

# Exclusive Breast Feeding Practice and Associated Factors Among Mothers in Debre Markos Town and Gozamen District, East Gojjam Zone, North West Ethiopia

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**Abstract:** Background: Breastfeeding is an important public health strategy for improving infant and child morbidity and mortality. It plays a great role in preventing morbidity and mortality in first six months. It is one of the six targets in global nutrition set to increase its practice by 50% by 2025. Despite its great benefits, the prevalence in Ethiopia is only 52% with limited information on associated factors. Objective: To assess exclusive breastfeeding practices and associated factors in Debre Markos town and Gozamen district, East Gojjam Zone, North West Ethiopia, 2015. Methods: A community-based cross-sectional study was conducted in May 2015. A total of 483 mothers were randomly selected. Semi-structured and pretested questionnaires were administered to collect data. One day training was given for data collectors and supervisors. The collected data was entered into Epidata version 3.1, cleaned and transported to SPSS windows version 16.0 then analyzed. The crude and adjusted odds ratio (AOR) together with their corresponding 95% confidence intervals was computed. Bivariate and multivariate logistic regression analysis was computed to identify factors associated EBF. A P-value<0.05 was considered to declare a result as statistically significant in this study. Results: The prevalence of exclusive breast-feeding was 89(55%) and 207(64%) in Debre Markos town and Gozamen district respectively. In Debre Markos town, being unemployed (AOR=2.77, 95%CI= [1.13, 6.74]), and counseling on EBF during Antenatal care (ANC) (AOR=4.02, 95%CI= [1.65, 9.78]), were significantly associated. Whereas in Gozamen district, mothers age 15-35 (AOR=2.55, 95%CI= (1.27, 5.1]), counseling on EBF during ANC (AOR=5.7, 95%CI= [2.62, 12.3]), and colostrums feeding (AOR= 2.24 95%CI= (1.28, 3.9]) were significantly associated. Conclusions: The prevalence exclusive breast-feeding in both areas was lower than the target set by Ethiopia ministry of health at the end of 2015, (70%). Unemployment, getting counseling during ANC was significant factors in Debre Markos town whereas maternal ages, getting counseling during ANC, and early initiation of breastfeeding were significant factors in Gozamen district. Giving emphasis to promoting the EBF should be given and strengthen ANC counseling.

**Keywords:** Exclusive Breastfeeding, Colostrum, Infants, Mothers, Ethiopia

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## 1. Introduction

Breast milk is a natural food that serves as a complete source of infant nutrition, for the first six months of life. It contains all the necessary nutrients provided in a bio-available and easily digestible form, protecting both mothers and children against illness and diseases with immunological properties (1). WHO and UNICEF recommended that, all mothers should breastfeed their children exclusively for the first six months of life. It is also recommended that breastfeeding should begin within one

hour after birth. Early initiation of breast feeding should be promoted and prelacteal feeds discouraged. Because of its high levels of vitamin A, antibodies, and other protective factors, colostrum is often considered as the baby's first immunization (2).

Breast milk contains essential fatty acids needed for the infant's growing brain, eyes, and blood vessels and these are not available in other milks. Breastfeed on demand at day and night at least 8 times in 24 hours will provide more milk as suckling stimulates milk production(2). Infants who are exclusively breastfeed have less chance of becoming ill or

dying from diarrhea and infections. They are also less likely to acquire pneumonia, meningitis and ear infections than non-exclusive breastfeeding (3).

Exclusive breast feeding is the most widely known and effective intervention for preventing early child hood deaths. Optimal breast feeding practices can prevent 1.4 million deaths worldwide among children under five every year (4). It creates a special bond between mother and infant, enhances dental development, reduces risk for allergies, aids in cognitive development, and decreases the risk for obesity in later life. Breastfeeding also helps the uterus return to pre-pregnancy size faster; reduces risk of breast, ovarian, and uterine cancers; decreases risk for osteoporosis; enhances emotional health (especially for teenage mothers), and saves money otherwise spent on formula and feeding supplies(5).

