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Prevalence of prelactal feeding and associated factors among mothers in Addis Ketema Sub City, Addis Ababa, Ethiopia

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Abstract

Introduction: A prelacteal feed is any food except mother's milk provided to a newborn before initiating breastfeeding. It affects timely initiation of breastfeeding and exclusive breastfeeding practices. Prelacteal feeding reduces the immunological benefits that gains from colostrum and increases the risk of susceptibility to infection. The harmful infant feeding practices of prelacteal feeding is widely practiced in the developing world including Ethiopia. Even though the issue was investigated in Ethiopia, fragmented and inconsistent findings were reported.

Objective: To assess prevalence and the factors associated with providing prelacteal feeds to children under six months in Addis Ketema Sub-City, Addis Ababa, Ethiopia.

Methods: Facility based cross-sectional study design was conducted from July to October 2019. Among the available ten health centers, three of them were selected through lottery method and from these, 633 study participants were employed by using systematic random sampling technique. Data were analyzed using SPSS version 20.00. The association between dependent and independent variables was assessed by multiple logistic regression. Factors with P-value <0.05 were taken as statistically significant.

Result: A sample of 604 mothers and care givers were participated in the study. A total of 175 (29%) of mothers reported providing prelactal feeds to their newborn infants. Plain water (n = 17), sugar/glucose (n = 34), infant formula (n = 60), and butter (n=12) were some of the reported prelacteal feeds. Mothers who had family size of 3-4 (AOR =2.79, 95% 2.79(1.13-6.87), and ≥ 5 (AOR= 5.83, 95% 2.35 (2.35-14.445), and mothers who were unable to read and write (AOR=1.36,95% 1.36(1.221-1.59) were more likely practiced prelactal feeding while mothers who fed colostrum (AOR=.222,95% .222(.05-.98) and those attended ANC (AOR=0.296, 95% .296(.117-.747) were less likely to practice.

Conclusions: Prelacteal feeding practice in Addis ketema sub-city was found to be high. Decrease level of education, increase number of family size, lack to attend ANC, and refrain to feed colostrum were strongly associated with prelactal feeding practice. Therefore improve educational status of mothers, limiting family size, promoting ANC follow up and colostrum feeding are important measures for preventing prelacteal feeding.

Keywords: Prelactal feeding, exclusive feeding, less than six months children

Introduction

According to World Health Organization (WHO), prelacteal feed is any food except mother's milk provided to a newborn before initiating breastfeeding (WHO 2019; Sharma and Byrne 2016; Khanal 2013; Temesgen et al. 2018). It is also defined as the administration of any foods or liquids other than breast milk to an infant during the first three days after birth (Das et al. 2019; Nguyen et al. 2013). Early initiation of breastfeeding should be done immediately at birth, with no activity may be delayed by weighing or measuring a baby. Infants also should not be cleaned, dried only exception hands. This process must take place skin to skin between baby and mother (Menyusui 2012). Practicing optimal breastfeeding is one of the most effective and cost-efficient ways to prevent undernutrition (Nguyen et al. 2013) and it is the first fundamental rights of the child and one of the most important determinants of child survival, prevention of childhood infections and optimal nutrition for early life (WHO 2019). A beneficial effect of breastfeeding depends on correct breastfeeding practices like timely initiation, colostrum feeding and avoidance of prelacteal feeding (WHO 2012). For the first six months of life, breast milk alone is the ideal nourishment, providing all of the nutrients, including vitamins and minerals, an infant needs, meaning that no other liquid or food is needed (Das et al. 2019; Argaw et al. 2019; Sharma & Byrne 2017; Legesse et al. 2014; Cai et al. 2012; Menyusui 2012). Prelacteal feeding practice contravenes WHO`s recommendation that breastfeeding be initiated within an hour of childbirth (WHO 2019; Jimoh et al. 2017). It affects timely initiation of breastfeeding and exclusive breastfeeding practices (Temesgen et al. 2018), and it might result in increased susceptibility to repeated infections (WHO 2010), receiving insufficient breast milk, lactation failure, diarrhea, shortening of the breastfeeding duration, insufficient weight gain (Takele et al. 2018), and grows less well and is almost six times more likely to die by aged 2 to 28 days than children who receive

