



Magnitude of Pre-Lacteal Feeding Practice and Associated Factors among Mothers having Children Less than 2 Years of Age in Fitch Town, North Showa, Ethiopia

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Abstract:

Background: Pre-lacteal feed is food and/or fluid provided to a new-born before initiating breastfeeding. Initiation of complementary feedings before six months can lead to displacement of breast milk which may increase risk of infections such as diarrhoea, weight loss and malnutrition. This study was aimed to assess magnitude of pre-lacteal feeding practice and associated factors.

Methods: Community based cross-sectional study was conducted among mothers having children less than two years by using systematic sampling technique. Interviewer administered structured questionnaires were used to collect data then interred in to EPI data version 3.1. Finally the data was exported to SPSS version 22 for analysis. Descriptive statistics and logistic regression were done. P-value of less than 0.05 was taken as statistically significant.

Results: The magnitude of pre-lacteal feeding practice was 24.4 %. The common type of pre-lacteal feeding was plain water; 39(12.2) followed by butter; 25(7.8 %). Those mothers who didn't get counselling on breast feeding were seven times more likely practice pre-lacteal feeding compared to those who were counselled (AOR: 7.07 (95 % CI: 1.67, 29.88)). Mothers who are not knowledgeable about risk pre-lacteal feeding were 8.56 times more likely practice pre-lacteal feeding compared to knowledgeable mothers (AOR: 8.56 95 % CI: 2.65, 27.64).

Conclusion: About one fourth of mothers (24.4 %) practice pre-lacteal feeding which makes breastfeeding practices sub-optima at the study area. Absence of counselling on breast feeding and being not knowledgeable about the risk of pre-lacteal feeding was significantly associated with pre-lacteal feeding practice among the study participants.

Keywords: Infant feeding practice; Pre-lacteal feeding; Fitch town

Introduction

Starting breastfeeding in the first one hour after birth can reduced risk of neonatal morbidity and mortality and improve maternal health outcomes^[1]. Giving pre-lacteal feeds is a key factor for early termination of full breastfeeding which can affect infant and childhood health status^[2]. Study results revealed that, more than 80 % of neonates receive breast milk across the globe, but only about half began breastfeeding within the first hour of life in contrast to WHO recommendations^[2] Breastfeeding is the most important factors of child survival, birth spacing, and the prevention of childhood illness and infections. The positive effects of breastfeeding depend on its initiation, duration, and weaning time^[3].

Oxford and Mariam Webster dictionaries defined pre-lacteal as feed that is given to a new-born infant before the mother has begun to breastfeed. It is a major barrier to exclusive breastfeeding^[4] which is the cornerstone of adequate infant nutrition. Despite different interventional measures acknowledged by Baby Friendly Hospital Initiative (BFHI) of in ensuring optimal infant nutrition, pre-lacteal feeding within the first day of life is still a common problem^[4].

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Across many countries pre - lacteal feeding is a common cultural practice can be considered as an important factor late initiation of breast feeding. These delays the milk let down reflex and could contribute to lactation failure^[5]. Despite the demonstrated benefits of breast milk, the prevalence of breastfeeding, in particular exclusive breastfeeding in many developing countries including in our country is lower than the international recommendations^[6].

The increased problem of under nutrition in the first two years of life suggests problems of poor infant feeding practices. Adequate nutrition is essential for children's health and development since growth during the first year of life is very crucial. Breast milk provides immunologic protection against morbidity and mortality from diseases like diarrhoea, respiratory infections, otitis media, pneumonia and meningitis^[7,8].

Pre - lacteal feeding is a common practice which is prevalent in almost all the communities throughout the World invariably of any background, belief and nation. Mostly, it is established as a tradition in different communities and treated as a part of culture. Study done in Indian revealed mental, physical and medical conditions of mothers during postnatal period affects infant feeding practice in addition to culture^[8].

Worldwide about 4,000 infants and young children die daily due to diarrhoea and pneumonia secondary to poor practice of breast feeding. From these deaths, more than two folds are among 0-5 month old infants. It was associated with having repeated infections, slow growth and increases death among 2-28 days infant six times than children who receive early breast milk^[9,10]. Inappropriate feeding practices causes more than 35 % of deaths in children less than five years of age of which more than two-thirds occur during the first year of life^[11]. A result of study in Nepal showed 26.5 % were provided with Pre-lacteal feeding^[1].

