

Timely initiation of complementary feeding practice and associated factors among mothers of children aged from 6 to 24 months in Axum town, north Ethiopia

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Abstract: *Introduction:* Appropriate complementary feeding is critical for the achievement of a healthy growth and development and mere survival of young children. Lack of appropriate breast-feeding and complementary feeding practice are the main cause of under nutrition. An estimated 32% of children under five years in developing countries are stunted and 10% are wasted. *Objective:* To assess timely initiation of complementary feeding practice and associated factors among mothers of children aged from 6 to 24 months living in Axum town, North Ethiopia. *Methods:* Community based cross-sectional study was conducted from April to May 2013. A sample of 422 subjects was selected by using systematic random sampling technique. Data were collected using pre-tested interviewer administered structured questionnaires. The data were cleaned, coded, entered in to EPI-INFO version 3.5.1, and transferred and analysed using SPSS version 20. *Results:* Out of 422 study participants, 223 (52.8%) have started complementary feeding practices to their child timely. Married women [AOR=2.490; 95% CI: (1.170, 5.301)] and attended ANC follow up [AOR=3.874; 95% CI: (1.805, 8.314)] were positively associated with timely initiation of complementary feeding. On the other hand, mothers whose husband cannot read and write [AOR=0.358; 95% CI: (0.148, 0.863)], household size of 4-6 (AOR=0.34; 95%CI: 0.16, 0.74) and mothers who delivered at home (AOR=0.338; 95%CI: 0.12, 0.99) were negatively associated with timely initiation of complementary feeding. *Conclusion and recommendation:* Timely initiation of complementary feeding practice was relatively low in the study area. Mother's marital status, husband education, family size, mother's ANC follow-up, and mother's place of delivery were significantly associated with timely initiation of complementary feeding. Nutritional counseling, promoting ANC follow up, nutrition education & enhancing institution delivery were recommended to the concerned bodies.

Keywords: Complementary Feeding, Timely Initiation, Practice, Axum Town

1. Introduction

Sub-optimal breast feeding and poor complementary feeding practices leads to mal-nutrition, which is the single biggest contributor to child mortality and the underlying causes of more than half of all deaths among children 6-59 months age (1).

The period from birth to two years of age is the "critical window" for the promotion of optimal growth, health and development of a child, because it is during this period that

children are particularly vulnerable to growth retardation, micro-nutrient deficiencies, and common childhood illnesses (2, 3).

The achievement of universal coverage of optimal breast feeding could prevent 13% of deaths occurring in under-five years children globally. While, appropriate complementary feeding practice would result in an additional 6% reduction in under-five mortality (4).

Around 50% children under five years of age die due to preventable causes of mal-nutrition and 99% of them were

found in the developing world, particularly in sub-Saharan Africa. About 9% of sub-Saharan Africa children had MAM and 2% of children in developing countries had SAM (5).

In Ethiopia, mal-nutrition is the underlying causes of child morbidity and mortality, which contributes for more than 57% of deaths in under five years children. According to EDHS 2011 report, 10% of under five children had severe and moderate acute malnutrition and 29% of children were under weight for their age. The proportion of children with acute malnutrition in Tigray was 10%, and 35% of children were under weight, which is higher than national figure.

Breast feeding is universal in Ethiopia, however only 52% of children under 6 months were exclusively breastfeed. In addition to breast milk, 19% of infants under 6 months were given plain water, While 10% of infant under 6 months were given complementary foods. In Tigray, 35% of mothers initiated breastfeeding to their new born immediately after delivery and 67% of mothers gave the first milk within 3 days (6, 7, 8, 9).

Hence, this study was aimed to assess the magnitude of timely initiation of complementary feeding and factors associated with it.

2. Methods

The study was carried out in Axum town from April to May 2013. Axum is located in the Central zone of Tigray Regional State, 270 KM away from Mekelle (the capital city of Tigray). Axum is one of the ancient and historical tourist destination towns with several archaeological and ethnographic museums. The study utilized community-based cross-sectional study design with quantitative data collection method. Mothers having children from 6 to 24 months of age were selected by using systematic random sampling technique. Mothers who were seriously ill and unable to respond were excluded from the study.

The sample size was calculated using single population proportion formula with the following assumptions; proportion 50%, margin of error 5% and 95% confidence level. The sample size was 422 after considering 10% non response rate. The total sample size was allocated proportionally to all kebeles. The dependant variable was timely initiation of complementary feeding practice; likewise the independent variables included were socio demographic factors, nutritional related factors and health care related factors.

The questionnaires were adapted from WHO standard questions to suit the study setting (2). Pre- test was done on 10% of similar subjects at Adwa town. Data were collected using pre-tested, pre-coded and interviewer-administered questionnaires. The collected data were cleaned, coded, entered into EPI-INFO version 3.5.1 software and transferred and analysed using SPSS version 20. Bi-variable analysis was done and variables with p-value less than 0.2 were included in the multiple logistic regression analysis. Odds ratio and 95% confidence intervals were also computed along with the corresponding p-value.

