

# Prelacteal Feeding Practice and Associated Factors among Mothers Attending Immunization Clinic in Harari Region Public Health Facilities, Eastern Ethiopia

Yoseph Bekele<sup>1</sup>, Bezatu Mengistie<sup>2\*</sup>, Frehiwote Mesfine<sup>3</sup>

<sup>1</sup>Public Health Department, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

<sup>2</sup>Environmental Health Department, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

<sup>3</sup>School of Nursing and Midwifery, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

Email: [yosbegal@gmail.com](mailto:yosbegal@gmail.com), [bezex2000@yahoo.com](mailto:bezex2000@yahoo.com), [mfrehiwotem@gmail.com](mailto:mfrehiwotem@gmail.com)

Received 28 May 2014; revised 27 June 2014; accepted 11 July 2014

Copyright © 2014 by authors and Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

---

## Abstract

**Background:** Breast feeding will have the intended outcome when it is initiated timely and exclusive for the first six months. Introducing prelacteal feeding and inadequate amount of breast milk contributes to over a million avoidable infant deaths each year in developing countries. The purpose of this study was to assess prelacteal feeding practice and associated factors among mothers attending immunization clinic in Harari region government health institutions. **Methods:** An institutional based cross-sectional study design was conducted among 634 mothers and infants dyads attending ten public health facilities. Systematic random sampling method was used to select the study participants. An exit interview using pretested structured questionnaire was conducted about their experience on prelacteal feeding and related experience. Logistic regressions with OR and 95% confidence interval were computed. **Result:** Two hundred seventy eight (45.4%) of mothers gave prelacteal liquids for their infants. The common pre-lacteal food includes sugar or glucose water 121 (43.5%) followed by milk other than breast milk 70 (25.1%). Home delivery, failure to attend ANC, late breastfeeding initiation and influence by friends were significantly associated with prelacteal feeding. **Conclusion:** The prevalence of prelacteal feeding was relatively high in the area. Failure to attend ANC, giving birth at home, late initiation of breast feeding and influence of friends and relatives to give prelacteal feeds for their new born infants were found to be positively associated with prelacteal feeding.

---

\*Corresponding author.

## Keywords

**Prelacteal Feeding, Infant, Exclusive Breastfeeding, Mothers**

### 1. Background

Prelacteal feeding is giving liquids or foods other than breast milk prior to the establishment of regular breastfeeding. It deprives the child valuable nutrients, protects colostrum and exposes the newborn to the risk of infection [1]. Furthermore, prelacteal liquid is given with a finger or a spoon often while the child is asleep or crying, and there is a danger of aspirating the fluid into the air passages and lungs. Thus, this feeding process reduces the practice of exclusive breast feeding which can be dangerous to the child and may even result in death [2]-[4].

A lack of exclusive breastfeeding contributes to over a million avoidable child deaths each year. Globally, less than 40% of infants less than six months of age are exclusively breastfed [5] [6]. Every day, 3000 - 4000 infants die in the developing world from diarrhea and acute respiratory infections because they are given inadequate amounts of breast milk and were introduced pre-lacteal feeding [7]. Breastfeeding has the potential to save neonatal, infant and young child lives and to reduce morbidity [8]. It is ranked as one of the safest and most efficient health interventions to achieve the millennium development goal 4 (MDG4): reduce child mortality [9].

Although breast-feeding is almost universal across Ethiopian ethnic groups and geographical areas, it does not always meet WHO/UNICEF recommendations [10]. Data from the Ethiopian Demographic Health Survey of 2011 Report showed that 27% of infants were given prelacteal feedings within the first three days of life [11]. However, there is a paucity of information on social and environmental factors associated with pre-lacteal feeding. Thus, the objectives of this study were to determine the prevalence of pre-lacteal feeding practices and associated factors among mothers attending immunization clinics in Harari region public health facilities.

### 2. Method

**Study area and period:** The study was conducted in February 2013 in public health facilities located in Harari region, Eastern Ethiopia. Harari is one of the nine regional states of the Federal Democratic Republic of Ethiopia (FDRE). Harar, capital city of the region, is about 526 km east from the capital city Addis Ababa. The region has 10 public health facilities, of which six are located in Harar. This study was conducted in two hospitals (regional and referral) and eight health centers.

