



Pre-Lacteal Feeding Practice and Its Associated Factors Among Children Less than 24 Months Old in Degahbour Town, Somali Regional State, Ethiopia

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ABSTRACT

A pre-lacteal feeding (PLF) is any food except mother's milk provided to a newborn before initiating breastfeeding in the first 3 days of life. Also, pre-lacteal foods might not be safe due to contaminating biological entities, which will cause infection in the newborn and might affect the colostrum intake. However, this might be different from context to context in a country like Ethiopia, where different cultural practices are dominant. Therefore, the aim of this study was to assess pre-lacteal feeding practices and their associated factors among children less than 24 months old in Degahbour town. A community-based cross-sectional study was conducted from June 5 to July 30, 2021. Data were collected from 300 mothers who had children aged less than 24 months in Degahbour town using interview-administered questionnaires. A systematic random sampling method was used to select the study participants. The data was analyzed using descriptive statistics. To identify the factors associated with pre-lacteal feeding practices, bivariate and multivariable logistic regression analyses were used. Variables with a p-value less than or equal to 0.25 in bivariate analysis were included in the multivariate regression model. Results for regression analyses were presented as odds ratios with a 95% confidence interval. A P-value <0.05 was used as a cutoff to declare statistical significance in regression analyses. Of the total mothers who participated in this study, 47.3% (95%CI: 42.0%–53.3%) had given pre-lacteal foods to their newborn baby in the first three days of their lives. Being a mother living in a rural area [AOR: 4.49 (95% CI 2.39, 8.42)], delivered at home [AOR=2.15, 95% CI: 1.21, 3.82], lately initiating breastfeeding for the indexed child after the first hour of delivery [AOR=2.34, 95% CI: 1.28, 4.28], having no counselling about breastfeeding [AOR = 2.23, 95% CI: 1.28, 3.88], not receiving ANC follow-up [AOR: 2.11; 95% CI: 1.19, 3.74], and having poor maternal knowledge about breastfeeding [AOR: 5.51; 95% CI: 3.16, 9.62] were factors significantly associated with practicing pre-lacteal feeding for the indexed child. The prevalence of PLF is high compared to the national level of 26%. Factors significantly contributing to PLF practices by the mothers of Degahbour town included place of residence, place of delivery, late initiation of breastfeeding after delivery, not receiving ANC during pregnancy, and poor knowledge on breastfeeding. Therefore, attention should be given to activities that can improve ANC follow-up, institutional delivery, and nutrition knowledge of mothers during the pregnancy period, including the importance of colostrum feeding immediately after delivery.

Key Words: Children, Colostrum, Early Initiation of breastfeeding, Pre-lacteal feeding

1. Introduction

A pre-lacteal feeding (PLF) is any food except mother's milk provided to a newborn before initiating breastfeeding

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in the first 3 days of life (Sunil et al., 2012). Although pre-lacteal feeding is a barrier for implementation of exclusive breastfeeding practice and raises the risk of mortality and neonatal illness, it is still practiced as a deep-rooted nutritional malpractice in developing countries (Khanal et al., 2013). Among the commonest pre-lacteal foods provided to infants in many low- and middle-income countries (LMICs), water only, water-based products (rice water, herbal mixture and juices), and milk-based products (milk and infant formula) are mentionable (Khanal et al., 2013). Thus, contributes for the increased risk of illnesses like infections, diarrhea and also disease related to allergic reactions, once it is given before the onset of feeding colostrum for the newborn (WHO (World Health Organization), 2009). Furthermore, if it is practiced, the suckling of breast, intake of breast milk and the expected attachment between the baby and his/her mother might be also affected baby, which affects the feeding practices of the newborn baby in general (WHO (World Health Organization), 2009).

Among the sub-Saharan African countries, pure water, raw butter, milk, and glucose solution are among the most popular pre-lacteals foods given to children in Ethiopian communities (Legesse et al., 2014; Chea and Asefa, 2018). They are given to newborn children, due to the deep-rooted tradition or culture of the communities to give them since the mothers give birth, or sometimes related to insufficient amount of breast milk to feed the newborn baby (Belachew et al., 2016; Biliign et al., 2016). According to the Ethiopian Demographic and Health Survey (EDHS, 2016), 25.9% of children were given pre-lacteal feeds during the first three days of their life, and it was found to be more practiced and widespread in rural areas than in urban areas (Tsegaye et al., 2021).