early breast milk (WHO 2010). Globally, less than 40% of under six months of age infants are exclusively breastfed. Lack of exclusive breastfeeding contributes to over a million of avoidable child deaths each year worldwide (WHO 2010). Suboptimal infant feeding, including prelacteal feeding contributes 45% of neonatal mortality, 30% of diarrheal mortality and 18% of acute respiratory deaths (Temesgen et al. 2018). 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 (Bekelle et al. 2014; WHO 2010). Around three million neonatal deaths occur every year, two thirds occur in Southeast Asia and sub-Saharan Africa (You et al. 2012). In Ethiopia, 18% of infant deaths could be attributed to poor breastfeeding practices (Hailu et al. 2013).

Studies in different parts of the world reported that prelacteal feeding is practiced in many countries (Woldie et al. 2019; Takele et al. 2018; Tariku et al. 2016); the highest rate in southeast and central Asia (54.6– 93.9 %) (Tariku et al. 2016), a modest rate in Latin America (22.9-40%), average in sub-saharan Africa (32.2%), and Ethiopia ranges from 6.7-56% (Wolde et al. 2019). In Africa, most (10.8–75.2 %) of the mothers also offer prelacteal feeds to their newborn.

In Ethiopia, nearly three children in every ten (27%) are given prelacteal feeds within the first three days of life. This practice is slightly more common in rural areas (27.5%) than in urban areas (24.2%) (Legesse et al. 2014). According to Takele et al. (2018), the pooled prevalence of prelacteal feeding among Ethiopian children was 26.95% with the highest prevalence is observed in Afar region, Eastern Ethiopia (38.2%) and the lowest in SNNPR of Ethiopia (13.9%). The prevalence in Raya Kobo district, Norteastern Ethiopia (38.8%) (Legesse et al. 2014) was also similar with that of Afar but higher than the result obtained in Dabat district, northwest Ethiopia was 26.8% (Tariku et al. 2016). In a study conducted by Bekele et al. (2014) among mothers attending immunization clinic in Harare region government health institutions, 45.4% of mothers gave prelacteal liquids for their infants and the common pre- lacteal food includes sugar or glucose water (43.5%) followed by milk other than breast milk (25.1%).

Aragaw`s et al. (2019) study conducted which conducted at Debre Birhan District North Shoa showed that ability to read and write, utilization of institutional delivery and receiving counseling services on infant feeding were the negative predictors for practicing prelacteal feeding which is similar with Legesse`s et al. study (2014) of Raya kobo district that indicated home delivery, improper commencement of breastfeeding after birth and poor maternal knowledge about the risks associated with prelacteal feeding are important positive predictors of prelacteal feeding practice.

Different investigators promoted various endorsements in order to reduce the practice and impacts of pralactal feedind. Some of these recommendations are ANC followup, institutional delivery (Bekele et al. 2014; Tariku et al. 2016; Takele et al. 2018 Argaw et al. 2019; Jimoh et al. 2018); promotion of intensive nutrition education program, awareness on risks of prelactal feeding and benefits of colostrum feeding (Wolde et al. 2019; Legesse et al. 2014; Amele et al. 2019; Jimoh et al. 2018) intervention that should be integrated by giving special emphasis to extended family mothers.

Although few researches on prevalence and associated factors of prelactalfeeding were conducted in different parts of Ethiopia, there is limited study in Addis Ababa, particularly to Addis ketema sub-city. Therefore, this study was aimed to assess prelactal feeding practices and associated factors among mothers of children age less than six months of which could help to reduce practices of prelactal feeding by providing valuable information to the study area.