**Study design, population and sampling:** Institution based cross sectional study was conducted among mothers visiting immunization clinic. The sample size was calculated using single population proportion formula: the proportion of mothers who practice prelacteal feeding was assumed to be 50% [12], Z value is 1.96, 4% marginal error, and 10% none response rate, a total of 634 mothers infant dyads were required for the study.

The sampling unit was taken from each of the 10 public health institutions based on their predetermined client flow rate. To allocate the study subjects, first the average numbers of clients who visit the immunization department daily was estimated by referring client registration book/record for two month prior to data collection. Proportional allocation was made based on the possible number of patients that would be expected during the study period. Systematic random sampling was employed to identify study participants. Sampling interval was determined by dividing the expected patient with in the study period by allocated sample size to each facility.

**Data collection:** Data were collected by client exit interview from mothers of infants who attended immunization clinics using a structured questionnaire. Structured questionnaire, which was originally prepared in English, translated to two local languages called Amharic and Afan Oromo. Ten 3<sup>rd</sup> year college nursing students recruited to collect data during working hours of the health institutions for the whole data collection period. Supervisors' were public health officers.

**Data quality control:** Structured questionnaire was translated from English to local languages and responses were translated back to English. A pretest was conducted in 32 (5%) mothers, to assess the content and approach of the questionnaire. Three supervisors were recruited, and training was given to data collectors and supervisors for two days on the objective, relevance of the study, confidentiality of information, respondent's right, importance of pre-test, informed consent and techniques of interview.

**Data analysis, presentation and interpretation:** Data were first checked manually for completeness, coded,

entered, and cleaned using Epidata version 3.11 and exported to SPSS version 16.0. Descriptive analysis was used to describe the percentages and number distributions of the respondents by socio-demographic characteristics. Variables which showed an association with dependent variable in the bivariate analyses at  $\alpha = 0.05$  were entered into multivariate logistic regression model. Adjusted Odds ratios (OR) with corresponding 95% confidence intervals were used to analyze and interpret study results.

**Ethical considerations:** The study was reviewed and approved by the Haramaya University Institution Research Ethics Review Committee. Written informed consent was obtained from each participant before the study.

### 3. Results

From 634 participating mothers—infant dyads, 612 completed the study (96% response rate) and were included in the analysis. Three hundred twenty eight (53.6%) mothers were from rural areas and 453 (74.0%) were from Oromo ethnic group. Majority (98.5%) of the mothers were married, and 376 (61.4%) were housewives. Among the participants, 482 (78.8%) were Muslims, and 103 (16.8%) Orthodox Christians. Two hundred ninety two (47.7%) were illiterate while 77 (12.6%) mothers had education above 12 grade. Two hundred eighty seven (46.9%) of the mothers were found in the age range 15 - 25 years. Two hundred seventy eight (45.4%) of them had monthly income of less than 500 Birr (local currency). The mean age of infants was 4 months with (SD  $\pm$  3) months. Males accounted for 328 (53.6%).

Out of the total 612 respondents, 278 (45.4%) of mothers gave prelacteal liquids for their infants. The common pre-lacteal food includes sugar or glucose water 121 (43.5%) followed by milk other than breast milk 70 (25.1%) (Table 1).

About 26% of mothers with infants didn't receive ANC service at least once and 47% of them gave birth for their current child at home. Nearly half of the mother (46%) didn't initiate breastfeeding immediately after delivery. Forty six percent of them were influenced to give pre-lacteal feeding to their new born.

In the bivariate analysis, residence, family size, number of children, family monthly income, child age, birth order, mothers' and fathers' educational level, knowledge, ANC follow up, delivery type and place, breast feeding initiation time, and influence to give pre-lacteal feeding were significantly associated with prelacteal feeding ( $p < 0.05$ ) (Table 2).

In the multivariate logistic regression analysis, ANC follow up, place of delivery, breast feeding initiation time and influence to give prelacteal feeding were found to be associated with of prelacteal feeding. The odds of prelacteal feeding were 2.62 times higher for mothers who didn't attend ANC follow up compared to their counterpart (AOR = 2.62, 95% CI: 1.47 - 4.6). The odds of prelacteal feeding were 3.42 times higher for infants delivered at home compared to infants delivered at the public health facility (AOR = 3.42, 95% CI: 2.0 - 5.87) (Table 2).

**Table 1.** Types of prelacteal feeding among mothers with infants in Harari region public health facilities in Eastern Ethiopia, 2013.

