

Early Initiation of Complementary Feeding and Associated Factors among 6 Months to 2 Years Young Children, in Kamba Woreda, South West Ethiopia: A Community –Based Cross - Sectional Study

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Abstract

Background: Inadequate and inappropriate complementary feeding are major factors contributing to excess morbidity and mortality in young children in low resource settings. The early introduction of complementary feeds before the age of six months can lead to displacement of breast milk and increased risk of infections such as diarrhea, which further contributes to weight loss and malnutrition. Therefore the objective of this study is to assess early initiation of Complementary feeding and associated factors, in Kamba Woreda, South West Ethiopia.

Methods: a community based cross sectional study was conducted in Kamba woreda, Gamo Gofa Zone, South West Ethiopia. The study was conducted on 562 mothers who have young child from 6 months to 2 years from December 2013 to January 2014 by using pre tested structured questioners. Univariate, bivariate and multivariate analysis was conducted by SPSS version 20.

Results: From all respondents 59.6% started complementary feeding before six months. Age of mothers those who are in age group ≥ 30 , AOR 2.60(1.07 - 6.35) years, Education level those who have no formal education AOR 2.76(1.63 - 4.69), occupational of mothers those who work as daily worker AOR 3.06(1.03 - 9.12) and Private work activity(merchant, farmers) AOR 2.39(1.61-3.53), Mothers who have no post natal follow up for their child in Health service AOR(1.64(1.05 - 2.55) were significantly associated factors for early initiation of complementary feeding in the study area.

Conclusion and Recommendation: - A relatively high proportion of mothers start early complementary feeding, despite what is recommended in the national and global infant and young child feeding guidelines. Maternal age, educational statuses ,occupational statuses, mothers who has no PNC, and mothers who encountered medical illness at post natal period were significant predictors for early initiation of complementary feeding.

Keywords: Early initiation; Complementary feeding; Kamba woreda

Background

The period of complementary feeding refers to the stage of life when foods and/or liquid milks are feed to infants and young children in addition to breast milk; non-breast-milk food items consumed at this time are defined as complementary foods [1]. Complementary foods may be either prepared specially for the young child, both to meet age-related nutritional needs and to mitigate immaturity in chewing and swallowing, or they may be selected from the same foods consumed by the remainder of the family. The complementary feeding should not be hyper-caloric, in order to prevent obesity in adulthood [2]. The target age range for complementary feeding is generally taken to be 6 to 2 Years of age, even though breastfeeding may continue beyond two years [3-5].

Poor breastfeeding and complementary feeding practices have been widely documented in the developing countries. Only about 39% of infants in the developing countries, 25% in Africa are exclusively breastfed for the first six months. Additionally, 6% of infants in developing countries are never breastfed [6].

The early introduction of complementary feeds before the age of six months can lead to displacement of breast milk and increased risk of infections such as diarrhea, which further contributes to weight loss and malnutrition [5,6]. According to Ethiopian Demographic Health survey (EDHS) 2011, early initiation of complementary feeding in Ethiopia at the 6th month was only 49% [7]; recent study in Northern Ethiopia, Oromia Regional state Jima Arejo area and Goba district

revealed that the prevalence of early initiation of complementary feeding was 37.2%, 42.9% and 28.7% respectively [8-10]. Due to the high prevalence of inappropriate child feeding practices and the importance of exclusive breastfeeding, the Ethiopian government developed the Infant and Young Child Feeding (IYCF) guideline in 2004 [11,12]. Varying levels of interventions, giving due emphasis to key messages on complementary feeding, were being given both at health institution and community level to meet the Millennium Development Goals' (MDGs). These efforts were not based on organized evidence on the level of existing practices, which might be due to lack of studies which explored the factors predicting the high prevalence of early initiation of complementary feeding [7]. There are conflicting findings with regards to the consistency of the associations and the magnitude of the effects, suggesting that the context may be important when trying to isolate factors and practices that may be amenable to interventions [13].

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Received August 15, 2014; **Accepted** September 28, 2014; **Published** September 30, 2014

Citation: Agedew E, Demissie M, Misker D, Haftu D (2014) Early Initiation of Complementary Feeding and Associated Factors among 6 Months to 2 Years Young Children, in Kamba Woreda, South West Ethiopia: A Community –Based Cross - Sectional Study. J Nutr Food Sci 4: 314. doi: [10.4172/2155-9600.1000314](https://doi.org/10.4172/2155-9600.1000314)

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Therefore this study will be undertaken to determine prevalence and identify key determinant of early initiation of complementary feeding in young children from 6 months up to 2 years old.

