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Colostrum Avoidance and Associated Factors Among Mothers of Children Aged Less Than 12 Months in Jinka Town, South Ethiopia, 2019

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Abstract

Background: Colostrum avoidance is the common nutritional malpractices in developing countries including Ethiopia. Discarding colostrum is the main causes of respiratory disease and diarrheal disease during childhood and contributes to over a million avoidable infant deaths each year and remains a public health problem in developing countries. Despite the fact that it has a negative effect on child health, little is known about the extent of the problem and its contributing factors in South Ethiopia particularly in study area. The aim of the study was to determine the prevalence of colostrum avoidance practices and associated factors among Mothers of children aged less than 12 months in Jinka Town, South Ethiopia.

Methods: A community based cross-sectional study was conducted at Jinka Town from March 1 to 30, 2019. A total of 420 mothers having children less than 12 months of age were selected by systematic sampling technique. The data were collected by using pretested interviewer administered and semi-structured questionnaires. The data was entered using EPIDATA 3.1 and exported to SPSS version 23 for analysis. Descriptive statistics, Binary and multivariable logistic regression analysis were done. An adjusted odds ratio with 95% CI at a p-value < 0.05 was estimated to identify statistically significant variables with colostrum avoidance practices.

Results: The prevalence of colostrum avoidance practice was 9.8% [95% CI: (6.9–12.5)]. Delayed initiation of breast feeding [AOR= 9.08(95% CI 4.16-19.83)], Lack of breast feeding counselling [AOR= 2.33(95% CI 1.11-4.87)], Home delivery of index child [AOR= 2.48 (95% CI 1.16-5.27)] and Poor knowledge on breast feeding [AOR=4.55(95% CI 1.95-10.63)] were factors associated with colostrum avoidance practices.

Conclusions: Colostrum avoidance practice among mothers of children aged less than 12 months in Jinka town was high. Delayed initiation of Breas feeding, lack of breast feeding counselling, Home delivery and knowledge on breastfeeding feeding practice were factors associated with colostrum avoidance practice. Promoting institutional delivery services and strengthening of breast feeding counselling during antenatal and postnatal care were recommended for the promotion of the nutritional value of colostrum and its health benefits.

Background

Breastfeeding is considered a proven child survival strategy, and the World Health Organization (WHO) recommends that, the newborns to be put on the breast within an hour after birth [1]. It provides immense immunologic, psychological, social-economic, and environmental benefits [2]. It also significantly reduces a child's risk of developing obesity, type 2 diabetes mellitus and related chronic non-communicable diseases[3]. Furthermore, breastfeeding promotes a child's cognitive development [4]. Early initiation of breastfeeding immediately after birth enhances mother-infant bonding [5]. Moreover, it promotes effective suckling, successful establishment, and maintenance of breastfeeding throughout infancy [6]. However, in different countries including Ethiopia, a significant proportion of mothers offer prelacteal feeds to their newborn [7–9].

Colostrum is the first liquid that is produced in the first few hours after delivery. It is thick, sticky and clear to yellowish in color. It contains proteins, vitamin A and maternal antibodies important to the newborn's nutrition until lactation is fully established [10]. Colostrum establishes important bacteria in the baby's gut. It also acts as 'paint', coating the infant's gastrointestinal tract. Therefore, colostrum provides natural immunity (baby's first immunization) against many bacteria and viruses [10, 11]. In contrary to these advantages, colostrum is considered heavy, thick, dirty, toxic and harmful to children's health and therefore in some societies, a portion of colostrum is discarded. Colostrum avoidance is a common practice in Ethiopia [12, 13]. It is the low-volume concentrated form of nutrient supply system, which suits for newborns with premature digestive system. It has laxative effect which encourages passage of baby's first stool, meconium. This help to prevent neonatal jaundice by clearing excess amount of bilirubin, which is produced in large quantities at a birth [14, 15].