It is also common practice in Indian subcity like; Tamilnadu = 14.85%, pure block of Jammu and Kashmir = 88 %, 48 %, Pondicherry 42.7 % and Maharashtra and Luck now city 50.6%^[3,12-15]. Study done in Egypt at Mansoura also showed about 58 % of new born initiated pre - lacteal feeds before breast.

Evidences revealed that, sugar or glucose water (39.6 %), infant formula (28.6 %), and herbs (21.7 %) are commonly given as pre - lacteal feedings. Tradition (61.0 %) and poor maternal advice (58.3 %) are reported as the most common reasons^[16].

Report from developing countries showed, early initiation of breastfeeding minimizes death due to diarrheal disease and lower respiratory tract infections and saves about 1.45 million lives each year^[17,18]. A cross sectional descriptive study done on Slum Children revealed most of the mothers (84 %) gave pre-lacteal feedings^[19].

Study done in Nigeria revealed that more than one third (38.8 %) of mothers gave pre-lacteal feeding for their infants^[20,21] another study conducted in Harari showed (45.4 %) of mothers gave pre-lacteal feedings for their infants^[22]. In Ethiopia, diarrhoea is a major contributor of illness and death among young infants and children, particularly in urban areas, due to inappropriate breastfeeding and pre-lacteal feeding practice^[23].

Although pre-lacteal feeding is widely practiced in Ethiopia, extent of the problem and contributing factors were not well investigated in the study area. Therefore, the purpose of

this study was to determine the magnitude and associated factors of pre-lacteal feeding practice among mothers having children less than two years of age in Fitch town, North show Ethiopia.

Method and Materials

Study area and period: The study was conducted at Fitch Town the capital city of North Shewa Zone of Oromia National Regional State. Fitch is found at 115 km from Addis Ababa on the way to Gojam. The town has four kebeles. Based on central statistical agency in 2010 the town has the total population of 39,910 where 18,774 are male and 21,136 are female. 8832 of them are women of reproductive age group (15-49), 6,558 are under five children and 2,276 are children less than two years of age. Each kebele has three urban Health Extension Workers. The town has one hospital, two health centers, 6 private health institutions and 6 drug stores. The studies was conducted from February1 to March 1, 2016.

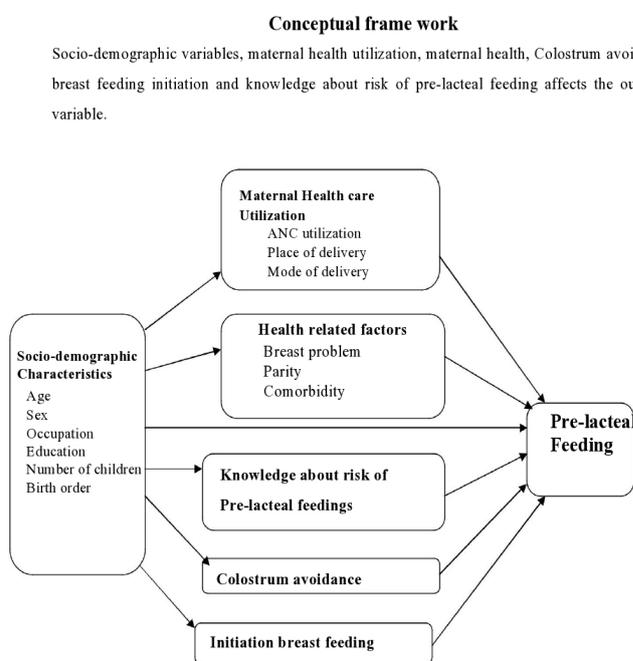


Figure 1: Conceptual framework developed after review of literatures on assessment of pre-lacteal feeding practice and associated factors among mothers having children less than two years^[3,14,24,27,33].

Study Design: Community based cross - sectional study was conducted.

Source population: Mothers having children less than two years of age living in Fitch town were the source population.

Study population: Mothers having children less than two years and living in the selected kebeles.

Inclusion and Exclusion criteria

Inclusion criteria: Mothers having children less than two years of age and who stayed more than six months in the town.

Exclusion criteria: Mothers who were seriously ill, mental problem (unable to communicate).