Despite a lot has been improved after the endorsement of the National Infant and Young Child Feeding (IYCF) guidelines in Ethiopia and endorsed as one of a major component of the primary health care activities, yet significant proportion of the society has been practicing pre-lacteal feeding practice (FMOH (Federal Ministry of Health), 2005). However, the problem is more dominant in rural than urban communities, as the rural communities are cultural bounded, in which pre-lacteal feeding practice is among the recognized cultural practices. Unlike this evidence, (EDHS, 2016) reported pre-lacteal feeding in urban (12.7%) and 7.3% for rural settings of the country. It also varied from region to region, of them Somali region is the 2nd most prevalent, where more than a third (38.8%) of children below the age of two year were fed with non-breast milk immediately after they were born. However, such high prevalence could be a result of complex and multiple factors as evidenced in different studies in Ethiopia, and other African countries (Tsegaye et al., 2021).

Globally, pre-lacteal feeding has been practiced by more than half of mothers, which varies from region to region. For instance, it is higher in middle East, Asia (59.0%) (Oakley et al., 2018), followed by middle east 46.3% and Sub-Saharan Africa 32.2% (Berde and Ozcebe, 2017). Therefore, of the estimated 3 million neonatal deaths has been registered every year, two-thirds are shared by South-East Asia and sub-Saharan Africa countries (Ezbakhe and Pérez-Foguet, 2020). More specifically, the highest neonatal mortality rates have been registered in sub-Saharan African among different regions globally (UNICEF, 2015).

Unlike the expected prevalence of pre-lacteal feeding practices in rural Ethiopia, related with significant proportion of the rural society has been practicing pre-lacteal feeding practice as part of cultural values, (EDHS, 2016) reported the dominance of pre-lacteal feeding practices in urban settings of the country. This might cause an increase the risk of neonatal and infant morbidity and mortality rate, as studies revealed their association between them (Tsegaye et al., 2021).

The major reason is, avoiding colostrum, which is the first breast milk secreted in the first three days after birth, contains immunoglobulin and other biological components that provide natural immunity against a variety of viruses

and bacteria, coupled with the safety problem related with the contamination of pre-lacteal foods with biological entities, which can cause infection and illness to the newborn, and further may lead to death (Munblit et al., 2016). For instance, studies show that about 45% of infectious neonatal deaths, 30% of diarrheal deaths and 18% of acute respiratory infections were associated with pre-lacteal feeding in under five aged children (Victora et al., 2016; Birhan et al., 2021). Despite this, much of the studies focused on the extent of pre-lacteal feeding practices and its contribution factors for rural settings in Ethiopia. Therefore, exploring the situation how the problem magnified in urban situation is timely to tackle the problem in holistic manner.

Most common factors contributed pre-lacteal feeding are maternal age, visiting antenatal care, maternal knowledge, late initiation of breastfeeding, colostrum avoidance, birth order, occupation, educational status and place of delivery associated with pre-lacteal feeding practices, in addition, counseling on breast feeding were found to be factors associated with pre-lacteal feeding (Wolde et al., 2019). However, some of the most important methods recommended for decreasing the risk of infant mortality are antenatal care (ANC) and institutional delivery (Habtewold et al., 2019). health care workers are given to improve maternal knowledge and child well-being, including the risk of pre-lacteal feeding (Kavle et al., 2017). Therefore, during ANC visits, health workers could make a nutritional counseling to the timely initiation of breastfeeding and exclusive breastfeeding related for infants (Argaw et al., 2019). Similarly, Health facility delivery encourage mothers to increase and adept skin-to-skin contact with their infants, which increase initiating early breastfeeding, promote exclusive breastfeeding and reduce experience of pre-lacteal feeding (Chea and Asefa, 2018).