In addition to its impact on health, breastfeeding and good nutrition for children are recognized as essential for achieving the Millennium Development Goals, particularly the goals relating to child survival, such as reducing child mortality by two third between 1990 and 2015 (6). Despite these recommendations, in the worldwide only 37 percent of infants less than six months of age are exclusively breastfed in 2008. More than 10 million children under the age of five die each year; 41% of these deaths occur in sub Saharan Africa and another 34 percent in South Asia and the major contributor to their death is poor breastfeeding practices (7). It is estimated that sub-optimal breastfeeding, especially non-exclusive breastfeeding in the first 6 months of life, results in 1.4 million deaths and 10% of the disease burden in under-five children (8). In Ethiopia, many newborns are neither breastfed during their first hours of life with colostrum nor exclusively breastfed during their first six months. Instead, they are given liquids and complementary food at an early age. Contrary to WHO recommendations only one in three Ethiopian children age 4-5 months is exclusively breastfed (9).

## 2. Methods and Materials

### 2.1. Study Area and Period

The study was conducted in Debre Markos town and its' surrounding district Gozamen, East Gojjam Zone, North West Ethiopia. It is located 300 kilometer from Addis Ababa. According to Gozamen district finance and economics office, the total population of the town was 101,582 (Male=49,775, Female= 52,806) and Gozamen district has 151,312 (Male=74,141, Female=77,170). There are 7kebeles, 7 health posts, 3 health centers, 17 private clinics, 19 pharmacies and one referral hospital in the town. Gozamen district have 27 kebeles, 27 health posts, and 6 health centers. The estimated number of children less than six months in a year is 670 and 998 in the town and the district respectively. The study was conducted in May 1-26, 2015. Community- based cross-sectional comparative study design was employed. All mothers living in town and district having children less than six month were source population.

### 2.2. Sampling Procedure

Two population proportion formula was used to determine sample size of the study. The required sample for the study considered the following assumptions: A two sided significant level  $\alpha = 0.05$ ,  $Z_{\beta}$  standard error of alternative hypothesis = 0.80,  $Z_{\alpha/2}$  standard error of null hypothesis = 1.96,  $R = 1:2$  [Debre Markos town to Gozamen district], design effect 2 was used.

$p_1$ =level of exclusive breastfeeding in urban population 50.3% (study at Bahir Dar city)

$p_2$ =level of exclusive breastfeed in rural population 71.7% (17)

$P$  (population proportion) =  $p_1 + p_2 = 0.57$

1+r lastly, 483 mothers out of which 161 from Debre Markos town and 322 from the district.

Four kebeles from town and six kebeles from district were selected by simple random sampling. Finally, mothers were selected from lists in each kebeles by using computer.

### 2.3. Data Collection

Data was collected by interviewing study subjects using interview administered semi-structured questionnaire. The questionnaires were pre-tested and the necessary corrections was made before the actual data collection. A one day training was given to the data collectors. The principal investigators closely supervised the entire data collection processes. The filled out questionnaires and examination results were collected after checking for consistency and completeness on daily base. Double entry of 5% data for checking errors was made.

### 2.4. Data Analysis

Data were entered in to Epidata version 3.1, and exported to SPSS version 16.0 to be cleaned, and analyzed. Descriptive statistics was used to determine the level of exclusive breast feeding practice. In bivariate analysis, variables with p-value  $< 0.2$  were entered into multivariate analysis. Finally, multivariate analysis used to calculate odds ratio and 95% confidence level of statistical associations of independent variables with the outcome variable. The strength of statistical association was measured by odds ratios with 95% confidence level and statistical significance declared at  $p < 0.05$ .

### 2.5. Operational Definitions

- Exclusive breastfeeding: the situation where infants received only breast milk from his/her mother or a wet nurse no other liquids, with the exception of medicines.
- Colostrum feeding breast-feeding newborn with in the first hour after delivery.
- Pre-lacteal feeding: is feeding of an infant with something other than breast milk in the first three days of life.

- Accesses to health service-mothers have access to health service if the distance to health institution takes less than one-hour walk.

### 2.6. Ethical Consideration

Ethical clearance was obtained from ethical review board of Debre Markos University. Support letters obtained from Debre Markos town and Gozamen district health offices. Verbal consent was obtained each study participants. Mothers were informed that they have the right to refuse or terminate at any point of the interview.