Colostrum feeding is associated with a reduced risk of otitis media, gastroenteritis, and respiratory illness, necrotizing entero-colitis, obesity, and hypertension [16]. In the developing countries where the rate of communicable diseases is high, timely provision of colostrum is reducing diarrheal disease in the neonates [17].

Globally, more than 4000 infants and young children die because they do not get colostrum within the first hour after birth. Most of the infants are given liquids other than their mother's milk in the first few days after birth. The rate of breastfeeding varies in communities from almost 70% to a low of 13% as this is culturally influenced [18]. Among women in developing countries who do not

give colostrum feeds, most of them avoid colostrum feeding based on cultural beliefs that range from no nutritional value for infants to harmful for the infant's health. Some women may specify no reason for avoiding colostrum rather than tradition [19].

Globally, colostrum avoidance is practiced in many countries; In Utarkhand, India 92% of mother discarded colostrum, In Nepal 16.5%, In Pakistan 27.9% and in Burkina Faso 16% of mothers deprived colostrum to their infants [20–23]. In Ethiopia, colostrum discarding is the common nutritional malpractice. In Afar 35%, in Debre Tabor 25.6% in Raya kobo 13.5%, in Axum 6.3% and in Motta Town 20.3% of mother reported that they discarded colostrum [24–27] [28].

Every day, 3000–4000 infants die in the developing world from diarrhea and acute respiratory infections because they were receiving inadequate amounts of breast milk in their feeding and were deprived colostrum [29]. In particular, 45% of neonatal infectious deaths, 30% of diarrheal deaths, and 18% of acute respiratory deaths among children aged less than five years are associated with suboptimal breast feeding [30, 31] .Malnutrition is an underlying factor in more than 50% of the major cause of infant mortality and the risk of malnutrition in children during the first 2 years of life is an indication of poor infant feeding practices [32] .A Study carried out in Afambo district, Afar found that children who were colostrum avoided had 2.34 times increased likelihood of being underweight when compared to those children who fed colostrum [33]. Suboptimal breast feeding is also one of the risk factor for childhood stunting [34]. Poor infant feeding practices are chief challenges to the social and economic development of one country [35].

Different factors were noted to affect colostrum avoidance practice; it was mainly related to maternal characteristics. Accordingly, home delivery, failure to attend ANC, lack of post-natal care, late breastfeeding initiation and poor knowledge on optimal breast feeding [26, 27, 36] .

A wide range of harmful new born feeding practices are documented in Ethiopia even after the implementation of infant and young child feeding guideline [37]. In cognizance of the severity as well as the wide spreading practices of inappropriate breastfeeding, the Government of Ethiopia has been devising different strategies including generating of health extension program, and working in collaboration with Non-Governmental Organizations (NGOs) in the areas of IYCF [38, 39]. WHO and UNICEF recommend that children should initiate colostrum within the first hour of birth, However in Ethiopia about 27% of infant had not started colostrum within one hour of birth [40, 41]. Despite the fact that colostrum avoidance has a negative effect on child health, little is known about the extent of the problem and its contributing factors in Southern Ethiopia particularly in study area. As there are diverse cultural practices among Ethiopian communities, evidence generated by this study will assist in developing context specific interventions to halt colostrum avoidance practice and to promote optimal IYCF practice. Therefore, the purpose of this study was to assess the prevalence of colostrum avoidance practices and its associated factors among mothers of children aged less than 12 months in Jinka Town, Southern Ethiopia.

The finding of this study may add knowledge about the magnitude and its determinants of colostrum avoidance and to come up with recommendation on possible intervention for colostrum avoidance and association factors in the study area. This study will also help to health care service provider in their counseling/health education session to strength good breast-feeding practices. It helps Town Health office and Zonal Health department by providing relevant information for future planning and interventions of appropriate strategies to promote colostrum feeding. This in turn, may help to reduce the mortality and morbidity rate of infant in Ethiopia. The finding of this study also helps for local NGOs working in the areas of child health to improve optimal breast feeding practices.