Furthermore, (EDHS, 2016) report put Somali region ranks the 2nd most prevalent in terms of pre-lacteal feeding practices (38%), which is very far from the national average (7.9%). This calls the attention of scholars in this study to estimate the extent of the problem and explore the factors contributing for the high prevalence of pre-lacteal feeding practices in Somali region, Moreover, to the best of the authors knowledge, studies focused on pre-lacteal feeding are limited in Somali region except the national studies especially as one goes down to zonal and district levels. Therefore, this study was initiated to determine the prevalence of pre-lacteal feeding practice and its associated factors in urban setting of the region, such as Degahbour, where there is no single study conducted in similar topic.

2. Materials and Methods

2.1. Description of the Study Area

The study was conducted in Degahbour town, which is found in Jarar zone, Somali regional state of Ethiopia. It is situated at a distance of 785 km away from Addis Ababa and 165 km away from Jigjiga, the regional capital. Degahbour has a hot semi-arid climate; the mean annual temperature of Degahbour is about 25.9 °C or 78.6 °F. The maximum

and minimum annual temperatures are 32.8 °C (91.0 °F) and 19.0 °C (66.2 °F) respectively. There are two rain seasons in the region: a short rainy season from March to April, and a long rainy season from July to August. The region's annual average rainfall from these two seasons is around 583 millimeters or 23.0 inches. The total population of the city is 92,272 urban and rural inhabitants out of this 526397 are male and 39633 are female where 99.7% are Muslim and total number of under aged children are estimated 7372. The city has one type B health center, which provides a service for more than 35,000 People. Degahbour zonal referral hospital is the major one in the town, which provides service for 1,000,000 people, on the other hand there are four health posts available in the town.

2.2. Study Period and Study Design

The study, conducted from June 5 to July 30, 2021, employed a community-based cross-sectional design to assess the prevalence of pre-lacteal feeding practices and associated factors among children under 24 months in Degahbour town.

2.3. Study Population

The study population comprised mothers of children under 24 months residing in Degahbour town, specifically, mothers of children under 24 months living in the three selected kebeles of Degahbour town were included.

2.4. Inclusion and Exclusion Criteria.

Mother of child less than 24 months old who had lived in the selected kebeles of the Degahbour town was the inclusion criteria. Mothers of children who had unable to communicate due to disability or any other health problem were excluded from the study.

2.5. Sample Size Determination

Sample size was determined based on the formula used to estimate a single population proportion. Estimated proportion of pre-lacteal feeding (72.5%) taken from the previous study conducted in Ethiopia (Tsegaye et al., 2021). assumptions; a 95% confidence level, margin of error (0.05) and 10% non-response rate.

$$n = \frac{((Z_{\frac{\alpha}{2}})^2 \cdot P \cdot (1 - P))}{d^2} = ((1.96)^2 \cdot 0.725(0.272)) / (0.05)^2 = 306 \quad (1)$$

n = required sample size Z =critical value for normal distribution at 95 % confidence level (1.96), P =72.5% EDH in Somali region 2016 D = margin of error that can be tolerated 5% (0.05). $Q = 1 - p$ — proportion of population that do not possess the character of interest.

The first sample size became 306. Therefore, the number of children less than 24 months in selected kebeles of Degahbour town is 2550, which is under 10, 000 there for correction formula used

$$nf = \frac{n}{(1 + n/N)} \frac{306}{(1 + 306/2550)} = 273 \quad (2)$$

Where, n =total number calculated using single population formula. N = Total number of (2550). Children less than 24 months in Degahbour town nf = final sample size Added by 10% of non-response rate $273+10\%=300$

2.6. Sampling Technique and Procedure

Degahbour town has a total of ten kebeles, three kebeles were selected by using simple random sampling technique in lottery method. The calculated sample size 300 was proportionally allocated to the selected Kebeles based on their average number. Number of study participants was selected using a systematic random sampling technique; study population (2550) should be divided by the sample size (300), $K=N/n= 2550/300=8$ Then based on k value was identified. Then, randomly select one number between 1 and k value which is 8 for the 1st selection. Then, the next participants were selected by adding the k value (8) until the whole sample size is maintained

Study participants were divided Proportional allocated based on their average number By using systematic Random Sampling