Methods and Materials

Study area, period and design

This study was conducted in Kamba Woreda, one of the administrative Woreda in Gamo Gofa Zone; South West Ethiopia. It is located at 605 km away from Addis Ababa the capital city of Ethiopia and 100 kms away from Zonal town Arba Minch. From the total population around 44,000 are women in reproductive age group. The study was conducted from December 2013 to January 2014. A community based cross sectional study was conducted on mothers who have Child in age group from 6 month up to 2 years old who lives in Kamba Woreda.

Source and study population

All Children in age group from 6 month up to 2 years old who lives in Kamba Woreda were source population and those who live in randomly selected Kebleles for at least 6 months were included in the study.

Sampling and sample size determination

The sample size was calculated using single population proportion formula by considering the following assumption the proportion of mothers who initiate complementary feeding early to their child to be 42.9% [9], 95% Confidence level, 5% marginal error, and 5% none response rate and 1.5 design effect, the sample size became 467 mothers with their child.

Sampling techniques

From 39 Keble in the woreda eight Keble was selected by using lottery method. Then the number of study participant was allocated for each Keble based on proportional to population size allocation methods by using community based demographic and Health related information registration prepared by Health Extension workers as a sampling frame. Rapid census was conducted first to identify the target House hold. Finally infant-mother pairs were selected from each Keble by using systematic sampling technique after giving code for each House Hold Which has young child from six months to 24 months (Figure 1).

Data collection instrument, procedure and quality control

Data was collected from Mothers/cares giver who has at least

one child in age 6 months-2 years from each household by direct interviewing. Those who have more than one child in age range of 6 months to 2 years one child was selected randomly by lottery methods. A pre-tested structured questionnaire adapted from different literature was used to collect data. First the questioners was prepared in English and translated to Amharic which is the local language and pre tested on 24 mothers before actual data collection outside the selected Keble; correction and modification was done based on the gap identified during interview. Sixteen Grade 12 completed female students were recruited as data collectors and supervised by 4 Clinical Nurse. Two days intensive training was given on the aim of the research, content of the questionnaire, and how to conduct interview for data collectors and supervisor to increase their performance in field activities. The Collected data was checked every day by supervisors and principal investigator for its completeness and consistency.

Data analysis and handling

Data was coded and entered in to Epi info version 3.5.1 and exported to SPSS Version 20 for analysis. Descriptive Frequencies was conducted to describe the study population in relation to relevant variables. Bivariate logistic regression analysis was calculated to assess the crude association between dependent and independent variables. Finally Variables which shows association in Bivariate logistic regression and P-value less than 0.2 entered in to Multivariate logistic regression model, to identify key significant factors associated with outcome variables. The collected data keep in the form of file in secure place where no one don't access it except the investigator, confidentiality was insured by avoiding recording names or any personal identifiers.

Study variables

Dependent variables:

- Early initiation complementary feeding.

Independent variables:

- sociodemographic (age,sex,residence,occupationalstature,educational,income,religion)
- Mothers obstetric (reproductive) History (number live birth, birth interval and family planning utilization)
- Mothers Health service utilization History (ANC, PNC, Place of delivery
- Media exposure, influence of others, wrong perception about sufficiency of breast milk)