Methods And Materials

Study setting, design and period

This study was conducted in Jinka Town, South Omo Zone and is situated 755 Km away from Addis Ababa and 525 Km from Hawassa. The Town has an estimated population size of 31226 living in 6 kebeles (the smallest administration unit in Ethiopia). Out of total population 15582 are males and 15644 are females. Out of all female population 6076 are women in the reproductive age group (15-49yr). About 997 of the total population are accounted by children less than one years of age. The Town has 1 hospital, 1 health center and 6 health posts providing health services including maternal and child health care. The town also has 12 private clinic and 13 drug vendors [42] . The study period was from March 1 to 30, 2019.

A community based cross-sectional study was conducted to determine the prevalence of colostrum avoidance and associated factors among mothers of children aged less than 12 months in Jinka Town, South Omo Zone, Ethiopia.

Source population

All mothers of children aged less than 12 months in Jinka Town, South Omo Zone.

Study population

All mothers of children aged less than 12 months in the selected kebeles of Jinka Town during data collection period.

Eligibility criteria

Inclusion criteria: All mothers/caregivers of children aged less than 12 months and mothers who had lived for at least for 6 months in the study area.

Exclusion criteria: Those mothers who was seriously ill or unable to give the required information during data collection period.

Sample Size and Sampling Technique

In this study, the sample size is determined by using single population proportion formula. Considering the prevalence of colostrum avoidance practices of 20.3% obtained from previous study conducted in Motta Town [28], 95% certainty and maximum discrepancy of 5% between the sample size and the underlining population. The following single population formula:

$$n= (Z\alpha/2)^2 p\,(1-p)/d^2 = 1.96^2(0.203*0.797)/0.05^2=249$$

By using design effect of 1.5 and by adding 15% of non-response rate, total sample size is

249 *1.5+15%=430. Thus, the final sample size was n=430 mothers.

Systematic sampling technique was employed to select study participants. From total of 6 kebeles of Jinka Town 4 Kebeles was selected by Lottery Method. In order to obtain the sample size from each selected kebeles proportional allocation to sample size was done. First, numbering of all households of selected kebeles with mothers of children aged less than 12 months was conducted, and then systematic sampling technique was applied for selection of study participants. Finally, every Mother from each house hold of the selected Kebele's was identified until the required sample size fulfilled and the starting household was selected using a lottery method. At the time of survey, from each household unit one eligible mother who had a child aged less than 12 months was selected. In scenarios where there was more than one potential respondent in a household, simple random sampling was done to select one.

Study variables

Dependent variable

Colostrum avoidance practices

Independent variables

Socio-demographic factors: age of the mother, educational status of the mother, educational status of father of index child, marital status, religion, ethnicity, occupation of the mother, household's wealth status, family size and sex of the index child. Maternal health service utilization: ANC visit, BF counseling during ANC visit, place of delivery of index child, mode of delivery of index child and postnatal care. Breast feeding history: delayed initiation of BF and prelacteal feeding practices. Knowledge: mother's knowledge on BF. Maternal health related factors: medical conditions and breast problem

Operational definition and terms

Colostrum avoidance: is the failure to feed infants the first, thick and yellowish milk that is produced in the first 3 days after birth. Avoiding colostrum was coded as '1', while colostrum feeding was coded as '0' for regression analysis [26].

Prelacteal feeding: If an infant within the first three days of life feed something other than breast milk [40].

Delayed initiation of BF: Initiation of breastfeeding after one hour of birth [40].

Good knowledge of breastfeeding practice: If a mother answered four questions out of seven on breastfeeding knowledge correctly [28].