2.7. Study Variables

2.7.1. Dependent variable

Pre-lacteal feeding practice

2.7.2. Independent variables

Socio-demographic characteristics • Age, ethnicity, marital status, educational status, occupation, family income, family size, residence, birth order of the child Maternal characteristics • Maternal knowledge of breastfeeding, Maternal knowledge about risk of PLF, colostrum feeding, initiated breastfeeding, breastfeeding counseling, birth Status Maternal and health related characteristics • Place of delivery, antenatal Care visit, mode of delivery

2.8. Data Collection Tool and Procedure

Data was collected with face-to-face interview using a pre-tested and structured questionnaire which was adapted from the Ethiopian National Nutrition Survey questionnaire and Ethiopian Demographic and Health Survey. The adapted questionnaire was modified according to the research objective and the actual setup. The questionnaire was written in English first and then translated into Somali (local language) and back into English by fluent speakers of both languages to check its consistency. Two diploma midwives and one additional who had Bachelor of Science degree holder was hired as supervisors to collect the data. The data collectors and the supervisors' received an intensive training and they were attentive follow up (including practical work) for one day.

2.9. Data Quality Control

To ensure data quality, the following steps were taken: data collectors and supervisors were trained on the study's goals, validity, confidentiality of information, respondent rights, informed consent principles, and techniques of interviewing. The questionnaire was initially written in English

Table 1: Sample size determination for the 2nd objective

Associated factors	CI	Power	Ratio	% of outcome in exposed	% of outcome in unexposed	AOR	Sample size	Non-response rate 10%	Reference
Breastfeeding initiation	95%	80%	1	31.8	56.8	2.7	154	169	(5)
Know risks of PLF	95%	80%	1	28.3	71.7	2.86	194	213	(18)

Finally, the required sample size of this study was determined by taking maximum sample size which is 300 from the first objective.

and then translated into Somali version (local language) by different experts of both languages to ensure accuracy. The pre-testing was taken place in 5% of the total sample size in the kebeles of Degahbour town not to be included in the study. Modifications were made based on feedback from the pretest to enhance consistency, understandability, and simplicity of the messages contained in the questionnaire to make clearer. Throughout the data collection process, the supervisor and principal investigator checked and review completed questionnaires for their completeness, precision and continuity on a regular basis.

2.10. Data Processing and Analysis

The data was cleaned, coded and entered into Epi Data version 3.1 and exported to SPSS version 20 for analysis. Descriptive statistics were used to determine the results in frequencies, proportion, cross tabulation, and measure of central tendency. The results were presented using table, graphs and texts. A bivariate logistic regression was used to classify candidate variables for the final model (multivariate binary logistic regressions) at p-value <0.25. Finally, multivariate binary logistic regressions were used to identify the independent predictors or variables that have significant association. The Hosmer-Lemeshow test was used to model fitness. The cut point to announce the existence of an association between the dependent and independent variable was p-value <0.05 with 95% confidence interval.

2.11. Ethnical Considerations.

Ethical clearance was obtained from the Institutional Review Board of the Jigjiga University. Each study participant was adequately informed about the objective and purpose of the study and interviewed only with those who agreed to give verbal consent to participate. Participants were also told the right not to respond to the questions if they didn't want to respond or to withdraw the interview at any time without caused clearly stated. Furthermore, both data collectors and supervisors ensured the confidentiality of information by using code numbers rather than personal identifiers and locking the questionnaire.

3. Results and Discussion

3.1. Results

3.1.1. Socio-demographic characteristics

Out of the total of 300 of mothers participated in this study, about 50.7% were in age group between 25 and 34 years. Regarding marital status, majority of them

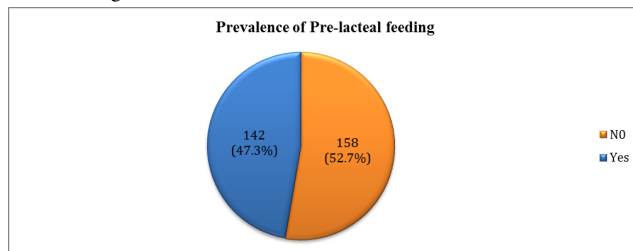
Table 2: Socio-demographic Characteristics of the respondent Mothers of Children Aged <24 months in Degahbour town