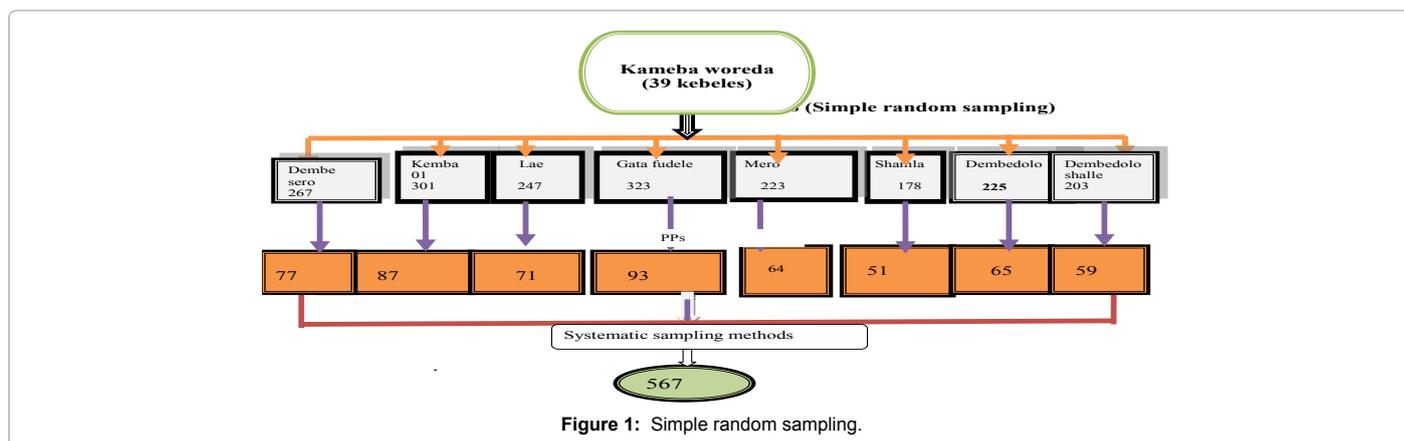


Figure 1: Simple random sampling.

Operational definition:

- **Complementary feeding:** is the period (between 6-2 years) during which foods or liquids are provided along with continued breastfeeding [1,6]
- **Early initiation of complementary feeding-**it is incitation of complementary feeding before six months [1,8].
- **Timely initiation complementary feeding-**it is time of incitation of additional supplementary food for young child at six months [1,8].

Ethical considerations

Ethical clearance was obtained from Addis continental institute of Public Health Research ethics review committee. Permission letter was obtained from Areba Minch University Post graduate Public Health coordination office and kameba Woreda Health office. Verbal informed consent was obtained from each study participant after proper explanation about the purpose of the study. All the study participants were reassured that they would be anonymous. Names or any personal identifiers were not recorded. 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.

Results

Socio-demographic characteristics of the mothers and young child

A total of 562 women having young child aged 6 months to 2 years were interviewed in the study from 567 sampled mothers with 99.11% response rate. The overall mean age of young child 13.82 months ± 5.85 (SD), 53% were in age range from 6 months to 1 years and 273(48.6%) were male and 289(51.4%) were female half of them were farmers and daily workers in there occupational statuses (Table 1)

Prevalence of Early Initiation of Complementary feeding

From 562 interviewed mothers 59.6% CL (59.56 - 59.64) start complementary feeding early before sex months and 228(40.6%) CL (40.36 - 40.44) started complementary feeding at six months. Reasons of respondent who start early complementary feeding were perception of mother’s towards breast milk is not sufficient to satisfy the Childs water demand, working outside home and lack of information about the real time of initiation of complementary feeding were the major reasons(Figure 2 and Table 2).

Discussion

In this study, the prevalence of early initiation of complementary feeding was 59.6% CL (59.56 - 59.64) which is higher than research findings in Sri Lanka 15% [12], Ethiopia (National prevalence 49%) [7], North Ethiopia Mekelle town (37.2%), Oromia Region Jima Arejo (42.9%), Goba District (28.7%) [8,10,14] and relatively similar to West Bengal India (55.1%) [15]. This relatively higher prevalence of early initiation of complementary feeding can be explained the present study was conducted in area where one fourth mothers (26.6%) involved in outside work activity and stay long time away from home for work purpose. These enforce mothers to give fluid based liquid including water and others semi-solid locally prepared food before six months due to fear of breast milk alone is not sufficient to satisfied water demand of the child due to lack of time to feed breast frequently [10,16,17]. Wide variations in the prevalence of early incitation of complementary feeding have been observed and direct comparisons is difficult because

Variables	Frequency	Percent (%)
Age of child		
6-8 months	125	22.2
9-12 months	172	30.6
13-17 months	119	21.2
18-24 months	146	26
Sex of child		
Male	273	48.6
Female	289	51.4
Residence of mother		
Rural		
Urban	205	36.5
Age of mother		
15-19	88	15.7
20-24	151	26.9
25-29	271	48.2
>=30	52	9.3
Religion statuses		
Orthodox	197	35.1
Protestant	348	61.9
Muslim	17	3
Education		
No education	173	30.8
Primary Education	202	35.9
Secondary & above	187	33.3
Occupational statuses		
Daily laborer	20	3.6
Private business	259	46.1
Government	27	4.8
Housewife	256	45.6
Monthly Income		
≤500 birr/month	475	84.5
≥501 birr/month	87	15.5

Table 1: Socio-demographic Characteristics of mothers, who had infant aged from 6 months to 2 year, who live in Kameba Woreda, from December 2013 to January 2014.