Types of prelacteal feeds	N = 278	%
Milk other than breast milk	70	25.1%
Plain water	63	22.7%
Sugar or glucose water	121	43.5%
Sugar salt water solution	4	1.4%
Fruit juice	3	1.07%
Infant formula	2	0.7%
Tea	2	0.7%
Honey	2	0.7%
Fresh butter	10	3.59%
Others	1	0.4%

**Table 2.** Predictors of prelacteal feeding practice among mothers with infants in Harari region government health facility, Eastern Ethiopia, 2013.

Variables	Prelacteal feeding practice		COR (95% CI)	AOR and 95% CI	
	yes = 278	No = 334			
Residence	Urban	82 (29.5%)	202 (60.5%)	1.0	1.0
	Rural	196 (70.5%)	132 (39.5%)	3.66 (2.61, 5.13)	1.23 (0.71, 2.13)
Family size	≤3	60 (21.6%)	99 (29.6%)	1.0	1.0
	≥4	218 (78.4%)	235 (70.4%)	1.53 (1.06, 2.22)	1.99 (0.68, 5.88)
No of children	≤3	160 (57.6%)	257 (76.9%)	1.0	1.0
	≥4	118 (42.4%)	77 (23.1%)	2.46 (1.74, 3.49)	1.0 (0.56, 1.78)
Monthly income	≤500	177 (12.9%)	101 (30.2%)	5.02 (3.45, 7.29)	1.87 (0.83, 3.38)
	501 - 999	36 (23.4%)	47 (14.1%)	2.19 (1.31, 3.68)	0.92 (0.43, 1.96)
	≥1000	65 (17.6%)	186 (55.7%)	1.0	1.0
M/educational status	Illiterate	186 (66.9%)	106 (31.7%)	1.0	1.0
	Read & write	23 (8.3%)	59 (17.7%)	0.22 (0.13, 0.38)	0.37 (0.18, 0.76)
	Primary	43 (15.5%)	63 (18.9%)	0.39 (0.25, 0.61)	0.62 (0.31, 1.23)
	9 - 12	13 (4.7%)	42 (12.6%)	0.18 (0.09, 0.34)	0.71 (0.27, 1.90)
	>12	13 (4.7%)	64 (19.2%)	0.12 (0.06, 0.22)	0.35 (0.12, 1.01)
	Illiterate	139 (50.0%)	59 (17.7%)	1.0	1.0
F/ education status	Read & write	41 (14.7%)	48 (14.4%)	0.36 (0.22, 0.61)	0.62 (0.29, 1.35)
	Primary	51 (18.3%)	53 (15.9%)	0.41 (0.25, 0.67)	0.50 (0.23, 1.07)
	9 - 12	25 (9.0%)	65 (19.5%)	0.16 (0.09, 0.28)	0.64 (0.25, 1.61)
	>12	22 (7.9%)	109 (32.6%)	0.09 (0.05, 0.15)	0.56 (0.16, 1.97)
	1	76 (27.3%)	115 (34.4%)	1.0	1.0
Birth order	2 - 3	97 (34.9%)	145 (43.4%)	1.01 (0.69, 1.49)	1.46 (0.49, 4.35)
	4 - 6	83 (29.9%)	64 (19.2%)	1.96 (1.3, 3.04)	0.34 (0.07, 1.50)
	7+	22 (7.9%)	10 (3.0%)	3.33 (1.49, 7.4)	0.33 (0.06, 1.88)
Knowledge	Poor knowledge	71 (25.5%)	24 (7.2%)	4.43 (2.70, 7.27)	1.69 (0.86, 3.34)
	Good knowledge	207 (74.5%)	310 (92.8%)	1.0	1.0
ANC follow up	Yes	126 (45.3%)	268 (80.2%)	1.0	1.0
	No	152 (54.7%)	66 (19.8%)	6.7 (4.45, 10.28)	2.62 (1.47, 4.6)
Route of delivery	Vaginal	257 (92.4%)	289 (86.5%)	1.0	1.0
	Cesarean section	21 (7.6%)	45 (13.5%)	0.53 (0.30, 0.91)	0.77 (0.35, 1.72)
Place of delivery	Home	199 (71.6%)	87 (26.0%)	7.15 (5.0, 10.22)	3.423 (2.0, 5.87)
	Health facility	79 (28.4%)	247 (74.0%)	1.0	1.0
	Immediately	67 (24.1%)	253 (75.7%)	1.0	1.0
Breast feeding time	Hours	101 (36.3%)	66 (19.8%)	5.78 (3.83, 8.71)	5.33 (3.18, 8.93)
	Days	110 (39.6%)	15 (4.5%)	27.7 (15.15, 50.)	33.2 (16.0, 68.58)
Influence to give prelacteal feeding	yes	164 (59.0%)	122 (36.5%)	2.50 (1.80, 3.47)	2.87 (1.8, 4.58)
	no	114 (41.0%)	212 (63.5%)	1.0	1.0