## 3. Result

### 3.1. Socio-Demographic Characteristics of Study Participants

Four hundred eighty three mother 161 [33.3%] from Debre Markos town and 322 [66.7%] from Gozamen district were participated in the study. The age of respondents' ranges from 15-49 years and their mean age were 29 SD  $\pm$ 5.2 in the town and 29.6 SD  $\pm$ 5.4 in the district. Most of 138[86%], 281[87%] mothers in town and town and Gozamen were married respectively. A few mothers 13[8%] in town and 258[80%] in Gozamen cannot read and write (Table.1).

### 3.2. Maternal Health Service Related and Obstetric Variables

From the study participants, 134[83%] in town and 225[69.9%] in Gozamen attended antenatal care (ANC) service. The majority 139 [86.3%] in the town and 310[96.3%] in the district born normal delivery. One hundred thirty five [83.9%] and 126[39.5] gave birth in health institution in town and district respectively. Sixty-eight [42%] and 132 [41%] were informed about EBF during ANC service in town and district respectively. Over all pre-lacteal

feeding practicing mothers were 91(18.8%). The utilization of postnatal care was (PNC) 84[52.2%] in town and 133[41.3%] in Gozamen service. The proportion of women who gave colostrums were 152[94.4%] in town and 205[63.7%] in Gozamen. The overall level of EBF was 296[61.3] which were 89[55.3%] in town and 207[64.3%] in Gozamen up to six months (Table.2).

### 3.3. Comparison of Exclusive Breast Feeding Practice Among Debre Markos Town and Gozamen District Mothers of Infants Less than Six Months

In bivariate analysis Debre Markos town showed that, mothers' unemployment, getting counseling on exclusive breastfeeding during antenatal care, and attending postnatal care, were associated factors with exclusive breastfeeding. In Gozamen district, mothers' age between 15-34 years, attending antenatal care, getting counseling on exclusive breastfeeding during antenatal care, attending postnatal care, and feeding colostrum, were associated factors with exclusive breastfeeding.

In multivariate analysis Debre Markos town indicated that; Unemployed mothers were 2.8 times more likely exclusive breast feeding practice as compared with employed AOR=2.77[1.13, 6.74]. Mothers who counseled on exclusive breastfeeding during antenatal care were 4 times more likely exclusive breast feeding as compared with non-counseled AOR=4[1.65, 9.78](Table3).

In Gozamen district, younger mothers with in age group 15-34 were 2.6 times more likely EBF practice as compared to age older age AOR=2.6[1.27, 5.1]. mothers who counseled on exclusive breast feeding during antenatal care were 5.7 times more likely exclusive breast feeding than those not advised AOR=5.7[2.62, 12.3]. Mothers who had given colostrums to their infants' were 2.2 times more likely exclusive breastfeeding practice than who had not gave AOR= 2.24[1.28, 3.9](Table 3).

**Table 1.** Socio-demographic characteristics of Debre Markos town and Gozamen district mothers, East Gojjam zone, North West Ethiopia, May, 2015.

Variables		Debre Markos	Gozamen	Total
		N=161 N (%)	N=322 N (%)	N=483 N (%)
Mother's age	15-34	138[85.7]	258[80.1]	396[82]
	35-49	23[14.3]	64[19.9]	87[18]
Educational status	Cannot read and write	12[7.4]	245[76]	257[53.2]
	Primary education(1-8)	25[15.5]	57[18]	82[17]
	Grade(9+)	124[77.1]	20[6]	144[29.8]
Occupation	Employed	46[28.6]	18[5.6]	64[13.3]
	Unemployed	115[71.4]	304[94.4]	419[86.7]
Paternal educational status	Cannot read and write	13[8]	206[64]	219[45.3]
	primary education(1-8)	19[12]	87[27]	106[21.9]
	Grade (9+)	129[80]	29[9]	158[32.7]
Average monthly income	< 500	3[2]	2[1]	5[1]
	501-1000	6[4]	19[42.2]	25[5.2]
	>1000	152[94]	301[93]	453[93.7]
Family size	2-3	33[20.5]	83[25.8]	116[24]
	4-6	120[74.5]	184[57.1]	304[62.9]
	> 6	8[5]	55[17.1]	63[13]
Child age	Less than 2 months	41[25.5]	48[14.9]	89[18.4]
	2-4 months	61[37.9]	114[35.4]	175[36.2]
	Greater than 4 months	59[36.6]	160[49.7]	219[45.3]

**Table 2.** Distribution of health service related and obstetrics variables of mothers in Debre Markos town and Gozamen district, East Gojjam Zone, North West Ethiopia, May 2015.

