through every possible media.

All health professionals including health extension workers should promote timely initiation (at 6 months) during important contact points like antenatal care, post natal care and family planning, delivery and immunization days.

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