Materials and Methods

Facility based cross sectional study design was conducted in the health centers of Addis Ketema Sub city, Addis Ababa, Ethiopia, from July to October/2019. A total sample size of 633 mother–child pairs were recruited by single population proportion formula using Z-score at 95% confidence level (1.96); national proportion of prelacteal feeding P = 27%; margin of error d = 0.05; (4%); design effect D = 2, and of 5% non-response rate. Among the available ten health centers, three of them were selected through lottery method and study participants were employed proportionally from the selected health centers by using systematic random sampling technique. Mothers who had infants age below six months of age were included in the study.

Data were collected by using pre-tested, structured questionnaire. All instruments for this study were tailored from diverse literatures. Mock interviews and practical field exercise were given to data collectors to ensure the quality of the field operation. During data collection, the supervisors followed data collectors and performed quality checks with the principal investigator. The questionnaire were prepared in English and translated to Amharic, then back translated to English to keep the consistency of the questions.

Data were coded, cleaned, entered, and analyzed using SPSS window version 20 statistical packages for

descriptive and inferential analysis. Predictors having p-value ≤ 0.25 on the bivariate analysis were candidates for the multivariate analysis. And factors with p-value < 0.05 on the multivariate analysis were statistically significant. The degree of association between dependent and independent variables was assessed using AOR at 95% CI. Ethical clearance was obtained from Research and Ethics committee of Yanet Health Science College. Permission was also obtained from Addis Ketema sub city Health Office. All study participants were briefed about the objective of the study, the risks and benefits to be participated, and the right to withdraw from the study at any time. Written consent was obtained and confidentiality was ensured during the process of the data collection.

Result

Socio-demographic Characteristics: A total of 604 mother–child pairs with a response rate of 95.4% were included in the study. Of these, 226(37.4%), 112(18.5%) and 108(18%) were within the age of 26–30, 31-35 and 21-25 years, respectively. Nearly two-thirds (63 %) of children were living with family size of more than four. Seventy two percent of mothers were married, 29% attended College and above and 45.2% were house wives. Regarding to sex of the infant, 324(53.6%) were male. Nearly 5.7% of respondents' household monthly income was below 500 Birr, and 21.5% of mothers had three or more children with in the household (Table1).

Table1: ***Socio-demographic variables of prevalence of prelactal feeding and associated factors among mothers who had less than six month of age children in selected health centers, Addis Ketema Sub city, Addis Ababa Ethiopia, 2018. (n= 604)***

Variables	Category	Frequency	percent
Age	16-20	61	10
	21-25	108	18
	26-30	226	37.4
	31-35	112	18.5
	>35	97	16.2
Family size	< =3	280	46.4
	4- 6	298	49.3
	> 6	26	4.3
Marital status	Single	155	25.7
	Married	436	72.2
	Divorced	10	1.7
	Widowed	3	0.5
Level of education	Unable to read and write	53	8.8
	Read and write only	91	15
	Primary education	122	20.2
	secondary education	160	26.5
	College and above	178	29.5
Occupational status	Private employee	18	3.0
	Civil servant	119	19.7
	Daily laborer	112	18.5
	Marchent	21	3.5
	House wife	273	45.2
	Others	61	10.1
Household income	< 500	35	5.7
	500- 1000	81	13.4
	1001- 1500	198	32.7
	>1500	290	48
Sex of infant	Male	324	53.6
	Female	280	46.4
Birth spacing	no previous birth	290	48
	<24 months	70	11.6
	>= 24 months	244	40.4
No of children with in the household	one	283	46.9
	two	191	31.6
	three	90	14.9
	>three	40	6.6

Infant feeding practices: In this community, 29% of mothers gave prelactal feeds to their newborns. The most common prelactal feeds were formula milk (34.4%), water and tenadam (26%), sugar/glucose water (19.5%), and butter (7%). Fivtyfour (31%) of mothers were influenced by other individuals to practice prelacteal feeding. The other reported reasons were thought that breastfed to newborns will be thirsty (16.8%), breast feeding problem (17%), to clean infant's bowel/throat/mouth (22.2%), and cultural practice (13%). Ninety percent of respondents feed colostrum's to their infants. Most of the respondents (78%) breast feed < 1hr and 8% feed 1-6 hrs. after delivery (Table 2).