3. Results

Table 1. Socio-demographic characteristics of the study participants, Axum, Ethiopia 2013

Characteristics	Frequency	Percent (%)
Age of mother(in years)		
15 – 19	12	2.8
20– 25	141	33.4
26-29	107	25.4
>=30	162	38.4
Age of child(in months)		
6-10	90	21.3
11-15	143	33.9
16- 20	123	29.1
21- 24	66	15.6
Sex of child		
Male	223	52.8
Female	199	47.2
Relation to the head of household		
House wife	365	86.5
Daughter	11	2.6
House maid	3	0.7
Head of household	43	10.2
Religion		
Orthodox	366	86.7
Muslim	56	13.3
Ethnicity		
Tigreway	419	99.3
Others	3	0.7
Mother Educational status		
Can't read & write	81	19.2
Read & write only	71	16.8
1 – 8	102	24.2
9-12	137	32.5
Above high school	31	7.3
Husband educational status		
Can't read & write	39	9.2
Read & write only	90	21.3
1 – 8	111	26.3
9 – 12	110	26.1
Above high school	72	17.1
Family size		
1 – 3	134	31.8
4 – 6	249	59.0
7-10	39	9.2
Number of under five children		
One	204	48.3
Two	134	31.8
Three	84	19.9
Marital status		
Unmarried	11	2.6
Married	367	87.0
Other*	44	10.4
Mother current occupational status		
House wife	301	71.3
Private business	61	14.5
Student	7	1.7
Government employed	19	4.5
Others**	34	8.1
Husband occupational status		
Government employed	107	25.4
Private business	281	66.6
Unemployed	34	8.1

The study was reviewed and approved by Institution Research Review Boards; Institute of Public Health at the University of Gondar and official letter of co-operation was

also obtained from Axum Woreda Health Office. The purpose and the importance of the study were explained and written consent was obtained from each participant. Moreover, confidentiality of the information was assured by using anonymous questionnaires and keeping the data in a secured place.

A total of 422 mothers were participated in the study with response rate of 100%. The mean age of mothers was 28 with ± 5.39 SD and the mean age of the child was 14.7 months with ± 5.439 SD. Majority of the respondents were orthodox Christianity followers (86.7%) and Tigreway in ethnicity (99.3%) (table1).

4. Health Care Related Characteristics of the Respondents

Among the study subjects, 382 (90.5%) and 361 (86%) reported that they had history of antenatal and postnatal follow up respectively. Moreover, 402 (95.3%) of the study participants gave birth in health institutions and 99.1% of them were found to have good knowledge of timely initiation of complementary feeding (table 2).

Table 2. Health care related factors of the respondent, Axum, Ethiopia 2013

Characteristics	Frequency	Percent
Antenatal follow up		
Yes	382	90.5
No	40	9.5
Postnatal visit		
Yes	361	85.5
No	61	14.5
Delivery service		
Health institution	402	95.3
Home	20	4.7
Knowledge of complementary feed		
Yes	418	99.1
No	4	0.9

4.1. Timely Initiation of Complementary Feeding

The prevalence of timely initiation of complementary feeding in the study area was 52.8%. Of them, 181(81.2%) mothers provided mashed food or fluid to their child. In addition, half of mothers who initiated complementary feeding timely used cow or powder milk and bottle nipple to feed their child.

Table 3. Bivariate and multivariate logistic regression of selected variables with timely initiation of complementary feeding practice, Axum, Ethiopia, 2013

Variables	Timely initiation of complementary feeding practice		COR(95%CI)	AOR(95%CI)
	Yes	No		
Age of mother				
15 – 19	7	5	1.207 (0.368, 3.961)	
20 – 25	72	69	0.900 (0.572, 1.414)	
26 - 29	57	50	0.983 (0.602, 1.603)	
≥ 30	87	75	1	
Mother educational status				
Can't read & write	38	43	0.486 (0.207, 1.143)	
Read & write only	31	40	0.426 (0.178, 1.020)	
1 – 8	61	41	0.818 (0.355, 1.887)	
9 – 12	73	64	0.627 (0.279, 1.408)	
Above high school	20	11	1	
Current mother occupation				
House wife	170	131	1.658(0.859, 3.200)	
Private business	26	35	0.949(0.427, 2.110)	
Government employed	9	10	1.150(0.386, 3.426)	
Others**	18	23	1	
Husband Educational status				
Can't read & write	17	22	0.363 (0.162, 0.810)	0.358 (0.148, 0.863)
Read & write only	34	56	0.285 (0.148, 0.548)	0.232 (0.116, 0.463)
Grade1 – 8	73	38	0.902 (0.479, 1.696)	0.919 (0.477, 1.772)
Grade 9 – 12	50	80	0.391 (0.210, 0.728)	0.362 (0.190, 0.692)
Above high school	49	23	1	1
Husband occupation				
Government employed	57	50	1.282 (0.592, 2.779)	
Private business	150	131	1.288 (0.631, 2.628)	
Unemployed	16	18	1	
Number of under five children				
One	108	96	0.658 (0.391, 1.108)	
Two	62	72	0.504 (0.288, 0.880)	
Three & above	53	31	1	
Family size				
1 – 3	70	64	0.486 (0.227, 1.039)	0.452(0.196, 1.045)
4 – 6	126	123	0.455 (0.221, 0.939)	0.340(0.155, 0.743)
7 - 10	27	12	1	1
ANC follow-up				
Yes	211	171	2.879 (1.422, 5.831)	3.874 (1.805, 8.314)

