

Research Article

Magnitude of Prolactal Feeding and Its Associated Factors among Mothers Having Children Less than One Year of Age: A Community-Based Cross-Sectional Study in Rural Eastern Zone, Tigray, Ethiopia

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Background. Prolactal feeding is an obstacle to optimal breastfeeding practices in developing countries. It directly or indirectly affects the health of the infants. Despite its importance, this issue has received little attention in Ethiopia. As a result, this study aimed to assess prolactal feeding and associated factors among mothers of children aged less than 12 months in the rural eastern zone, Tigray, Ethiopia. **Methods.** Community-based cross-sectional study design was employed. The final sample size was 828, and the multistage sampling technique was used. Pretested and structured interviewer-administered tool was used for data collection. Data were entered, coded, and cleaned by Epi-Info version 7 and analyzed by using SPSS 22.0. Multivariable logistic regression was used to control the effect of confounding. **Results.** Eight hundred three mothers participated in this study. During the first three days after birth, 198 (24.7%) mothers practiced prolactal feeding. Parity (AOR: 1.52, 95% CI: 1.04–2.23), late initiation of breastfeeding (AOR: 1.83, 95% CI: 1.30–2.59), and colostrum discard (AOR: 1.57, 95% CI: 1.06–2.33) were strongly associated with prolactal feeding practice. **Conclusion and Recommendation.** One-fourth of participants practiced prolactal feeding. Late initiation of breastfeeding, colostrum discard, and parity were significant determinants of prolactal feeding. Awareness creation and health education concerning the advantages of early initiation of breastfeeding and the importance of colostrum during their health visits is necessary.

1. Introduction

Prolactal feeding is administration of any foods or liquids other than breast milk to the infant during the first three days after birth [1]. In contrary, worldwide, nearly 2 from 5 breastfed newborns receive fluid/foods in their earliest days of life [2]. Prolactal feeding has negative impact on breastfeeding of the baby. It results in lactation failure, diarrhea, convulsion and shortening of the duration of breastfeeding, insufficient weight gain, and becoming more susceptible to infection [3].

Globally, 60% of the 10.9 million deaths annually occurred among children aged under five years. Over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life [4]. Despite this fact, in many regions of the globe including Ethiopia, a significant proportion of mothers offer prolactal feeding to their newborns [5–7], and in that, the record is highest in Southeast and Central Asia [1, 8–10], modest in Latin America accounting 22.9–40% [11], and average in sub-Saharan Africa that showed 32.2% [5]; Ethiopia's ranges from 6.7 to 56% [12, 13].

Prelacteal feeding practice in Ethiopia accounts for 34% and 38.8% in Arba Minch Zuria and Raya Kobo account, respectively [13, 14]. Nineteen of twenty women breastfed their infants, and twelve (63%) reported ritual prelacteal feeding. A majority (fifteen of nineteen, 79%) reported discarding colostrum and breastfeeding within 24 hours of birth [15].

To solve different life-threatening conditions, evidence indicated that avoiding prelacteal feeding would help to save the lives of around 823,000 children, annually [16]. Since 2004, Ethiopia has been implementing the Infant and Young Child Feeding (IYCF) strategy as a key component of child survival approach [3]. However, prelacteal feeding is still below the standard recommendation in Ethiopia [17].

Different global works of the literature indicated that the factors associated with prelacteal feeding were sociodemographic and health-related and had individual factors like place of delivery, gestational age at delivery, mode of delivery, type of birth attendant, prenatal counseling on breastfeeding, postpartum counseling, and initiation of breastfeeding [12, 13, 18, 19].

However, the studies conducted in Ethiopia concerning prelacteal feeding were limited. Nonetheless, the study area has limited evidence on this regard. Most of the studies conducted in Ethiopia were using a small sample size, assessed only a small area of interest, and were conducted in urban areas.

Findings of this research help to provide insights into governmental and nongovernmental organizations, health sector officials, regional and local health authorities, program managers, stakeholders, and researchers in order to plan and design appropriate interventions. Therefore, this study intends to assess prelacteal feeding and the factors associated with it among mothers of children aged less than 12 months.