Sample Size Determination

The sample size was determined by the formula used to estimate a single population proportion and using 17.0 % prevalence (17) and 5 % margin of error with 95 % confidence level.

$$n = \frac{(z\alpha/2)^2 p(1-p)}{d^2 (0.05)^2} = \frac{(1.96)^2 0.17(1-0.17)}{(0.05)^2} = 217$$

Where, Z= Standard normal variable at 95% confidence level (1.96), p = Estimated proportion of pre - lacteal feeding (17 %) d= margin of error (5 %)

Since, the population was less than 10,000 correction formulas was used

$$n_f = \frac{n * N}{n + N} = \frac{217 * 2276}{217 + 2276} = 198$$

Where, N=the target population =2276, n_f = 218 after considering 10 % for non-response rate. Finally design effect was taken into consideration then the final sample size was $1.5 * 218 = 327$

Sampling procedure

The town has 4 kebeles and each of the two kebeles was selected randomly by lottery methods from the existing four kebeles. In order to obtain the sample size from each 2 kebeles proportional allocation to sample size was done. Participating households from the selected Keble's was identified using systematic sampling technique from the urban HEWs registry book as sampling frame. Finally every Kth mother from each house hold of the two Kebeles was identified until the required sample size fulfilled and the starting household was selected using a lottery method.

Study variables

Dependent variable: Pre-lacteal feeding

Independent variables

Socio-demographic characteristics

Health care service utilization

Health related factors

Knowledge about risk associated with pre-lacteal feedings

Colostrum avoidance

Initiation time of breast feeding

Data collection instruments

The data collection instrument was adapted from different national and international literatures^[38,40] then modified and contextualized to the local situation. The English version questions was translated into 'Afan Oromo' and 'Amharic' then back translated into English by fluent speakers of both 'afan Oromo and Amharic' languages to check its consistency. The instrument has three parts; the first part contains socio demographic characteristics, the second part contains infant feeding practice and the third part contains factors influencing pre-lacteal feeding.

Data collection procedure

Face to face interview using structured questionnaires was used to collect data. Two days training was given for data collectors to ensure completeness and consistency of information during data collection. Three diploma and one senior BSc nurses were recruited for data collection process.

Data quality assurance

The pre-test was conducted on 5% of the sample size at kebele 01 to check accuracy, clarity and to determine the length of time needed for interview. After review of the instruments all suggested revision was made prior to actual data collection. The investigator and supervisor checked all questionnaires from each data collectors on spot. Short term meeting and discussion was undertaken to ensure that all the information was properly collected.

Data processing and analysis

Data was entered into EPI data version 3.1, cleaned and exported to IBM SPSSversion 22 for analysis. Descriptive statistics were used to describe socio-demographic characteristics of the study variables. Bivariate and multivariable logistic regression was done to see the statistical association between dependent and independent variables. P-values less than 0.05 were considered as statistically significant and Adjusted Odds Ratio (AOR) with 95% Confidence Interval to measure the strength of the associations.

Ethical consideration

Ethical clearance was assured from Addis Ababa University, College of health science department of nursing and midwifery institutional ethical review Board and supportive letter was written to Fitch town health Bureau then permission letters was obtained from Fitch town health bureau. Finally, informed consent was obtained from study participants to confirm their willingness for participation after explaining the objective of the study. The respondent was notified that they have the right to refuse or terminate at any point of the interview and as information provided by each respondent was kept confidential.

Results

Socio demographic characteristics

Among 327 mothers the investigator planned to conduct interview, 320 agreed to participate resulting a response rate of 97.9 %. Out of the total respondents 100 (31.3%) were in the age range of 25-29 years 11 (3.4 %) had age less than 19 years. The mean age of 29.31 (± 5.8) years and the rest were as shown on table 1. Regarding marital status majority 241(75.3 %) of them were married. Concerning family size, 156 (48.8 %) of them had 4-5 children and the rest 125 (39 %) and 39 (12.2 %) had 3 and less and 6 and above children. One fourth of them (79 (24.7 %)) cannot read and write; 220 (68.8 %) orthodox Christians religion followers and the rest are protestant and muslimsa. 221(69.1) Oromo and the remaining are Amhara, gurage and Tigray. Concerning study participants occupation, 73 (22.8 %) were civil servant, 66 (20.6 %) trader, 60 (18.8 %) of them were house wife, and the rest were daily labourer, private employee, farmers and student. One hundred forty four (45.0 %) of them had monthly income of 500-1000 (local currency). The mean age of infants was 12 months with (SD \pm 6.9) months (Table 1).

Table 1: Socio-demographic characteristics among mothers having children less than 2 years of age in Fitch town, North Shewa Ethiopia, 2016 (N=320).