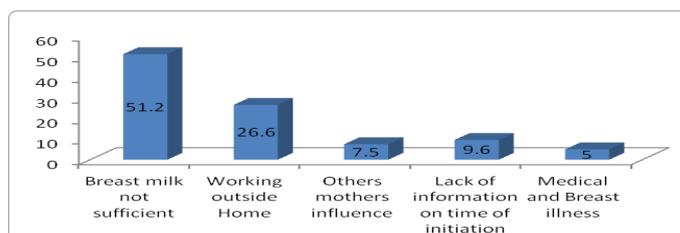


Figure 2: Reasons of mother’s early initiation of complementary feeding before six months, among mothers who have 6-2 year’s young child in Kameba Woreda, from December 2013 to January 2014.

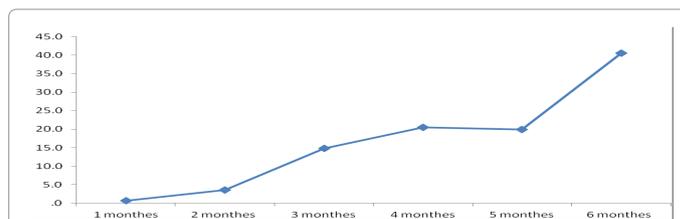


Figure 3: Time of initiation of complementary feeding mothers who have 6-2 year’s young child in Kameba Woreda, from December 2013 to January 2014.

Explanatory Variable	Complementary feeding initiation time		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
	<6 mo(1)	6 mo(0)			
Residence					
Rural	147(44)	58(25.4)	2.30(1.59-3.33)	1.34(0.82-2.19)	0.24
Urban	187(56)	170(74.6)	1	1	
Age					
≤ 19	39(11.7)	49(21.5)	1	1	
20-24	66(19.8)	85(37.3)	1.03(0.60-1.74)	1.15(0.647-2.08)	0.62
25-30	108(32.3)	163(71.5)	1.20(0.74-1.95)	0.97(0.54-1.75)	0.924
≥ 31	15(36.2)	37(130.3)	1.96(0.94-4.09)	**2.60(1.07-6.35)	0.035
Education level					
No formal Education	126(37.7)	47(20.6)	3.08(1.98-4.79)	**2.76(1.63-4.69)	0.001
Primary education	121(36.2)	81(35.5)	1.72(1.15-2.57)	1.42(0.89-2.25)	
Secondary & above	87(26.1)	100(43.9)	1	1	
Occupational statuses					
Daily laborer	15(4.5)	5(2.2)	3.55(1.40-9.09) 0.41(0.28-0.59)	**3.06(1.03-9.12)	0.045
Private(merchant, farmers.)	184(55)	75(32.9)	0.34(0.12-0.96)	**2.39(1.61-3.53)	0.001
Government worker	6(1.8)	129(38.7)	21(9.2)	0.44(0.16-1.18)	0.103
Housewife		127(55.7)		1	
Media Exposure					
Yes	158(47.3)	144(63.2)	1		
No	176(57.7)	84(67.8)	1.91(1.35-2.69)	0.86(0.53-1.39)	0.54
Place of delivery					
Home	125(37.4)	74(32.4)	1.25(0.87-1.78)	1.41(0.89-2.24)	0.14
Health facility	209(62.6)	154(67.6)	1	1	
ANC follow up					
Yes	288(86.2)	208(91.2)	1	1	
No	46(13.8)	20(8.8)	1.66(0.95-2.89)	0.82(0.44-1.57)	0.55
PNC follow up					
Yes	70(20.9)	83(36.4)	1		
No	264(79.1)	145(63.6)	2.16(1.48-3.2)	**1.64(1.05-2.55)	0.029
maternal illness					
Yes	167(55.9)	95(41.7)	1.40(0.99-1.96)	**1.56(1.05-2.32)	0.027
No	167(44.1)	133(58.3)	1		

**Significant factor

Table 2: Factors associated with early initiation of complementary feeding before six months, among mothers who have 6-2 year's young child in Kameba Woreda, from December 2013 to January 2014.

of differences in methodologies like sampling, data collection methods and setting, nature of study population, timing of the study, and related environmental and socioeconomic factors.