Variables		Debre Markos	Gozamen	Total
		N =161 N (%)	N=322 N (%)	N=483 N (%)
ANC	Yes	134[83]	225[69.9]	359[74.3]
	No	27[17]	97[30.1]	124[25.7]
Counseling about EBF at ANC	Yes	68[42]	132[41]	200[41.4]
	No	93[58]	190[59]	283[58.6]
PNC	Yes	84[52.2]	133[41.3]	217[44.9]
	No	77[47.8]	189[58.7]	266[55.1]
Place of delivery	Health institution	135[83.9]	126[39.1]	261[54]
	Home	26[16.1]	196[60.9]	222[46]
Mode of delivery	Normal	139[86.3]	310[96.3]	449[93]
	Cesarean section	22[13.7]	12[3.7]	34[7]
Colostrum feeding	Given	152[94.4]	205[63.7]	357[73.9]
	Discarded	9[5.6]	117[36.3]	126[26.1]
Initiation of BF	Within one hour	112[69.6]	148[46]	260[53.8]
	1-24 hours	43[26.7]	149[46.3]	192[39.8]
	24 hours-3 days	6[3.7]	25[7.8]	31[6.4]
Prelacteal feeding	Yes	30[18.6]	61[18.9]	91[18.8]
	No	131[81.4]	261[81.4]	392[81.2]
EBF up to six months	Yes	89[55.3]	207[64.3]	296[61.3]
	No	72[44.2]	115[35.7]	187[38.7]
Experience for EBF	First born	61[37.9]	71[22]	132[27.3]
	All are exclusive Not common	59[36.6] 41[25.5]	147[45.7] 104[32.3]	206[42.7] 145[30]

**Table 3.** Bivariate and Multivariate analysis of determinant factors for exclusive breastfeeding practice in Debre Markos town and Gozamen district, East Gojjam Zone, North West Ethiopia, May 2015.

Variables		Debre Markos town				Gozamen district			
		EBF		NON-EBF		EBF		NON-EBF	
		N <sub>0</sub> (%) N=89	N <sub>0</sub> (%) N=72	COR[95%CI]	AOR[95%CI]	N <sub>0</sub> (%) N=207	N <sub>0</sub> (%) N=115	COR[95%CI]	AOR[95%CI]
Occupation	Employed	13[28]	33[72]	1.00	1.00	15[83]	3[17]	-----	-----
	Unemployed	76[66]	39[44]	5[2.34,10.5]***	2.77[1.13,6.74] *	192[63]	112[37]	-----	-----
Mothers age	15-34	73[53]	65[47]	-----	-----	177[69]	81[31]	2.47[1.42,4.32] **	2.55[1.27,5.1] **
	35-49	16[70]	7[30]	-----	-----	30[47]	34[53]	1.00	1.00
ANC	Yes	78[58]	56[42]	-----	-----	167[74]	58[26]	4.1[2.48,6.78]* **	1.13[0.59,2.2]
	No	11[41]	16[59]	-----	-----	40[41]	57[59]	1.00	1.00
Counseling about EBF at ANC	Yes	49[72]	19[28]	3.4[1.75,6.68]***	4[1.65,9.78]**	115[87]	17[13]	7.2[4.02,12.9]* **	5.7[2.62,12.3] ***
	No	40[43]	53[57]	1.00	1.00	92[48.7]	98[51.3]	1.00	1.00
PNC	Yes	53[63]	31[47]	1.95[1.04,3.66]*	1.34[0.12,14.6]	104[78]	29[22]	3[1.81,4.94]** *	1.13[0.59,2.2]
	No	36[47]	41[53]	1.00	1.00	103[54]	86[46]	1.00	1.00
Feeding colostrums	Yes	87[57]	65[43]	4.7[0.9,23]	2.2[0.39,12.5]	149[73]	56[27]	2.7[1.68,4.35]* **	2.24[1.28,3.9] **
	No	2[28.5]	7[77.5]	1.00	1.00	58[51]	59[49.1]	1.00	1.00

\*p&lt;0.05 \*\*p&lt;0.01 \*\*\*p&lt;0.001

## 4. Discussions

The purpose of the study was to assess exclusive breastfeeding practice and associated factors among mothers of children aged less than 6 months in Debre Markos town and Gozamen district. The significance of breast milk over any nourishment to the child is clearly understood, and several years. It has become more evident that it is the ideal, safe and complete food a mother can provide for the child. Breastfeeding will be effective if it is exclusive for the first

six months.