Data Collection Tools and Procedure

A semi-structured interviewer administered questionnaire was used to collect data from mothers of a child. The questionnaire was constructed by adapting from previous literature [20, 25-27, 36] and contextualized to fit the research objective accordingly. The questionnaire was initially prepared in English and then translated into Amharic version (local language) by different fluent speakers of both languages and then to English to check its consistency. The questionnaire mainly addressed socio-demographic, infant feeding, maternal health services utilization, maternal health related and maternal knowledge on breast feeding practices. The data were collected by four trained diploma nurses who are fluent speaker in the local language and supervised by two BSc public health professionals. Face-to-face interview technique was conducted at the study participants' house. The study participants were properly oriented on the purpose, objectives and usefulness of the study and then questionnaire was provided to respondents after getting written consent from each participant.

Data quality control

To assure the quality of data, properly designed data collection instruments was provided after appropriate training for data collectors and supervisors. The questionnaire was initially prepared in English and then translated into Amharic version (local language) by different fluent speakers of both languages and then to English to check its consistency. The questionnaire was pretested prior to the actual data collection on 5 % of the sample size in nearby Town, Key Afer in order to check clarity and consistency of data collection instruments. During pre-testing an effort was made to check for consistency in the interpretation of questions and to identify ambiguous items. The collected data was checked for consistency, completeness and relevance on a daily basis during the entire data collection by the supervisors and principal investigator.

Data Processing and Analysis

The collected data was coded and entered by EPIDATA 3.1 and exported to statistical package for social science (SPSS) version 23.0 for analysis. Then data cleaning, editing recoding and management were carried out. Descriptive statistics; mean, standard deviation and proportion were done. The household wealth index was computed by considering properties, like selected household assets. The wealth index of participants household was computed by Principal component (PCA). Assumptions for factor analysis were checked. Finally, household wealth status was ranked into three categories (poor, middle and rich). Binary logistic regression analysis was employed to examine the statistical association between the colostrum avoidance practices and independent variables. Variables which have p value < 0.25 during bivariate analysis were entered into multivariable logistic regression to identify statistically significant variables. The model goodness of fit was tested by Hosmer-Lemeshow statistic which is not significant P-value = 0.264. Multi co linearity test was carried out to see the correlation between all multivariate independent variables using collinearity statistics which is tolerance > 0.1 and variance inflation factor < 10. An Adjusted odds ratio (AOR) with 95% CI at a p-value < 0.05 was estimated to identify statistically significant variables. The data were presented by tables, frequencies and graphs.

Results

Socio demographic characteristics of mothers and children

Four hundred twenty Mothers having children less than 12 months of age were interviewed in this study, with a response rate of 98.4%. The mean age of respondents was 26.86(SD ± 5.06) years. A minimum and maximum age of the respondents was 18 and 41 years respectively. Majority of the mothers; 396(94.3%) were married. About 183 (43.6%) of the respondents had primary level of education. Regarding religion of respondents 259 (61.7%) were orthodox Christians. Out of the total respondents 181(43.1%) were Amhara in ethnicity. Majority of the respondents; 314(74.8%) were unemployed in occupation. About 247(58.8%) of fathers of index child had secondary level of education and above. Concerning family size of the respondents 279(66.4%) had ≥ 4 family number. Around half of the children 228(54.3%) were males (Table 1).

Table 1
Socio-demographic characteristics of Mothers of children aged less than 12 in Jinka town, South Ethiopia, 2018/19 (N = 420).

Variables	Category	Frequency(n)	Percentage (%)
Maternal age (year)	15–24	141	33.5
	25–34	235	56.0
	≥35	44	10.5
Marital status	Married	396	94.3
	Unmarried	24	5.7
Educational status of mother	Unable to read and write	63	15.0
	Primary education	183	43.6
	Secondary and above	174	41.4
Religion	Orthodox	259	61.7
	Protestant	139	33.1
	Muslim	19	4.5
	Others	3	0.7
Ethnicity of mother	Amhara	181	43.1
	Ari	114	27.1
	Gofa	31	7.4
	Wolayta	42	10.0
	Basketo	42	10.0
	Others	10	2.4
Maternal occupation	Unemployed	314	74.8
	Employed	106	25.2
Educational status of the father of index child	Unable to read and write	40	9.5
	Primary education	133	31.7
	Secondary and above	247	58.8
Family size	≥ 4	280	66.7
	≤ 3	140	33.3
Sex of index child	Male	228	54.3
	Female	192	45.7
Wealth index	Poor	140	33.3
	Middle	146	34.8
	Rich	134	31.9