2. Methods and Materials

2.1. Study Setting. Community-based cross-sectional study design was employed from April to May, 2018, among 828 mothers of children aged less than 12 months in rural areas of eastern Tigray.

2.2. Sampling Strategy. The sample size was determined using a single population proportion formula by taking the prevalence of a study done in Ethiopia (42.9%) [20]. This study uses assumptions of 95% confidence interval (CI), 5% margin of error multiplied by 2 for design effect, and added 10% nonresponse rate.

Of the seven rural districts of the eastern zone of Tigray, Seasi Soda Emba and Ganta Afeshum words were selected by using simple random sampling using a lottery method. Multistage sampling was used. Out of these districts, 4 tabias from each rural district were selected. The sample size was allocated to each tabia proportionally. The list of households of the mothers having children aged less than twelve months was identified by health extension workers working in each tabia, and sampling frame was made from that. Simple

random sampling using the lottery method was used to select the study participants.

2.3. Data Collection. A structured, interviewer-administered questionnaire was used for data collection. Seven nurses working outside the study area and 6 BSc health professionals were recruited for data collection and supervision, respectively. The questionnaire was pretested on 10% of the same source population other than the sampled population. Based on the pretest, questions were revised and edited for the clarity and understandability of the participants to the local context. Finally, the Tigrigna version questionnaire was used for data collection. Prelacteal feeding is the practice of giving fluid or semisolid food other than breast milk to a child during the first three days before giving mother's milk [1, 12, 13].

2.4. Data Analysis. Data were coded, entered, and cleaned using SPSS version 22.0 software. Variables with a P value < 0.2 in bivariate analysis were entered into multivariable logistic regression. The model of fitness was checked by Hosmer and Lemeshow test, and its P value was 0.371. Multicollinearity linearity was checked using variance inflation factor (VIF), and those with VIF greater than 10 were excluded from the model. Finally, adjusted odds ratio (AOR) with a 95% confidence interval and P value < 0.05 were declared as significant with prelacteal feeding.

2.5. Ethical Statement. Ethical approval was obtained from a research and the ethical approval committee of the college of health Sciences of Adigrat University with a registration number of AGU/CMHS/036/10. Informed written consent was obtained from mothers of study participants.

3. Results

3.1. Sociodemographic Characteristics of Respondents. Totally, 803 mother-child pairs were involved in this study with a response rate of 96.98%. Two hundred and twenty-four (27.9%) mothers were found in the age group of > 35 . Regarding marital status, 727 (90.5%) of the mothers were currently married. Three hundred and thirty-three (45.2%) fathers had the educational status of primary education (Table 1).

3.2. Health Service Utilization of Study Participants. About three-fourths of the respondents were multiparous (75.2%), and 753 (93.8%) mothers did not have a complication during the current pregnancy. Totally, 703 (87.5%) mothers did not have PNC follow-up, and 98% of the mothers were ever breastfed their current children (Table 2).

Among the total study participants, 198 (24.7%) practiced prelacteal feeding (Figure 1).

Out of 198 mothers who practiced prelacteal feeding, the most common reason was not having enough breast milk secretion (84 (42.4%)) (Figure 2).

TABLE 1: Sociodemographic characteristics among mothers of children aged less than 12 months in rural eastern zone, Tigray, Ethiopia, 2018 ($n = 803$).