Variable	Categorical	Frequency	Percent
Sex of index child	Male	170	56.7
	Female	130	43.3
Age of child	0-6 Months	93	31.0
	7-12 Months	106	35.3
	13-23 Months	101	33.7
Birth order of the child	1	107	35.7
	2-3	111	37.0
	4 and above	82	27.3
Age of mother	15-24 years	114	38.0
	25-34 years	152	50.7
	35 and above	34	11.3
Marital status	Married	220	73.3
	Divorced	58	19.3
	Widowed	22	7.3
Ethnicity	Somali	260	86.7
	Oromo	22	7.3
	Amhara	14	4.7
	Others	4	1.3
Maternal religion	Muslim	287	95.7
	Christian	13	4.3
Residence	Urban	154	51.3
	Rural	146	48.7
Maternal education level	Un able to read and write	137	45.7
	Completed primary	89	29.7
	Secondary level education	54	18.0
	Diploma and above	20	6.7
Maternal Occupation	House wife	127	42.3
	Merchant	98	32.7
	Farmer	10	3.3
	Student	16	5.3
	Govern't /private organization	49	16.3
Family monthly income	1000-2000 ETB	87	29.0
	2000-4000 ETB	111	37.0
	More than 4000 ETB	102	34.0
Family size	1-3	177	59.0
	4 and above	123	41.0

(73.3%) were married and belongs to Somali ethnic group, 260(86.7%). More than half, 154 (51.3%) of the women were living in urban based on the selected kebele of Degahbour town, had male children, 170(56.7%) and living in a family sized 1-3, 240 (55.4%). Almost all mothers, 287(95.7%) were followers of Muslim religion, about half of the mothers, 127(47.3%) were housewives, while more than one third of the mothers included in this study 106(35.3%) children in age group of 7-12 months (Table 2).

Table 3: Maternal health care service utilization

Variable	Categorical	Frequency	Percent
Place of	Home	186	62.0
	Health facility	114	38.0
Mode of deliv-	Normal	292	97.3
	Cesarean	8	2.7
ANC Visit	No	149	49.7
	Yes	151	50.3
Time of	1-3	94	31.3
	4 and above	55	18.3
ANC visit	Immediately/within first hour after birth	153	51.0
Breast feedin	After the first hour	147	49.0
g initiation	No	157	52.3
Breast feeding	Yes	143	47.7
Counseling			

**Figure 1:** Prevalence of pre-lacteal feeding

3.2. Maternal health care service utilization

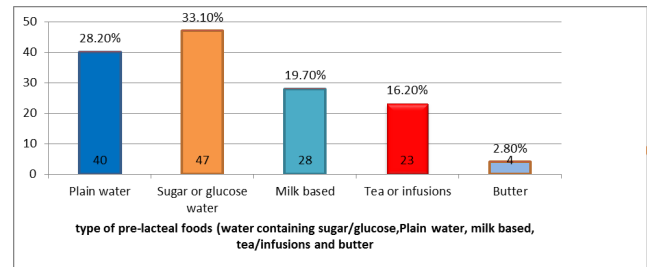
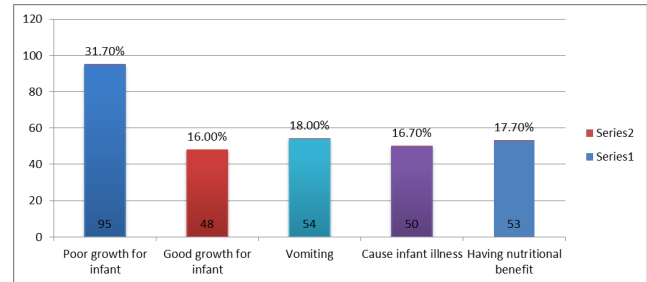
About one hundred eighty-six (62.0%) of the participant mothers were delivered at home. Almost all 292(97.3%) of the mothers were delivered through normal mode of delivery, 151(50.3%) of mothers have used ANC services. From those mothers who have visited ANC services 94(31.3%) were used 1-3 times. Among mothers who attended an antenatal care visit, 143(47.7%) mothers have received counseling on breastfeeding, more than have 153 (51.0%) had initiated breast feeding within first hour after birth, (Table 3)