The prevalence of colostrum avoidance practices among Mothers

The prevalence of colostrum avoidance practices in this study was 41(9.8%) (95% CI: 6.9–12.5). The main reasons for colostrum avoidance were breast milk insufficiency 14(34.1%) followed by considering colostrum causes abdominal discomfort and diarrhea for the new born 11(26.8%). Regarding prelacteal feeding; of the total respondents; 53(12.6%) were practicing prelacteal feeding. The

major Reason for prelacteal feeding were; cultural practice 19(35.8%); by considering breast fed for newborns will be thirsty 10(18.9%) and to clean infant's bowel/throat 8(15.1%). Three hundred twenty-four (77.1%) of mothers-initiated breast feeding within one hour, while the remaining 96(22.9%) initiated breast feeding more than one hour (Table 2).

Table 2
Colostrum avoidance practices among mothers of children aged less than 12 months in Jinka town, South Ethiopia, 2018/19 (N = 420).

Variable	Category	Frequency	Percentage
Colostrum avoided (420)	Yes	41	9.8
	No	379	90.2
Reason for discarding colostrum (41)	Maternal medical illness	9	22
	Colostrum is not good for child growth	7	17.1
	Breast milk insufficiency	14	34.1
	Causes abdominal discomfort	11	26.8
Pre-lacteal feeding (420)	Yes	53	12.6
	No	367	87.4
Reason for providing pre-lacteal feeding(53)	Breast fed for newborn will be thirsty	10	18.9
	Breast problem	2	3.8
	Maternal medical illness	2	3.8
	Inadequate milk secretion	5	9.4
	Infant feeding problem	4	7.5
	Child growth	3	5.7
	Cultural practice	19	35.8
	To clean infant bowel/mouth	8	15.1
Breast feeding initiation (420)	Within one hour	324	77.1
	Greater than one hour	96	22.9

Maternal health care service utilization and obstetric characteristics

Three hundred eighty (90.5%) of mothers have utilized ANC services for their index infants. From those mothers who have utilized ANC services 140(36.8%) visit four and above. About 268(63.8%) of respondents had got breast feeding Counseling. From those mothers who were counselled on breast feeding 154(57.5%) counseled on the benefits of breast feeding. Three hundred twenty-seven (77.9%) of mothers delivered their child at health facility. Three hundred fifty one (83.6%) of mothers gave birth through spontaneous vaginal delivery. About 273(65%) of respondents utilized postnatal care. About 78(28.6%) of respondents utilized three or more visits. Nearly half 198(47.2%) of infants were birth order of second and third child. Around half 208(49.5%) of children were born with birth spacing of greater than 24 months (Table 3).

Table 3
Maternal health care service utilization among mothers of children aged less than 12 months in Jinka town, South Ethiopia, 2018/19 (N = 420).

Variable	Category	Frequency(n)	Percentage (%)
Attending ANC (N = 420)	Yes	380	90.5
	No	40	9.5
Number of Antenatal care visit (N = 387)	1–3 visit	240	63.2
	≥4 visit	140	36.8
Breast feeding Counseling	Yes	268	63.8
	No	152	36.2
Information from counseling (M)	Benefit of breastfeeding	154	57.0
	Positioning and attachment	40	14.9
	Exclusive breastfeeding	88	32.8
	Non-breastfeeding problem	38	14.2
	Expressed breastfeeding	19	7.1
Place of Delivery (N = 420)	Health facility	327	77.9
	At Home	93	22.1
Mode of Delivery (N = 420)	Spontaneous delivery	351	83.6
	Instrumental delivery	28	6.7
	C/S delivery	41	9.8
PNC	Yes	273	65.0
	No	147	35.0
Number of PNC visit	1	64	23.4
	2	131	48.0
	3	78	28.6
Birth order of index child	1	148	35.2
	2–3	198	47.2
	≥4	74	17.6
Birth spacing	No previous child	148	35.2
	< 24 months	64	15.3
	≥24 months	208	49.5
Key: M = multiple response			