Variable	Alternatives	Frequency (n)	Percentage (%)
Age of mothers (in years)	<20	14	1.7
	20–24	208	25.9
	25–29	180	22.5
	30–34	177	22
	≥ 35	224	27.9
Religion	Orthodox	798	99.1
	Others	8	0.9
Ethnicity	Tigray	791	98.5
	Amhara	12	1.5
Marital status	Currently married	727	90.5
	Currently unmarried	76	9.5
	No formal education	318	39.6
Educational status of mothers	Primary education	285	35.5
	Secondary education and above	200	24.9
	Housewife	735	91.5
Mothers occupation	Daily laborer	20	2.5
	Farmer	26	3.2
	Others	22	2.8
	No formal education	231	31.4
Fathers education	Primary education	333	45.2
	Secondary education and above	172	23.4
	Farmer	490	61
Occupation of fathers	Daily laborer	150	18.7
	Merchant	47	5.9
	Private organization	26	3.2
	Others	34	11.2
	<1 month	57	7.1
Child age (in months)	1–6 months	476	59.3
	>6 months	270	33.6
	Male	455	56.7
Sex of child	Female	348	43.3
	≤ 3	417	51.9
Family size	≥ 4	386	48.1
	1	189	23.5
Childbirth order	2–3	234	29.2
	4–6	289	36
	>6	91	11.3
Childbirth interval	No previous child	189	23.5
	<24 months	89	11.1
	≥ 24 months	525	65.4

Out of the 198 mothers who practice prelacteal feeding, the type of prelacteal mentioned by 35.4% and 34.8% participants was plain water and sugar/glucose water, respectively (Figure 3).

3.3. Factors Associated with Prelacteal Feeding. Variables with a P value ≤ 0.2 in bivariate analysis were entered into the multivariable logistic regression model. In multivariable logistic regression, parity, late initiation of breastfeeding, and colostrum discard were statistically associated with prelacteal feeding practice at a P value < 0.05 .

Primigravida mothers were 1.52 times more likely to practice prelacteal feeding than those multiparous women [AOR: 1.52, 95% CI: 1.04–2.23] ($P = 0.032$). Women who initiated breastfeeding after one hour after birth were [AOR: 1.83, 95% CI: 1.30–2.59] ($P = 0.001$) more likely to practice

prelacteal feeding compared to mothers who initiated breastfeeding early. Mothers who discard their colostrum were 1.57 times more likely to practice prelacteal feeding as compared with mothers who gave colostrum [AOR: 1.57, 95% CI: 1.06–2.33] ($P = 0.026$) (Table 3).

4. Discussion

The prevalence of prelacteal feeding in this study was 24.7%. Similar findings were found in Dabat (26.8%) [21], Sidama (25.5%) [22], and Ethiopia (28.9%) [15]. Slightly higher rates were reported in Ethiopia and were 45.4% in Harari, 42.9% in Afar, and 38.8% in Raya Kobo district [13, 19, 20]. Lower prevalence rates were found in Jimma (12.6%) [23], North Wollo (11.1%) [24], and Tigray (12.8%) [25]. The finding of this study was also lower than the studies from Vietnam (73.3%) [1], India (49.5%) [10], and Egypt (58%) [26]. This

TABLE 2: Feeding practices and health service utilization among mothers of children aged less than 12 months children in Eastern zone, Tigray, Northern Ethiopia, 2018 (n = 803).

Variable	Alternatives	Frequency (n)	Percentage (%)
Parity (n = 803)	Primi	199	24.8
	Multipara	604	75.2
Gestational age (n = 803)	Preterm	12	1.5
	Term	777	96.8
	Postterm	14	1.7
Pregnancy (n = 803)	Intended	648	80.7
	Unintended	39	4.9
Complication during pregnancy (n = 803)	Mistimed	116	14.4
	Presence	50	6.2
Place of delivery (n = 803)	Absence	753	93.8
	Home	42	5.2
Mode of delivery (n = 803)	Health institution	761	94.8
	C/S	28	3.5
Duration of labor (n = 803)	Vaginal delivery	775	96.5
	<12 hours	673	83.8
ANC follow-up (n = 803)	≥12 hours	130	16.2
	Yes	796	99.1
Number of ANC visit (n = 796)	No	7	0.9
	1	6	0.8
	2-3	173	21.7
Healthcare provider’s counseling during ANC (n = 796)	≥ 4	617	77.5
	Yes	409	51.4
PNC follow-up	No	387	48.6
	Yes	100	12.5
Healthcare provider’s counseling during PNC (n = 100)	No	703	87.5
	Yes	83	8.3
Decision maker	No	17	1.7
	Mother	775	96.5
	Healthcare providers	22	2.7
Breastfeeding for the child (n = 803)	Others	6	0.8
	Yes	787	98
EIBF (n = 787)	No	16	2
	Yes	487	61.9
Colostrum feeding (n = 787)	No	300	38.1
	Yes	669	85
	No	118	15