Socio-Demographic variables	F	%
Age of mothers		
<19	11	3.4
20-24	57	17.8
25-29	100	31.3
30-34	81	25.3
35-39	58	18.1
>39	13	4.1
Family size		
<=3	125	39.0
4-6	156	48.8
>6	39	12.2
Marital Status		
Single	22	6.9
Married	241	75.3
Divorced	34	10.6
Widowed	23	7.2
Educational Level		
Cannot read and write	79	24.7
Can read and write	48	15.0
Grade 1-8 th	66	20.6
Grade 9-12 th	50	15.6
College diploma and above	77	24.1
Religion		
Orthodox	220	68.8
Protestant	69	21.5
Muslim	31	9.7
Ethnicity		
Oromo	221	69.0
Amhara	69	21.6
Gurage	23	7.2
Tigre	7	2.2
Occupation		
Student	11	3.4
Private employee	40	12.5
Civil servant	73	22.8
Daily Labourer	47	14.7
Trader	66	20.6
Farmer	23	7.2
House wife	60	18.8
Income		
<500	49	15.3
500-1000	144	45.0
1001-1500	30	9.4
>=1500	97	30.3

Out of the total respondents one 108 (33.8 %), 164(51.2 %) and 48 (15.0 %) were Pimipara, Multipara and grand multipara

mothers respectively (Figure 2).

Figure 2: Parity status among mothers having children less than 2 years of age, in Fitch town, North shewa Ethiopia, 2016 (n=320).

Health care service utilization

Regarding maternal health care service utilization, 267(83.4 %) mothers were attending ANC and among these 130(40.6 %) utilized ANC two to three times and followed by; 124 (38.8 %) utilized greater than or equal to four ANC. Majority, 250 (78.1%) got breast feeding Counselling during ANC follow-up in which 169 (52.8 %) counselled on the benefits of breast feeding and 125 (39.1 %) on exclusive breast feeding. Regarding place of delivery, 235 (73.4 %) delivered their child at governmental health facility, 266(83.1%) with spontaneous vaginal delivery and 250 (78.1%) delivery was assisted by health care professionals (Table 2).

Table 2: Health care service utilization among mothers having children less than 2 years of age at Fitch town, North shewa, Ethiopia, 2016 (N=320).

Variables	Frequency (N=320)	Percentage (%)
Attending antenatal care		
Yes	267	83.4
NO	53	16.6
Utilization of Antenatal care		
1 times	13	4.0
2-3 times	130	40.6
>=4 times	124	38.8
Get breast feeding		
Yes	250	78.1
No	70	21.9
Place of Delivery (N=320)		
Governmental facility	235	73.4
Private clinic	15	4.7
At Home	48	15.0
TBAs place	22	6.9
Mode of Delivery (N=320)		
C/S delivery	48	14.4
Spontaneous delivery	266	83.1
Instrumental delivery	8	2.5
Delivery attendants		
Health professionals	250	78.1
Traditional birth attendants	70	21.9

Infant feeding practice

Out of 320 who had ever breastfed their child, 78 (24.4 %) were reported as they are giving pre-lacteal feeds within the first three days. The most common types of pre-lacteal feeding were plain water 39 (12.2 %), butter 25 (7.8 %), Cow milk 17 (5.3 %), Sugar with water 14 (4.4 %), water 10 (3.1%) and formula milk 9 (2.8 %).

The major Reason for pre-lacteal feeding were; cultural practice 35 (10.9 %), for cleaning of infants bowel, throat and mouth 33 (10.3 %) and 32 (10 %) gave pre-lacteal feeding for child growth. Study participant reported that advice of giving pre-lacteal feeding was from Grandparents traditional birth attendants and mothers own decision. Majority of mothers 248 (77.5 %) gave colostrum for their infants within the first five days after delivery and only 72 (22.5 %) of them avoid.

Out of the respondents who feed colostrum; 134 (41.9%) mothers was initiated breast feeding in the first hour and the rest 75 (23.4 %) were initiated within one to six hours after delivery.

In this study only 118 (36.9 %) mothers know the Disadvantages of pre-lacteal feeding and the rest 202 (63.1%) of mothers did not report any disadvantages. One hundred ninety 190 (59.4 %) mothers had knowledge on the risk with pre-lacteal feeding whereas the rest 130 (40.6 %) of mothers didn't have knowledge on risk with pre-lacteal feeding. List of problems mentioned by the study participant due to pre-lacteal feeding include diarrhoea 116 (36.3 %), infection 110 (34.4 %), poor growth 127 (39.7 %) and vomiting 100 (31.3 %) (Figure3).

Figure 3: Breast feeding initiation among mothers having children less than 2 years of age in Fitch town, North shewa Ethiopia, 2016 (N=248).