Maternal medical condition and breast problem

Majority (89.3%) of mothers did not face any of breast problems following the delivery of index child. From breast problem, mastitis (35.8%) was the most common problem mothers faced followed by breast milk insufficiency (31.1%). Majority 379(90.2%) of the mothers not faced any medical illness following the delivery of index child (Table 4).

Table 4
Maternal medical condition and breast problem among mothers of children aged less than 12 months in Jinka town, South Ethiopia, 2018/19 (N = 420).

Variable	Category	Frequency(n)	Percentage (%)
Any breast-feeding problem	Yes	45	10.7
	No	375	89.3
Types of problem	Abscess	8	17.8
	Mastitis	16	35.8
	Cracked/sore nipples	7	15.6
	Breast milk insufficiency	14	31.1
Any maternal illness following delivery of index child	Yes	41	9.8
	No	379	90.2

Maternal knowledge on breast feeding

From total respondents 290 (69%) of mothers knows about as there is no need to give prelacteal feeding to the infant and 361(86%) of mothers knows about the importance the colostrum the infant. Three hundred fifty-two (83.8%) mothers had good knowledge regarding to optimal breastfeeding practice while the remaining 68(16.2%) had poor knowledge concerning optimal breast -feeding practices (Table 5).

Table 5
Breastfeeding knowledge of mothers of children aged less than 12 months in Jinka town, South Ethiopia, 2018/19 (n = 420)

Knowledge questions	Response	Frequency(n)	Percentage (%)
Breastfeeding is important for infant health	Yes	400	95.2
	No	20	4.8
Breastfeeding is important for maternal health	Yes	271	64.5
	No	149	35.5
An infant should be put to breast immediately after birth	Yes	346	82.4
	No	74	17.6
The first milk/colostrum should be given to an infant	Yes	361	86.0
	No	59	14.0
Pre-lacteal feeding is not needed for an infant before starting breast milk	Yes	290	69.0
	No	130	31.0
Breast milk alone without water and other liquids is enough for an infant during the first 6 months of life	Yes	274	65.2
	No	146	34.8
Starting from 6 month an infant should start complementary feeding and continued breastfeeding up to 2 years and beyond	Yes	289	68.8
	No	131	31.2

The factors associated with colostrum avoidance practices

In the final multivariable Logistic regression analysis, the time of initiation of breast feeding, BF counselling, place of delivery and knowledge on breast feeding practices were significant factors associated with colostrum avoidance practices. Mothers who delayed initiation of breast feeding were 9.08 times more likely to discard colostrum when compared to mothers who started breast feeding timely within one hour (AOR = 9.08, 95% CI; 4.16–19.83). Mothers who didn't get breast feeding counselling were 2.33 times more

likely to discard colostrum when compared to those mother who get breast feeding counselling (AOR = 2.33,95% CI; 1.11–4.87). Mothers who delivered the index child at home were 2.48 times more likely to discard colostrum when compared to mothers who gave birth at health facility (AOR = 2.48,95% CI;1.16–5.29). Furthermore, colostrum avoidance practice were 4.55 times higher among mothers with poor knowledge on breast feeding practices when compared to their counterparts (AOR = 4.55, 95% CI; 1.95–10.63) (Table 6).

Table 6
Bivariable and multivariable logistic regression analysis of factors associated with colostrum avoidance practices among mothers of children aged less than 12 months in Jinka town, 2018/19.