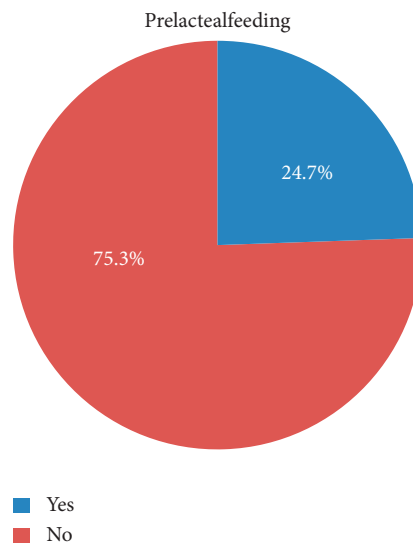


FIGURE 1: Magnitude of pre-lacteal feeding among mothers of children aged less than 12 months in the rural eastern zone, Tigray, Ethiopia, 2018.

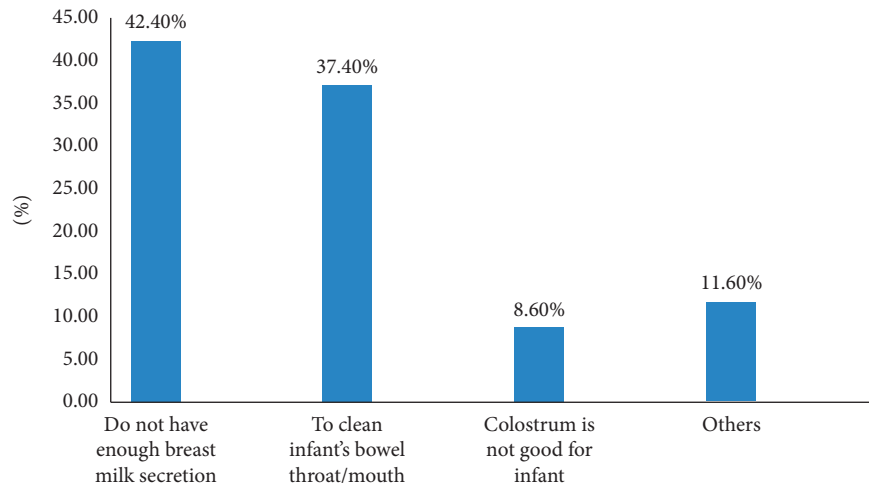


FIGURE 2: Reasons for practicing prelacteal feeding among mothers of children aged less than 12 months in the rural eastern zone, Tigray, Ethiopia, 2018.

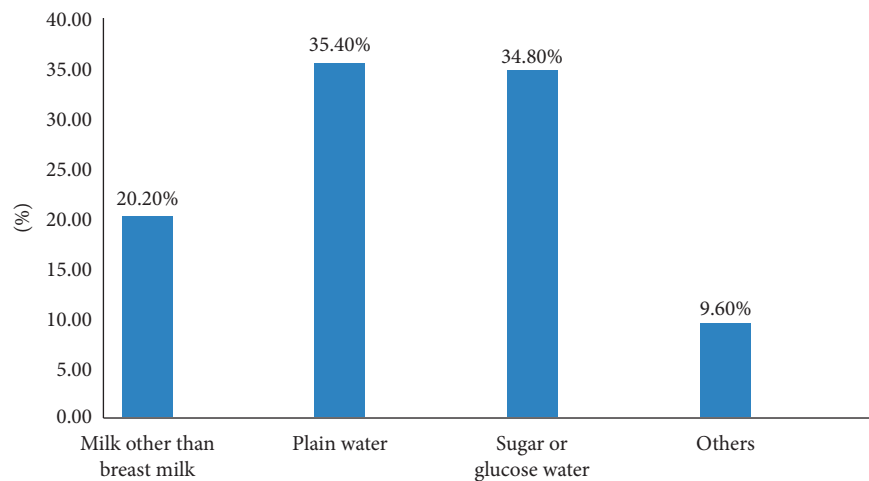


FIGURE 3: Type of prelacteal feeding given to infants by mothers in the rural eastern zone, Tigray, Ethiopia, 2018.