Table 3: Pre-lacteal feeding practices among mothers having children less than 2 years of age in Fitch town, North shewa Ethiopia, 2016 (N=320).

Variables	Frequency	Percentage (%)
Pre-lacteal feeding		
Yes	78	24.4
No	242	75.6
Types of pre-lacteal feedings		
Plain water	39	12.2
Sugar or Glucose water	14	4.4
Cow milk	17	5.3
Water and 'tenadam '(rue)	10	3.1
Butter	25	7.8
Formula milk	9	2.8
Total	78	24.4

Factors associated with pre-lacteal feeding practice

The binary logistic regression analysis showed that level of education, breast feeding counselling, delivery attendant; Knowledge of about disadvantage of pre-lacteal feeding were statistically associated with pre-lacteal feeding. Mothers whose educational level were primary and secondary were 2.32 (95% CI: 1.01, 5.32), 5.80 (95% CI: 2.35, 14.29) times more likely to give pre-lacteal feedings as compared to those mother who were college and above level of education respectively. Mothers who didn't get breast feeding counselling were 8.14 (95 % CI: 4.51, 14.68) times more likely give pre-lacteal feedings as compared to those mothers who got breast feeding counselling. Mothers whose delivery was assisted by traditional birth attendants were 4.42 (95 % CI: 2.50,7.82) times more likely practice pre-lacteal feeding as compared to delivery assisted by health professionals. Mothers who know the purported pre-lacteal feeding advantage were 2.7 (95 % CI: 1.60, 4.56) times more likely practice pre-lacteal feeding as compared to those mothers who didn't know the advantages of PLF. Mothers who didn't have knowledge on risks associated with pre-lacteal feeding were 5.93(95 % CI: 3.41, 10.32) times more likely give pre-lacteal feeding as compared to those mothers who had knowledge on risks associated with pre-lacteal feeding. In multivariable logistic regression analysis mothers who didn't counselled on breast feeding and not knowledgeable about risks associated with pre-lacteal feeding were statistically significantly associated with pre-lacteal feeding practice. Mothers who didn't get breast feeding counselling were 7.07 (95 %CI:1.67,29.88) times more likely give pre-lacteal feeding than those who did got breast feeding counselling. Mothers who didn't have knowledge on the risks associated with pre-lacteal feeding were 8.56 (95 %CI: 2.65,27.64) times more likely give pre-lacteal feeding practice as compared to those mothers who had knowledge on the risks of pre-lacteal feeding (table 5).

Table 4: Knowledge of mothers having children less than 2 years of age on pre-lacteal feeding in Fitch town, North Shewa Ethiopia, 2016 (N=320).

Variables	Frequency	Percentage (%)
Disadvantages of pre-lacteal feedings		
Yes	118	36.9
No	202	63.1
Knowledge on risk with PLF		
yes	190	59.4
No	130	40.6
Information about problems of PLF		
Diarrhea	116	36.3
Poor growth	127	39.7
Infection	110	34.4
Vomiting	100	31.3

Table 5: Factors associated with pre-lacteal feeding practices among mothers having children less than 24 months of age in Fitch town, North Shewa, Ethiopia, 2016.

Variables	Pre-lacteal feeding		Crude OR	Adjusted OR
	Yes (%)	No (%)	(CI: 95%)	(CI: 95%)
Level of education				
Illiterate	29 (36.7)	50 (63.3)	1.28 (0.60,2.74)	0.39 (0.07,2.17)
Able to read and write	15 (31.3)	33 (68.8)	1.67(0.82,3.42)	0.27 (0.47,1.60)
Primary education	17 (25.8)	49 (74.2)	2.32 (1.01,5.32)*	0.31 (0.06,1.50)
Secondary education	10 (20.0)	40 (80.0)	5.80 (2.35,14.29)*	0.35 (0.05,2.35)
College and above	7 (9.1)	70 (90.9)	1	1
Place of delivery				
Health facility	43 (55.1)	207 (85.5)	1	1
Home	35 (44.9)	35 (14.5)	4.81 (2.72,8.53)*	0.62 (0.01,83.07)
Breast feeding counseling				
Yes	37 (47.4)	213 (88.0)	1	1
No	41 (52.6)	29 (12.0)	8.14 (4.51,14.68)*	7.07 (1.67,29.88)*
Delivery attendant				
Health professionals	44 (56.4)	206 (85.1)	1	1
TBAs	34 (43.6)	36 (14.9)	4.42 (2.50,7.82)	5.07 (0.04,72.84)
Disadvantages of pre-lacteal feedings				
Yes	52 (66.7)	61 (25.2)	2.70 (1.60,4.56)*	0.75 (0.25,2.27)
No	26 (33.3)	181 (74.8)	1	1
Knowledge on risk associated with pre-lacteal feedings				
Yes	32 (41.0)	158 (65.3)	1	1
No	46 (59.0)	84 (34.7)	5.93 (3.41,10.32)*	8.56 (2.65,27.64)*