3.3. Maternal information of pre-lacteal feeding practice

The prevalence of pre-lacteal feeding practice in this study was 47.3% (95% CI 42.0%, 53.3%) (Figure 1). Of them, 28.2% provided plain water, 33.1% gave sugar or glucose water, 19.7% fed milk based, 16.2% tea or infusions and 2.8% used butter. More than half, 165(55.0%) mothers were fed Colostrum to her child. Among the main reason for pre-lacteal feeding practices, 62.7% complained insufficient breast milk, 20.4% cultural practice, 14.8% maternal sickness and 2.1% Infant illness (Table 4)

3.4. Maternal Knowledge and Information

182(60.7%) of respondent mothers were told that they knew the risk of pre lacteal feeding. According to maternal information related PLF the majority of mothers had, 95(31.7%) Poor growth for infant, 54(18.0%) causes vomiting, 48(16.0%) good growth for infant, 50(16.7%) cause infant illness, 53(17.7%) having nutritional benefit, from total

**Figure 2:** Types of pre-lacteal foods used mothers of Degahbour town**Figure 3:** Maternal information about PLF

respondents 149 (49.7 %) of mothers had good knowledge on breastfeeding (Table 4).

Factors associated with pre-lacteal feeding practice Results of Bivariable logistic regression In the bi-variable logistic regression analyses, place of residence, place of delivery, breast feeding initiation, breastfeeding counseling, colostrum feeding, ANC visits, known risk of PLF, maternal knowledge of PLF were statistically associated with pre-lacteal feeding. During binary logistic regression analysis, variables which showed significant association on bivariate analysis which is 0.25 were entered to multivariate logistic regression analysis (Table 5).

Result of Multivariable logistic regression analyses The multivariable analysis showed that place of residence, place of birth, breast feeding initiation time, counseling related to breast feeding, ANC visit and maternal knowledge on breastfeeding were found to be statistically significant and identified as determinant factors for pre-lacteal feeding practices among mother of children aged less than 24 months in Degahbour town. Mothers who were living in the rural areas of Degahbour town were 4 times more likely to practice pre-lacteal feeding compared to those mothers who were living in urban areas of the town [AOR: 4.49 (95% CI 2.39,8.42)]

Those mothers who delivered at home their indexed child had 2.15 times higher odd for practicing pre-lacteal feeding compared to their counters [AOR=2.15, 95% CI: (1.21, 3.82)]. Mothers who lately initiated breastfeeding after the first hour of delivery had 2.34 odd for practicing pre-lacteal feeding to their children compared to mothers who started breastfeeding within an hour period immediately after delivery [AOR=2.34, 95% CI: (1.28,4.28)]. Mothers who were

Table 4: Maternal information of pre-lacteal feeding practice

Variable	Categorical	Frequency	Per-cent
Pre-lacteal feeding practice	No	158	52.7
	Yes	142	47.3
Colostrums feeding	No	135	45.0
	Yes	165	55.0
Type of liquid	Plain water	40	28.2
	Sugar or glucose water	47	33.1
	Milk based	28	19.7
	Tea or infusions	23	16.2
	Butter	4	2.8
Time of introduced	within the first hours after bir	63	44.4
	After the first hours	79	55.6
Reason of practicing	Insufficient/breast milk secretion	89	62.7
	Cultural practice	29	20.4
	Maternal sickness	21	14.8
	Infant illness	3	2.1
Risk of PLF	NO	118	39.3
	Yes	182	60.7
Maternal information related PLF	Poor growth for infant	95	31.7
	Good growth for infant	48	16.0
	Vomiting	54	18.0
	Cause infant illness	50	16.7
	Having nutritional benefit	53	17.7
Maternal Knowledge on breastfeeding	Poor	151	50.3
	Good	149	49.7

not counseled about breastfeeding had an odd ratio of 2.23 for providing pre-lacteal food to their children compared to the mothers counseled about breastfeeding [AOR = 2.23, 95% CI: (1.28, 3.88)]. Mothers who didn't attend ANC follow up were about 2.11 times more likely to practice pre-lacteal feeding than mothers who attended ANC follow up during the pregnancy period of the indexed children [AOR: 2.11; 95%CI (1.19, 3.74)]. Mothers who had poor nutrition knowledge on breastfeeding had an odd of 5.51 for practicing pre-lacteal feeding than mothers who had good maternal knowledge [AOR: 5.51; 95%CI (3.16, 9.62)] (Table 5).