Variables	Timely initiation of complementary feeding practice		COR(95%CI)	AOR(95%CI)
	Yes	No		
No	12	28	1	1
Place of delivery				
Home	6	14	0.365 (0.138, 0.970)	0.338(0.115, 0.989)
Health institution	217	185	1	1
Post natal follow up				
Yes	187	174	0.746 (0.430, 1.294)	
No	36	25	1	

4.2. Factors Associated with Timely Initiation of Complementary Feeding

Both bivariate and multivariate analyses were done to identify the factors associated with timely initiation of complementary feeding. Accordingly; husband education status, number of under five children, ANC follow up, place of delivery and delivery service had significant association with the dependent variable at the bivariate analysis (p-value <0.05).

In multivariate analysis; husband education, family size, ANC follow up and place of delivery were significantly associated with timely initiation of complementary feeding.

Mothers whose husband cannot read and write were 64% times less likely to initiate timely complementary feeding than mothers whose husband attended high school and above [AOR=0.36; 95% CI : (0.148, 0.863)].

Furthermore, mothers who attended ANC follow up were 3.87 times more likely to initiate timely complementary feeding than whom did not attend [AOR=3.87; 95% CI: (1.805, 8.314)]. In addition, mothers who delivered at home were 66% times less likely to initiate timely complementary feeding than whom delivered at health institution [AOR=0.338; 95% CI: (0.115, 0.989)] (table 3).

5. Discussion

Our study revealed that the timely initiation of complementary feeding among mothers with children aged from 6-24 months was 52.8% [95% CI : (48.08, 57.61)]. This finding is relatively lower than WHO recommendation for timely initiation of complementary feeding which is greater than or equal 80 % (10). This finding was also lower than the study conducted in Nepal 70% (11), Bangladesh 71% (12) Srilanka 84% (13), Senegal (69%), Niger (78%) and Chad (68%). The observed difference might be due to low socio-economic status, poor infant and young child feeding practices, some cultural practices, and low of health care access in Ethiopia.

However, this finding is higher than studies conducted in Indonesia (12%), Pakistan (39.2%), Mauritania (40%) and Mali (30%). This could be due to lack of health access related to socio-economic and political crises in some of the mentioned countries.

On the other hand, this finding is in line with study done in; India (55.7%) and Burkinfaso (50%). Similarly, this finding is in line with studies done elsewhere in Ethiopia, Ethiopian Demographic and Health Survey 2011(51%), and Harar (54.4%) (6,14). This indicates that timely initiation

of complementary feeding is low across the nation.

Mothers who had low educational status husband and small family size were less likely to initiate timely complementary feeding. This could be due to relatively high birth interval in the household may lead the mother to delay complementary feeding.

Mothers who had ANC follow up and delivered at health institution were more likely to initiate timely complementary feeding compared to their counterparts. This is similar to a study done in Harar, Ethiopia. This might be due to the fact that nutrition counseling and other services are provided at the ANC and delivery service. Similarly, this might 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 such as pre-lacteal feeding and early initiation of complementary feeding.

Recall-bias during interview of the mothers could be the possible limitation of the study.

6. Conclusion and Recommendation

Timely initiation of complementary feeding among mothers who have children aged 6-24 months in Axum town was relatively low. Husband education, family size, mother's ANC follow-up and mother's place of delivery were significantly associated with timely initiation of complementary feeding.

Axum Woreda Health Office should promote rigorous ANC follow up and institution delivery. Health professionals who are involved in maternal health should provide nutrition education giving emphasis towards timely initiation of complementary feeding. Similarly, the health extension workers should provide nutrition counseling and promote timely initiation of complementary feeding practices in the region. Finally, researchers need to give emphasis on the impact of timely initiation of complementary feeding on child overall health by assessing the energy needed and consistency of feeding using analytical study designs.

List of Abbreviations

ANC	Ante Natal Care
AOR	Adjusted Odds Ratio
CI	Confidence Interval
EDHS	Ethiopian Demographic and Health Survey

MAM	Mild Acute Malnutrition
SAM	Sever Acute Malnutrition
SD	Standard Deviation
WHO	World Health Organization

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