Discussion

The study result showed as the magnitude of pre-lacteal feeding was among the study populations were 24.4 %. This makes breastfeeding practices sub-optimal due to additional feeds. This finding is lower when compared with Ethiopian Demographic and Health Survey that reported 27 % and consistent with different region (21.9 %), (25.2 %), (23.4 %) and (25.6 %) in Oromia region, Addis Ababa city, Benishangul Gumuze region and Tigray region, respectively^[24,25,38]. The similarity might be due to common cultural practice, relatively similar methods of maternal counselling at health institutions and knowledge levels of mothers. The finding is also similar with study in Nepal in which prevalence of prelacteal feeding was (26.5 %)^[1]. This might be due to age category of study participants and cultural similarities among the two countries.

The study result showed magnitude of pre-lacteal feeding among the study participant is lower compared with study conducted Raya Kobo district (38.8 %), Harari regional state (45.4 %) and West Gojam zone (48.3 %) respectively^[24]. This may be due to duration so the study and study setting in which study in these three areas include both urban and rural community.

Lack of breast feeding counselling and knowledge on risk of pre-lacteal feeding practice were positive predictors of pre-lacteal feeding practice. Those mothers who didn't counselled on Breast feeding were seven times more likely practice pre-lacteal feedings compared to those mothers who got counselling (AOR:7.07;95 % CI:1.67, 29.88). This result is consistent

with study done in Vietnam^[33] and Maharashtra India in which it was reported as pre-lacteal practices are found to be more among the respondents who did not receive counselling about the breast feeding as compare to those who received^[14].

This study showed that mothers who didn't have knowledge on risk associated with pre-lacteal feeding were 8.56 times more likely practice pre-lacteal feeding as compared to those mothers who knows the risks associated with pre-lacteal feeding (AOR:8.56;95 % CI:2.65,27.64). This is consistent with study done in Raya Kobo district; North Eastern Ethiopia and in Vietnam that reports feeding Pre-lacteal practice decreased with increased breastfeeding knowledge^[27,36,37]. The reason for the mother to provide the pre-lacteal feeding practice were cultural practices, receiving advice from family members especially grandmothers, the maternal belief that pre-lacteal feeding was used to clean mouth, throat and bowel and also keeps it as moisture.

The other possible explanation may be lack of Antenatal care services, not supporting about breast feeding at health facility (lack of breast feeding counselling) may affect the maternal knowledge and attitude towards early initiation of breast feeding and exclusive breast feeding.

Conclusion

The result of this study showed that almost one out of four mothers (24.4 %) gave pre-lacteal feedings for their new born baby who makes breastfeeding practice sub-optimal and can increase child morbidity and mortality in the study area. The most com-

mon type of pre-lacteal feedings is plain water followed by butter. The major reason for providing pre-lacteal feeding were cultural practice, for cleaning of infant's bowel, throat and mouth and for child growth. Lack of breast feeding counselling and knowledge of mothers about the risk of prelacteal feeding were identified as factors associated with pre-lacteal feeding practices.

Recommendations

Effective Breast feeding should be promoted by all health care sectors in the zone and there should be plan for health information dissemination to bring behavioural change at all household, community, health facility, regional and national levels by focusing on reduction of pre-lacteal feedings. Need to work on promoting behavioural change and increase awareness of mothers about risks associated with prelacteal feeding during ANC, FP and postnatal care services. Interventions should be considered grandparent and Traditional birth attendant in the community. Health care workers should take training on the dangers of giving pre-lacteal feedings. Health care professionals working at the town should provide appropriate counselling on breast feeding for the mothers during ANC follow up, postnatal delivery, immunization and family planning.

Competing Interests: All authors declare there is no conflict of interests.

Author's Contribution

Dejene Hailu initiated the study, contributed to the study design, coordinated the data collection process and analysed the data. Zeleke Argaw contributed to the study design, reviewed survey instruments, participated on data analysis and commented on the manuscript. Admasu Belay contributed to the study design, survey instrument development, and data analysis and wrote the manuscript. All authors read and approved the final manuscript.

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