3.5. Discussion

3.5.1. Prevalence of pre-lacteal feeding

This study tried to assess the prevalence of pre-lacteal feeding and identified the potential factors associated with pre-lacteal feeding practices by mothers of Degahbour town, Somali region, Ethiopia. Accordingly, the prevalence of pre-lacteal feeding by the mothers of Degahbour town was 47.3% (95% CI 42.0%, 53.3%). The finding of this study is similar to the study done in Delhi, India 47% (Gupta and Chhabra, 2015), and also reported in different areas of Ethiopia, for instance, 47.8% for Amhara region (Tsegaye et al., 2021), 46.4% for Kersa District (Adem et al., 2021) and 45.4% for

Harari regions (Yoseph Bekele et al., 2014). However, the finding of this study was higher than reported for Motta town, which was 20.2% (Tewabe, 2018), and also 15.9% for Benishangul-gumuz region (Ayana et al., 2017). The difference might be due to variation in socio-demographic, cultural, lifestyle and maternal beliefs and attitude towards breastfeeding. Furthermore, it might be related to the inclusion of mothers, both from urban and rural areas of Degahbour, unlike that of the study in Motta town, and the better access to maternal and child health services, nearby to health institution and would have more information those are rural areas. The finding of this study is also lower than what was reported for Somali region (72.5 %) in (EDHS, 2016; Tsegaye et al., 2021), for Mansoura, district in Egypt 58% (El-Gilany and Abdel-Hady, 2014) and Jubek State, South Sudan 53% (Tongun et al., 2018). The variation could be due to the difference in study setting, year of the study, sample size, study selection and maternal health service utilization between study populations, for the former study. Furthermore, the differences from the other studies might be related with difference in culture, local beliefs and socio-demographic, lifestyle.

3.5.2. Factors associated with pre-lacteal feeding

The present study also revealed that, mothers who were living in rural areas of Degahbour town were associated with provision of pre-lacteal food in the 1st three days after delivery. In which being mothers from rural areas had 4.49 times higher odd for practicing pre-lacteal feeding compared to their counterpart. A study conducted in Debre Tabor town reported consistent result (Bayih et al., 2020). This could be due to rural residence mothers had less access, low awareness about optimal breastfeeding and risks of pre-lacteal feeding and low BF counseling. Moreover, rural mothers couldn't get an easy access to various health institutions that integrate optimal breastfeeding in their ANC and PNC programs. Accessibility and quality of health services may be better in urban settings and also urban women are also more educated than rural woman which can improve maternal knowledge in mental and psychological awareness (Temesgen et al., 2018)

Mothers who gave birth at home had 2.15 times higher odd for practicing pre-lacteal feeding compared to those mothers who gave birth at health institution. This is consistent with the finding of a study conducted in Kersa District, Eastern Ethiopia (Adem et al., 2021). This could be due to the mothers who delivered at health facility could have better ANC visits and breast-feeding counseling which includes proper breastfeeding practices and improves optimal breastfeeding practices while mothers who delivered at home were often influenced by traditional birth attendants and practice pre-lacteal feeding (Bayih et al., 2020). Alternatively, mothers who gave birth at health institution may be advised by health professionals to avoid pre-lacteal feeding, and its subsequent risks on children related with feeding pre-lacteal food by the mothers/caregivers.

Table 5: Bivariable and multivariate logistic regression factors associated with pre-lacteal feeding practice among mothers of children aged less than 24 months in Degahbour town