## 4. Discussion

This study showed that the prevalence of pre-lacteal feeding was 45.4%. Failure to attend ANC, home delivery, late breast feeding initiation and others' influence on mothers to give pre-lacteal feeds for their new born infants were found to be associated with pre-lacteal feeding.

In this study, we found that, 278 (45.4%) of the mothers gave pre-lacteal liquids to their infants. This result is similar with a study conducted in South Western Ethiopia in which 43.3% of the mothers provided pre-lacteal feedings to their infants [13]. Other studies conducted in rural Northern Ethiopia [12], Kwate [14], India and Ethiopian Demographic and Health Surveillance of 2011 Report [11] [15] reported slightly higher rates of pre-lacteal feeding.

In the present study, mothers who didn't receive ANC service were 2.6 times more likely to give prelacteal liquid for their infants than mothers who received ANC at least once (AOR = 2.6, 95% CI: 1.47 - 4.68). These results are consistent with those reported from a study conducted in India [15].

Mothers who gave birth at home were 3.42 times more likely to practice prelacteal feeding than mothers who give birth at the public health facility (AOR = 3.42; 95% CI: 2.00 - 5.88). This odds ratio is similar with the ratio reported from studies conducted in Pakistan and Uganda [16]. Regarding the time of breast feeding initiation, mothers who started breast feeding a few hours after birth were 5.3 times more likely give prelacteal liquids for their infants compared to those who started breast feeding immediately after birth (AOR =5.33, 95% CI: 3.18 - 8.93). This finding is similar to the study done in Uganda [17].

Mothers with infants who are influenced to give prelacteal liquid for their newborn were 2.87 times more likely to practice giving prelacteal liquids for their infants compared to their counterparts (AOR = 2.87, 95% CI: 1.80 - 4.58). This is consistent with a study conducted in western Uganda and King Edward Medical University/ Mayo Hospital, Lahore [17] [18].

## 5. Conclusion

This study showed that the prevalence of prelacteal feeding was high in the area. Fail to attend ANC, home delivery, late breastfeeding initiation and influence by friends and relatives were associated with prelacteal feeding. We recommend that health education should be provided on avoiding prelacteal feeding at the healthcare facilities and community levels. The focus should be aimed at mothers who are not attending ANC and do not have follow-up and institutional delivery services.

## Acknowledgements

We thank all study participants and data collectors. We also like to thank Haramaya University for financial support of the study.

## Authors' Contributions

YB initiated the research, wrote the research proposal, conducted the research, did data entry and analysis and wrote the manuscript. BM involved in conceptualization of the research, statistical analysis and writing of the manuscript. FM assisted in the drafting of the manuscript and data tables. All authors read and approved the final manuscript.

## References

- [1] Mukuria, A.G., Kothari, M.T. and Abderahim N. (2006) Infant and Young Child Feeding Updates. ORC Macro, Calverton.
- [2] Akuse, R.M. and Obinya, A.E. (2002) Why Health Care Workers Give Prelacteal Feeds. *European Journal of Clinical Nutrition*, **10**, 729-734. <http://dx.doi.org/10.1038/sj.ejcn.1601385>
- [3] Quinn, V., Guyon, A. and Claudine, M. (2004) Successfully Scaling Up Exclusive Breastfeeding: Lessons Learned from Madagascar by the Child Health and Nutrition Research Initiative.
- [4] Ray, G. and Singh, S.P. (1997) Prevailing Practices and Beliefs Related to Breast Feeding and Top Feeding in an Urban Slum Community of Waranasi. *Indian Journal of Preventive Social Medicine*, **28**, 37-45.
- [5] Kramer, M.S., Chalmers, B., Hodnett, E.D., et al. (2001) Promotion of Breastfeeding Intervention Trial (PROBIT): A