Variable	Categories	Colostrum avoidance practice		Crude OR with 95% CI	Adjusted OR with 95% CI	P-value
		Yes n (%)	No n (%)			
Educational status of Mother	Unable to read and write	10 (24.4)	53 (14)	2.54 (1.04–6.23)	0.56(0.16–1.88)	0.351
	Primary education	19 (46.3)	164 (43.3)	1.56(0.73–3.32)	1.02(0.42–2.45)	0.96
	Secondary and above	12 (29.3)	162 (42.7)	1	1	
Prelacteal feeding	Yes	15 (36.6)	38 (10.02)	5.17(2.52–10.62)	2.24(0.86–3.81)	0.096
	No	26 (63.4)	341(89.98)	1	1	
BF initiation	Timely	14 (34.1)	310(81.8)	1	1	
	Delayed	27(65.9)	69(18.2)	8.66(4.31–17.38)	**9.08(4.16–19.83)***	**0.001**
BF counseling	Yes	16(39.02)	252(66.49)	1	1	
	No	25(60.98)	127(33.51)	3.10(1.59–6.01)	**2.33(1.11–4.87)***	**0.024**
Place of delivery	Health facility	20(48.8)	307(81)	1	1	
	Home	21(51.22)	72(19)	4.47(2.30–8.69)	**2.48(1.16–5.29)***	**0.018**
Post-natal care	Yes	19(46.3)	254(67.02)	1	1	
	No	22(53.7)	125(32.98)	2.35(1.23–4.50)	1.81(0.86–3.81)	0.117
Knowledge on BF practice	Good	25(60.98)	327(86.28)	1	1	
	Poor	16(39.020	52(13.72)	4.02(2.01–8.04)	**4.55(1.95–10.63)***	**0.001**

Key: *=statistically significant at p < 0.05 in multivariable logistic regression;

1 = indicated the reference category.

Discussion

This study was aimed to assess the prevalence of colostrum avoidance practices and associated factors among mothers of children aged less than 12 months in Jinka town, South Ethiopia. In this study the prevalence of colostrum avoidance practice was 9.8%. This makes breastfeeding practices sub-optimal in Jinka town due to the introduction of pre-lacteal feeds and to the newborns and due to delayed initiation of first breast milk.

This result is consistent with the studies conducted in Axum town 6.3% [27],North Wollo Zone 12%[36], Raya Kobo District 13.5% [26] and East Wollega Zone 8.8% [43]. However, the finding of this study was higher than the studies done in Hula district, Sidama Region 3.9% [44]. The difference between these studies might be due to the difference in community attitude towards colostrum feeding among ethnic groups. The other possible reason for this inconsistence of the finding might be sociodemographic difference among study participants.

The finding of this study is also lower than studies done in different developing countries. Utarkhand, India 92% [20], Nepal 16.5% [21], Pakistan 27.9% [45], Burkina Faso 16% [23],South Sudan 38.8% [46] and Debre Tabor 25.6% [25]. This difference could be due to the

difference in maternal health service utilization between study populations. The other possible reasons could be due to the difference in year of the study. This could also be the place of residence and difference in maternal educational level. Hence, mothers who reside in the towns would have better access to maternal and child health services.

In this study, Mothers who delayed initiation of breast feeding were about nine times more likely to practice colostrum avoidance than those who initiated breast feeding within one hour. This result is consistent with the study done in Raya Kobo District, North Wollo zone, Pakistan, Nepal and Utarkhand, India respectively [20, 21, 26, 36, 45]. This could be because of the fact that those mothers who discarded the colostrum might take more time to discard it and initiate breastfeeding later. The reverse might be also correct. When mothers tend to initiate breastfeeding later, they would have more time for infant feeding malpractices like colostrum avoidance. This might be also due to the fact that when mother delay initiation of breast feeding infants suckling activity decreases and which in turn affects or decreases maternal milk secretion due to decreased breast stimulation, which finally made the mother to give other food to the infant and discard colostrum [28]. This might be due to knowledge gap about the importance of colostrum. The other possible reason might be due to mother's belief by considering colostrum as unclean and bad for the infant's health.