In the study, the overall prevalence of exclusive breastfeeding was 296 [61.3%] which was 89[55%] in Debre Markos town and 207[64%] in Gozamen district (rural). The prevalence was higher than study in Nigeria 21.2% (10), Sudan 29.5 % (11), Axum Town 40.9% (12), Adwa Town 41.8% (13), Arbaminch 46.5% (14). This difference could be due to time of the study, socio-cultural difference and method of the study. This finding was also similar with study in Tanzania 58% (15), National prevalence Ethiopian

demographic health survey 2011, 52% (16). However, it was lower than the study in rural women of East Ethiopia, 71.7% (17), Ambo Town 82.2% (18). The possible explanation for this difference might be study population, socio- cultural status of the study participants in the study area.

In Debre Markos town, unemployed mothers were 2.8 times more likely exclusive breastfeeding than employed mothers were. This finding is lower than the study in, peri-urban Guatemala city 3.2 times (19) and Injibara town in which employed mothers were 32% times less likely to breast feed exclusively than the unemployed mothers (20). The possible justification might be unemployed women had better chance of staying with their baby than employed.

In Gozamen district, young mothers' (15-34 years old) were 2.6 times more likely to practice exclusive breastfeed than 35-49 years old. This finding was lower than the study in Injibara town that was 9 times (20). The possible explanation could be due to time of the study, strength of health institution and socio-cultural difference. However, the study result was almost in agreement with studies in other countries like in Syrian and Jordanian (21). The possible reason might be breastfeeding promotion in younger mothers makes them sensitive to exclusive breastfeeding due to the expansion of education but elders may follow their previous trend.

The study revealed that getting counseling about exclusive breastfeeding during antenatal follow up was significant factor in Debre Markos town 4 times and Gozamen district 6 times more likely than those mothers who did not get counseling during antenatal care. The findings in both areas were higher than the study in Injibara 2.2 times (20) and Arbaminch 66% (14). This may be due to difference in time of the study, expansion of antenatal care services and health extension program increase the number of women following antenatal care.

Despite, global strategy and national infant and young child feeding guidelines recommend that all newborns should start breastfeeding immediately (with in the first hour after delivery) and the feeding of colostrums be promoted, this study revealed that mothers who feed colostrums were 2.24 times less likely to practice exclusive breast feeding than mothers who squeezed and discarded the colostrums in Gozamen district. This finding was in agreement with finding in Axum town(12) and Mekele town(16). However, this finding is lower than the finding in Arbaminch, (14) where mothers who did not gave colostrum to their infants were 37% more likely not exclusive breast feed than those who gave it. The possible reason for the difference could be mothers' cultural practice especially in rural areas, life style and time of the study.

The study tried to identify different significant factors in Debre Markos town and Gozamen district may help to take different interventions. The study measures the level of exclusive breast-feeding for six months, which reduce overestimated results of other studies that takes certain period reference and came to conclusion. The possible limitation of this study could be timely initiation of breast-

feeding; as a result, exclusive breastfeeding is subjected to potential recall bias. The study did not include qualitative data for triangulation and less sample size of the study were limitations.

## 5. Conclusion

The prevalence of exclusive breastfeeding practice was lower in both Debre Markos town and Gozamen district than WHO recommendation 90%. The significant factors were being employee and getting counseling on exclusive breast feeding during antenatal care in the town whereas younger maternal age, getting counseling on exclusive breast feeding during antenatal care colostrums feeding were significant factors in Gozamen district. The government should reconsider the employed mothers' support in encouraging and empower them to be with their babies and breast feeding friendly working environment for exclusive breastfeed. Health service organizations should promote counseling on exclusive breast-feeding during antenatal care service done in the area and have to orient service providers at service delivery points and at the community level to promote exclusive breast-feeding practice. The district health offices should strengthen the training for health workers as well as the community to stop discarding colostrums. Further study needed in order to identify other risk factors associated with exclusive breastfeeding.

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