Mothers in age group ≥30 years 2.6(1.07 - 6.35) times start early ination of complementary feeding as compared to others age groups this is consistent with study conducted in oromia region Jimma Arejo [9]. This is due to the fact that this age group was influenced by different traditional and cultural misconception. Like in many other developing countries; most mothers provided their children water because they believe that the breast milk was insufficient; breast milk seen primarily as food and water is required to satisfy the needs of the child [7,10].

Mothers who have no formal education early initiate complementary feeding 2.76 (1.63-4.69) times as compared to with mothers who have higher education. This finding is supported by other finding [4,8,9,18], this is due the fact that improved maternal education enhances mothers knowledge, attitudes and practice towards benefits of introducing

complementary feeding timely, and empowers them to involved in better economic statues than there counterpart. In addition education empowers them to resist external interferences and pressures from traditional belief and misconception.

Mothers who work as daily workers, farmers, merchant and Government employed were more likely early initiate complementary feeding as compared to House wife it is supported with others research[8-10,18]. The possible explanation for this association is majority (98.22%) respondent has no breast milk expression feeding practice to feed their child at home when they move away from home for work purpose, in addition they believe the child is exposed with hunger and water thrust due to lack of time to breast feed frequently. So that they start to initiate early feeding of their child solid and semi-solid food; but House wife mothers are more likely start complementary feeding timely since they stay in home with their child and have sufficient time for frequent breast feeding.

Mothers who have No post natal, child growth monitoring follow up in Health institution were start early complementary feeding as compared to mothers who have follow up. These finding is supported by others studies [19-21]. This is explained Mothers who get advice and Health education on complementary feeding during Post natal and growth monitoring has favorable impact on the promotion of timely initiation of complementary feeding. But Antenatal follow up and place of delivery has no significant association with timely initiation complementary feeding practice in these study these finding is inconsistent with others study [8,19-21]. These may be Health professional advice and counsel mothers mainly on danger sign of pregnancy and birth preparedness rather than on timely initiation of complementary feed during ANC visit.

Conclusions

A large proportion of young child start complementary feeding before 6 months, despite what is recommended in the National and Global infant and young child feeding guidelines. The mean reason identified for early incitation complementary feeding were perception of mothers on breast milk is not sufficient to satisfy the Childs water demand and followed by working outside Home were the major reasons. Mothers who work outside home, those who have no formal education, daily workers and Private work activity (merchant, farmers) those who have no post natal follow up in Health service and post natal maternal medical illness were significantly associated factors for early initiation of complementary feeding.

Recommendation

For mothers and care givers

- Mothers who work outside home adopt workplace breastfeeding practices and breast milk expression in cup to feed the child at home when they move outside home.

For Health extension workers and health professional

- Special emphasis should be given for mothers with low educational statues and age above 30 years by giving continues Health education to change their wrong attitude and perception
- Health professional should give focus to advice and counsel mothers on timely initiation of complementary feeding during prenatal, delivery and post natal period.
- Advising mothers to treat early when they encountered medical illness

For government (Policy makers)

- Developing motivational factors for mothers like prize in mass media who start complementary feeding at six months as promotion (advertizing) of timely initiation of complementary feeding
- In government institution establishing baby center is an alternative solution to improve timely initiation of complementary feeding for government employed mothers.
- At last it is better to extend maternal leave from 5-6 months to achieve optimal complementary feeding since majority of mothers start commentary feeding at 4-5 months.

For researchers

- Further research should be conducted by using qualitative study

design to understand deeply socio-cultural and behavioral related factors towards complementary feeding to develop and implement better strategy to improve complementary feeding.

Acknowledgements

We would like to Arba Minch University for financial and material support to conduct this research. We are also greatly indebted to thank all respondents for their willing to participate in the study and our colleagues Befekadu tariku and Shekur Mohamed for their relevant materials, valuable comments and thoughtful suggestions.

Authors' Contributions

EA: Initiated the research, wrote the research proposal, conducted the research, did data entry and analysis and wrote the manuscript. MD: Involved in the write up of the proposal, write up of the manuscript. DM contributed in the designing of methods, write up, DH contributed in the designing of methods, write up and analysis.

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