This study showed that mothers who didn't get breast feeding counseling were 2.3 times more likely to discard colostrum when compared to the mothers who get counseling regarding breast feeding. Other studies done in Hula District, Sidama Region and East Wollega Zone showed that breast feeding counseling during antenatal care improves timely initiation of first breast milk [43, 44]. This might be due to that counseling is the tool to change the behaviors of mothers to reduce harmful nutritional malpractice during the time of pregnancy. This could be due to breast feeding counselling during perinatal period may increase mother's awareness on optimal breastfeeding practices that might decrease colostrum avoidance. But study done in Axum town revealed that there were no association between breast feeding counseling during ANC visit and colostrum avoidance practices [27]. This could be due to variation in utilization of maternal health services among study settings.

In this study, Mothers who delivered their index infants at home were 3.48 times more likely to engage in colostrum avoiding practices when compared with those who delivered in health facility. This finding was consistent with study conducted in Raya kobo district, North Wollo Zone, Pakistan and Utarkhand, India [20, 26, 36]. This indicates that strengthening maternal health service improves optimal breast feeding practices. This could be due to the fact that mothers, who gave birth at home, were more likely to be exposed to the traditional beliefs that favor colostrum discarding. In contrast, utilizing an institutional delivery would have an added benefit to receive immediate obstetric care, such as early initiation of breastfeeding which reduces the likelihood of practicing colostrum avoidance.

The odds of colostrum avoidance were 4.55 times higher among mothers with poor knowledge of optimal breast-feeding practices when compared to their counterparts. This finding was supported by other studies carried out in Axum Town, Raya Kobo District, Hula District and Utarkhand, India [20, 26, 27, 44]. These supporting evidences revealed that improving the mother's awareness of optimal infant feeding practices reduces the likelihood of colostrum avoidance. This might be due to awareness of mothers about breast feeding practices and the nutritional value of colostrum decreases the likelihood of colostrum discarding.

The limitation of this study were that the information obtained from mothers having children aged less than 12 months is subject to recall bias and also It is difficult to establish temporal relationship as the study design was cross-sectional.

Conclusion And Recommendation

Colostrum avoidance practice among mothers of children aged less than 12 months in Jinka town was found to be high when compared to WHO recommendation. Delayed initiation of breast feeding, lack of breast-feeding counselling, home delivery of index child and poor knowledge on breastfeeding feeding practice were significant factors associated with colostrum avoidance practices of mothers. Based on the finding the following recommendations' are forwarded; Awareness creation activities on the nutritional value of colostrum, promotion of institutional delivery and improving breastfeeding counseling are important interventions to reduce colostrum avoidance practices in Jinka Town.

Abbreviations

ANC: Antenatal Care; AOR: Adjusted Odds Ratio; CI: Confidence Interval; COR: Crude Odds Ratio; CSA: Central Statistical Agency; EBF: Exclusive Breast Feeding; EDHS: Ethiopian Demographic and Health Survey; IYCF: Infant and Young Feeding Practice; PLF: Prelacteal

Feeding; SPSS: Statistical Package for Social Sciences; UNICEF: United Nations children's emergency fund; WHO: World Health Organization.

Declarations

Ethics approval and consent to participate:

The study protocol was approved by the Institutional Review Board (IRB) of College of Medicine and Health Science, Arba Minch University. Based on the approval, an official letter of support was written by Arba Minch University Public Health Department to Jinka Town health office. At last data was collected after assuring the confidentiality of responses and obtaining informed consent from the study participant.

Participant consent: Obtained

Consent for publication: Not applicable.

Availability of data and material: For those who are interested; the datasets of this study could be accessed from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Authors' contributions

EA conceived and designed the study, supervised the data collection, performed the analysis, interpretation of data and drafted the manuscript. FG assisted in designing the study, data interpretation and critically reviewed the manuscript. MB assisted in data interpretation and reviewed the manuscript critically. All authors read and approved the final manuscript.

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