- Randomized Trial in the Republic of Belarus. *JAMA*, **285**, 413-420. <http://dx.doi.org/10.1001/jama.285.4.413>
- [6] Ingunn M., S. Engebretsen, H., Wamani, C., Karamagi, N., Semiyaga, J., Tumwine and Tylleskär, T. (2007) Low Adherence to Exclusive Breastfeeding in Eastern Uganda: A Community-Based Cross-Sectional Study Comparing Dietary Recall since Birth with 24-h Recall. *BMC Pediatrics*, **7**, 2431-2438.
- [7] Singh, B. (2010) Knowledge, Attitudes, and Practices of Breastfeeding: Case Study. University Hospital, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. *European Journal of Scientific Research*, **40**, 404-422.
- [8] Black, R.E., Morris, S.S. and Bryce, J. (2003) Where and Why Are 10 Million Children Dying Every Year? *Lancet*, **361**, 2226-2234. [http://dx.doi.org/10.1016/S0140-6736\(03\)13779-8](http://dx.doi.org/10.1016/S0140-6736(03)13779-8)
- [9] Bryce, J., Terreri, N., Victora, C.G., Mason, E., Daelmans, B., Bhutta, Z.A., Bustreo, F., Songane, F., Salama, P. and Wardlaw, T. (2006) Countdown to 2015: Tracking Intervention Coverage for Child Survival. *Lancet*, **368**, 1067-1076. [http://dx.doi.org/10.1016/S0140-6736\(06\)69339-2](http://dx.doi.org/10.1016/S0140-6736(06)69339-2)
- [10] WHO, UNICEF, AED, USAID. Africa's Health (2010) Learning from Large Scale Community-Based Programs to Improve Breastfeeding Practices. Department of Nutrition for Health and Development, Geneva.
- [11] Central Statistical Agency [Ethiopia] and ICF International (2012) Ethiopia Demographic and Health Survey 2011. Central Statistical Agency and ICF International, Addis Ababa.
- [12] Nikki, L., Jemilla, A., Dennis, M., Sarah, N., Linda, J., Andrew, J. and Dennis, C. (2011) Colostrum Avoidance, Pre-lacteal Feeding and Late Breast-Feeding Initiation in Rural Northern Ethiopia. *Public Health Nutrition*, **14**, 2029-2036. <http://dx.doi.org/10.1017/S1368980011000073>
- [13] Dessalegn, T., Tefera, B., Eskindir, L. and Shikur, M. (2012) Sub-Optimal Breastfeeding of Infants during the First Six Months and Associated Factors in Rural Communities of Jimma Arjo Woreda, Southwest Ethiopia. *BMC Public Health*, **12**, 363. <http://dx.doi.org/10.1186/1471-2458-12-363>
- [14] Manal, D., Jane, A., Christine, A.E. and Mona, A. (2010) Determinants of Breast Feeding Initiation among Mothers in Kuwait. *International Breastfeeding Journal*, **5**, 7.
- [15] Shanthi, A., Bhuvanawari, K. and Sounderrajan, P. (2012) Antenatal Counseling for Breast Feeding Are We Doing It the Right Way? *Current Pediatric Research*, **16**, 142-144.
- [16] Rajendra, K.G. and Gautam, N. (2012) Changing Trends and Impact of Ante-Natal Education and Mother's Educational Status on Pre-Lacteal Feeding Practices. *Journal of Pharmaceutical and Biomedical Science*, **1**, 2230-7885.
- [17] Ogah, A., Ajayi, A.M., Akib, S. and Okolo, S.N. (2012) Pre-Lacteal Feeding Practice. A Cross-Sectional Study Kampala International University Teaching Hospital Maternal and Child Health Clinic, Bushenyi, Western Uganda. *Asian Journal of Medical Sciences*, **4**, 79-85.
- [18] Iqbal, S.M.J., Afzal, M.F., Azhar, I.H. and Sultan, M.S. (2010) First Feed in Newborn: Are We Following WHO Recommendations? *Annals of King Edward Medical University*, **16**, 229-232.

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science with its publication.

Other selected journals from SCIRP are listed as below. Submit your manuscript to us via either [submit@scirp.org](mailto:submit@scirp.org) or [Online Submission Portal](#).