Variable	Category	No, n(%)	COR(95%CI)	AOR(95%CI)	
Residence	Urban	96(62.3%)	58(37.7)	1	
	Rural	62(42.5%)	84(57.5)	2.24(1.41, 3.56)	4.49(2.39,8.42)**
Place of birth	Home	86(46.2%)	100(53.8)	1.99(1.24,3.21)	2.15(1.21,3.82)*
	Healthy facility	72(63.2%)	42(36.8)	1	
BF initiation	Within first hour	88(57.5%)	65(42.5)	1	
	After the first hour	70(47.6%)	77(52.4)	1.49(0.94,2.35)	2.34(1.28,4.28)**
BF Counseling	No	71(45.2%)	86(54.8)	1.88(1.19,2.98)	2.23(1.28,3.88)**
	Yes	87(60.8%)	56(39.2)	1	
Colostrums feeding	No	64(47.4%)	71(52.6)	1.47(0.93,2.32)	1.31(0.76,2.26)
	Yes	94(57.0%)	71(43.0)	1	
ANC visit	No	70(47.0%)	79(53.0)	1.58(0.99,2.49)	2.11(1.19,3.74)*
	Yes	88(58.3%)	63(41.7)	1	
Knowledge on risk of PLF	NO	55(46.6%)	63(53.4)	1.49(0.94,2.38)	1.34(0.76, 2.36)
	Yes	103(56.6%)	79(43.4)	1	
Maternal Knowledge about breastfeeding	Poor	52(34.4%)	99(65.6)	4.69(2.88,7.65)	5.51(3.16, 9.62)**
	Good	106(71.1%)	43(28.9)	1	

* P < 0.05, **P<0.001, AOR: Adjusted Odds Ratio, COR: Crud Odds Ratio, CI: Confidence Interval, 1: Reference group

This study showed that mothers who initiated breast-feeding after first hour of delivery were nearly two and half times more likely to practice pre-lacteal feeding compared to those initiated within first hour. This is consistent with a what was reported for Raya Kobo district, North Eastern Ethiopia (Legesse et al., 2014). There is a close relationship between early initiation and avoiding pre-lacteal because pre-lacteal feeding might be also the reason for late initiation of breastfeeding (Temesgen et al., 2018).

In the present study, mothers who didn't get breast feeding counseling were 2.23 times more likely to practice pre-lacteal feeding when compared to those mothers who had during their pregnancy period. A study conducted in the mothers of Jinka town also reported similar finding (Sorrie et al., 2020). This could be breastfeeding counseling is important for improving maternal knowledge, change attitude and also practice, including awareness about the risk of pre-lacteal feeding practice and the importance of optimal breastfeeding practices that might decrease PLF practice.

In this study, mothers who didn't receive ANC service during the pregnancy period of the indexed child were 2.11 times more likely to give pre-lacteal food for their infants than mothers who received ANC in the same period. This result is consistent with reported from a study conducted in Kersa District Eastern Ethiopia (Adem et al., 2021). In fact, this might be related with frequent counseling which could be given during the ANC follow-up at the health facility (citation). Furthermore, our present study found out the association of poor maternal knowledge on breastfeeding with 5.51 times higher odd for practicing pre-lacteal feeding to their counterpart. A study conducted in Hawella Tula areas of Sidama region also reported the direct association of poor knowledge with pre-lacteal feeding practice (Chea and Asefa, 2018).

4. Conclusion and Recommendations

In this study area, the prevalence of PLF is 47.3%, which is relatively lower than reported for the Somali region in (EDHS, 2016). However, this prevalence is higher than the national level 26 % and remained as among a challenge for optimal breastfeeding in the town, and the region at large. The most common types of pre-lacteal food given for children immediately after birth were water containing sugar/glucose, Plain water, milk-based fluids, tea/infusions and butter. The major reasons for feeding pre-lacteal food were mothers believed that breast feeding only does not satisfy the need of newborn baby and the tradition of feeding the above pre-lacteal food as part of the cultural practice.

Furthermore, place of residence, place of delivery, late initiation of breastfeeding after delivery, not receiving ANC during pregnancy period and poor maternal knowledge on breastfeeding were identified as determinants for pre-lacteal feeding practice by mothers in the study area. To improve breastfeeding practices in the area, the study recommends that it's crucial to enhance breastfeeding counseling during antenatal care, promote timely initiation of breastfeeding, and raise awareness about the risks of pre-lacteal feeding. Efforts should be made to improve health service accessibility in rural areas and educate communities about the consequences of pre-lacteal feeding through influential leaders. Emphasizing colostrum feeding and exclusive breast-feeding is essential. Additionally, qualitative research and longitudinal studies are needed to understand the barriers to eliminating pre-lacteal feeding practices.

Conflict of Interest

The authors declare that they don't have conflict of interest.

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