TABLE 3: Factors associated with the prelacteal feeding practice among mothers with children aged less than 12 months in the rural eastern Tigray, Ethiopia, 2018.

Variable	Prelacteal feeding		COR (95% CI)	AOR (95% CI)	P value
	Yes	No			
<i>Number of ANC visit</i>					
1	1	5	0.64 (0.07–5.52)	0.62 (0.07, 5.55)	0.667
2-3	50	123	1.30 (0.89–1.89)	1.43 (0.965, 2.122)	0.075
≥4	147	470	1	1	
<i>Parity</i>					
Primi	60	139	1.46 (1.02–2.08)	1.52 (1.04, 2.23)*	0.032
Multipara	138	466	1	1	
<i>Complication during pregnancy</i>					
Yes	20	30	2.15 (1.19–3.89)	0.52 (0.18, 1.53)	0.235
No	178	575	1	1	
<i>Sex of children</i>					
Male	126	329	1.47 (1.06, 2.04)	1.37 (0.96, 1.95)	0.082
Female	72	276	1	1	

TABLE 3: Continued.

Variable	Prelacteal feeding		COR (95% CI)	AOR (95% CI)	P value
	Yes	No			
<i>Early initiation of breastfeeding</i>					
Yes	93	394	1	1	
No	89	211	1.787 (1.28–2.49)	1.83 (1.30, 2.59)*	0.001
<i>Colostrum discard</i>					
Yes	49	118		1.57 (1.06, 2.33)*	0.026
No	133	487	1.52 (1.03, 2.23)	1	

*Statistically significant on multivariate logistic regression analysis at a P value of 0.05.

variation could be due to the difference in sociocultural variations of the study subjects, study area, and maternal beliefs towards breastfeeding.

Primigravida mothers were 1.52 times more likely to practice prelacteal feeding than those multiparous women. Concerning this finding, the research conducted among primigravida mothers indicated that majority of the respondents were found in age group of 17–23 years, most of them were primary school graduates, about one-third of participants depended their source of information on their relatives, and having low knowledge on the breastfeeding practice [27].

Women who initiated breastfeeding after one hour of birth were about two times more likely to practice prelacteal feeding compared to mothers who initiated breastfeeding early. Similar findings were reported in different countries [14, 18, 22, 28]. This might be due to misperception of the mothers and sociocultural malpractices of early breastfeeding. Delay in time interval between delivery and breastfeeding initiation might also exacerbate prelacteal feeding.

Mothers who discard their colostrum were 1.57 times more likely to practice prelacteal feeding as compared with mothers who gave the colostrum to their infants. This finding in lines with studies conducted in North Wollo [24], Raya Kobo [13], and North West [21]. This might be due to maternal misperception that colostrum may cause newborn sickness and considering it as dirty milk are the reasons of avoiding this medicinal substance and also considering raw butter is thought in cleansing the infants stomachs [29].

5. Conclusion and Recommendation

Based on the findings, about one-fourth of the participants practiced prelacteal feeding. Late initiation of breastfeeding, colostrum discards, and parity were strongly associated with prelacteal feeding practice. Awareness creation activities should be undertaken, especially to the primigravida mothers on the risk associated with prelacteal feeding and health education on the advantages of early initiation of breastfeeding and the importance of colostrum during the health visits via the concerned healthcare providers.

Abbreviations

ANC: Antenatal care
AOR: Adjusted odds ratio

CI: Confidence interval
COR: Crude odds ratio
EIBF: Early initiation of breast feeding
VIF: Variance inflation factor.

Data Availability

The datasets analyzed during the current study available are from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

Authors' Contributions

All the authors participated in the designing, data collection, analysis, and writing of the study. The authors have read and approved the final paper.

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