Table2: ***Assessment of prevalence of prelactal feeding practice mothers who had an infant age of less than six month in selected health centers, Addis Ketema sub city, Addis Ababa Ethiopia /2018***

Variables	Category	Frequency	Percent
Give anything to drink or eat	yes	175	29
	No	429	69
Type prelactal feeding	Plain water	17	9.4
	sugar /Glucose water	34	19.5
	Water and tenadam	46	26.2
	butter	12	6.9
	Formula milk	60	34.4
	Other	6	3.4
Reasons to prelactal feeding	Breastfed for newborns will be thirsty	29	16.8
	Breast feeding problem	30	17
	Clean infant's bowel/throat/mouth	39	22.2
	Cultural practice	23	13
	Advice from other people	54	31
Histry of ANC follow up	Yes	571	94.5
	No	33	5.5
Feed colostrum	Yes	546	90.4
	No	58	9.6
Time of breast feeding	<1 hour	470	77.8
	1-6hrs	47	7.8
	7-12 hours	6	1.0
	1 day	19	3.1
	2-3 days	3	.5
	Others	58	9.6

Factors associated with prelactal feeding practice: %. Having family size of three or more and unable to read and write, failure to feed colostrum and failure to attend ANC were found to be associated with prelactal feeding. Mothers who had family size of five or more were nearly six times (AOR= 5.83, 95% (2.35-14.445) more likely to practice prelactal feeding as compared to mothers who had two or less family size. In addition, those mothers who had family size of 3-4 were nearly three times (AOR =2.79, 95% (1.13-6.87) more likely to practice prelactal feeding as compared to mothers who had two or less family size (Table 3).

Table 3: ***Determinant of prevalence of prelactal feeding and associated factors among mothers of children less than six month of age in selected health centers, Addis Ketema sub city, Addis Ababa Ethiopia /2018.***

Variable	Frequency (%)	COR	AOR
Family size			
≤ 2	280(46.4%)	1	1
3- 4	298(49.3%	. 364(.153-.076)	2.791(1.133-6.87)*
≥ 5	26(4.3%)	.180(.864-.430)	5.83(2.35-14.445)*
Level of Education			
Unable to read and write	53(8.8%)	2.836(1.759-4.573)	1.36(1.221-1.59)*
Able to read and write	91(15%)	1.029(.533-1.986)	.978(.497-1.924)
Primary education	122(20.2%)	1.299(.765-2.207)	.844(.485-1.469)
Secondary education	160(26.5%)	1.110(.704-1.750)	.917(.572-1.471)
College and above	178(29.5%)	1	1
Approximate HH income			
< 500	35	.910(.247-3.350)	1.07(.287-4.03)
500- 1000	81	2.427(1.028-5.730)	.348(.141-.858)
1001- 1500	198	1	1
>1500	290		
Feed colostrum			
Yes	546(90.4%)	12.80(3.95-41.47)	.222(.05-.983)*
No	58(9.6%)	1	1
Attend ANC			
Yes	571(94.5%)	1.90(1.18-7.148)	.296(.117-.747)*
No	33(5.5%)	1	1

Mothers who were unable to read and write were 1.36 times (AOR=1.36, 95% (1.221-1.59) more likely to practice prelactal feeding as compared to mothers who had college and above educational status. On the other hand, mothers who fed colostrum to their children were 4.5 times (AOR=.222, 95 % (.05-.98) less likely to practice prelactal feeding as compared to mothers who did not feed colostrum. Moreover, the lower odds of prelactal feedind was observed among mothers who attended ANC follow up (AOR=0.296, 95% (.117-.747) compared to mothers who did not attend ANC follow up.

Discussion

This study revealed that, the prevalence of prelacteal feeding in Addis ketema sub-city was 29%. Having family size of three or more and unable to read and write, failure to feed colostrum and failure to attend ANC were found to be the positive predictors of prelactal feeding.

The prevalence in this finding (29%) was nearly in agreement with the pooled prevalence of Ethiopia (27%) (Takele et al. 2018; Legesse et al. 2014), Dabat District (26.8%) (Tariku et al. 2018), and the prevalence in Nepal (26.5%) (Khanal et al.2014). The similarity might be due to similarity of the study design deployed, common cultural practice, and relatively similar methods of maternal counseling at the health institutions. However, the level of prelacteal feeding in the current study is lower than the prevalence which observed in Afar region, Eastern Ethiopia (38.2%) (Takele et al. 2018); Raya Kobo district, Norteastern Ethiopia (38.8%) (Legesse et al. 2014); among mothers attending immunization clinic in Harare region government health institutions 45.4% (Bekele et al. 2014), and West Gojam zone, Amhara regional state, Ethiopia (48.3 %) (Kebede 2015). This prevalence is also higher than the prelactal feeding prevalence on a systematic review and meta analysis in Ethiopia (25.29%) (Temesgen et al. 2018); study conducted in Bishoftu town, East Shewa Zone of Oromia Region (21.9 %) (Kebede et al. 2015), and prelactal feeding prevalence in slum areas of Bahir Dar City, Ethiopia (15%) (Demilew et al. 2017). The differences in the prevalence could be attributed to difference in study designs, study participants recall bias, age category of study participants and cultural differences among the regions.

In this study, maternal educational status was significantly associated with avoidance of prelacteal feeding: having better educational status might affect prelacteal feeding practices. This is consistent with the study done in hospital-delivered infants of India by Patel et al (2013). This shows that maternal education affects proper child feeding practices through improving their knowledge from different information sources like posters, leaflets, reports and newspapers by independent learning. However a contrary finding were also reported from studies done Raya Kobo district, North Eastern Ethiopia (Legesse et al 2014) and rural northern India (Roy et al. 2014). This could attribute that, though the mothers have better educational status, it might not be useful for increasing their knowledge of prelacteal feeding and their practices. In addition, despite the fact mothers are aware of prelacteal feeding, they might be influenced by the local community members to use prelacteal feeding. This suggests that, all women do need formal education since this could bring behavioral change that can lead them to get access information sources on nutrition education that will have a considerable impact on the community. Besides, specific nutrition-related topics should be incorporated to the formal education scheme.

Mothers who had not ANC services in the study area describe the highest burden of prelacteal feeding. This is in line with the national findings of ICF & CSACEa Ethiopia (2016) and Takele et al. (2017), a multilevel study in Ethiopia (Alemu et al. 2017) and another multilevel study in twenty-two Sub Saharan Africa including Ethiopia (Berde and Ozcebe 2017), among mothers attending immunization clinic in Harari Region Public Health Facilities, Eastern Ethiopia (Bekele et al. 2014). During ANC visit mothers get advice about infant feeding and the importance of institutional delivery which further could improve infant feeding practices. This could be due to the fact that mothers who did not get ANC were more likely to be exposed to the traditional beliefs that favor prelacteal feeding. In contrast, attending ANC would have an added benefit to receive immediate obstetric care, early initiation of breastfeeding which reduces the likelihood of giving prelacteal feeding.

The strength of this study was taking of adequate sample to escalate representativeness of the study population. However, the limitation of this study was that information obtained from mothers having children aged less than six months is subject to recall bias. The study also shares the limitation of the cross-sectional study design. Findings from this study have considerable contribution in reducing prelactal feeding practices by the promotion of optimal breastfeeding in Ethiopia.

Conclusion and Recommendation

The prevalence of prelacteal feeding was high. Low level of education and increase family size were the identified factors that increase prevalence of prelacteal feeding practice. However, following ANC and feeding colostrum resulted in reducing prevalence of prelacteal feeding practice. This obviously presents a challenge to achieve the WHO recommended 90% rate of practice of exclusive breastfeeding among children less than six months of age. Improving the awareness of mothers on: optimal breastfeeding, ANC follow up, cholesterol feeding, and improving educational status are the recommendaed interventions to reduce prelacteal feeding practice.

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