

# Factors Related with Time to Cessation of Breastfeeding amongst Mothers who have Children Birth to Three Years of Age in Mekelle Town, Tigray Region: Retrospective Follow up Study

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## Abstract

**Background:** Human milk is very important for infant nourishing. Scholars in the field recommend that mothers begin early and only breast milk for their new born babies until the age of 6 month. Infants should breast fed until the age of two and above besides supplementary foods.

**Purpose:** The main objective of the study is to assess the time to cessation of breastfeeding in mothers with children aged birth to three years in Mekelle town, 2019.

**Methods:** A retrospective follow up study was conducted at Mekelle town from November 2018/2019 to April 30, 2019. A probability sampling technique was used to select 503 mother-child pairs. Data was collected using an interviewer-administered questionnaire. Data entered in to EPI-data before exported to SPSS 23. Bivariate cox was used to identify factors associated with cessation of breast feeding and multivariate cox proportional regression models were used to prevent the effect of cofounding.

**Results:** Cessation of breast-feeding incidence rate before 24 months was 3.017 per 100 person-months. Above 54.3% of study subjects were found breastfeeding for 2 years long. After removing potential cofounders' maternal employee, mode of delivery, first feeding and bottle feeding were importantly related with time to cessation of breastfeeding.

**Conclusion:** According to this study cessation of breastfeeding was virtuous. Maternal occupation, time of solid food introduction, bottle feeding, maternal depression and first feeding were significantly associated to cessation of breastfeeding.

**Keywords:** Cessation • Breast • Feeding • Maternal occupation

## Introduction

Breast milk is exceptionally highly notorious food for infants and signifies seamless indication of individuality in children. The World Health Organization (WHO) suggested that it's very vital to fed children mother breast milk until 24 months or above. The advancement of children breastfeeding time for more than 24 months is best example of the gauges of proper child feeding activities.

According to the healthy people policy current goals, United States of America (USA) is largely working to start early breast feeding in more than 81% and sustain until 36 months of children age. This

method is the only simple operative solution currently to plummeting death in children and possibly preventing nearly one and half million lives from death globally. Breastfeeding is an important approach of government with people to help reduce children sickness and death. In addition it is a good example in signifying maternal health due to its many benefits to the mother and infant.

Exclusive and complementary breast feeding was strongly related with dropping the risk of later developing chronic diseases, non-communicable diseases and allergic disease. Peril existence of some common infant ear infections, diseases that cause diarrhea, respiratory infections, unexpected infant death disorder, over weight

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ness and high blood pressure can be cut by practicing proper and adequate exclusive breastfeeding [1].

There are many articles that prove breastfed children have excellent educational performance compared to unbreast fed children. Studies also show that breast feeding has greater role in closeness with family members and the mother specially. Breastfeeding is the only easily accessible treatment and preventive strategy of numerous bacterial and cancerous disease.

BF reduces potential risks of non-communicable diseases associated with overweight, obstetrical, gynecologic malformations and oncogenic disease in the society. The importance of BF is untouched above to the babies and the breast-feeding mother, such as work full interactive family in all aspects of life. Money expensed for medical service of sick child will be saved as breast feeding can substitute all medications available in the world [2].

Only 40% of children aged six months and lower are feeding pure breast milk worldwide. Yet there are remarkable efforts to breastfeeding instigation practices in USA.

Studies conducted in first world countries showed that infants who did not breast fed had found nearly four folds of developing series and complicated medical conditions including obesity in early and later ages compared to those who did exclusive breast feeding [3].

In African families breastfeeding is supposed to be universal, as further than 90% of mothers breastfeed, but small number of mothers start breastfed late; others do not practice it completely, whereas significant number of mothers stop breast feeding before year two. In Africa, early BF termination lead to bigger number of children diseases which contribute to higher number of death records. To improve infant and child health, optimal breast feeding is the first priority and highly cost effective preventive intervention. Another study also showed that early cessation of breast feeding had been related with raised danger of upper respiratory tract infections.

In Ethiopia nothing is known with what affects early cessation of breast feeding or practicing exclusive breast feeding. However, a study done in Ethiopia shows the practice of breast feeding is still below the WHO standard recommendation and there is no information about the issue of interest in Tigray region. Therefore, this study was aim to assess the time to cessation of breastfeeding in mothers with children from birth to three years of age at Mekelle town, Tigray, North Ethiopia.

## Materials and Methods

### Study design

A community-based retrospective follow-up study using quantitative method was employed from March 01-30, 2018.

### Study setting

The study was carried out in Mekelle town, the capital city of Tigray. In this study three of the sub sub-cities of the town were selected using systematic random sampling technique to select 503 study participants. Adi-Haki, Ayder and kedamay weyane were the selected sub-cities by lottery methods among seven sub-cities of the town. In these local administrations six Ketena were selected by

lottery method two kebeles from each sub-city. Then the total sample size was proportionally allocated to each selected Ketena [4].

### Sample size determination and sampling procedure

The sample size was determined using a formula of estimating a single proportion for cross sectional study. Since the population size is less than 10, 000. The final sample size was estimated using correction formula. The final sample size obtained including the 10% non-response rate was 200. Then, the number of participants in each selected hospital to obtain similar proportion of participants were determined using the Population Proportionate Sampling (PPS). It is estimated using the formula;  $n = (n_f \cdot N) / N_{total}$ , B where,  $n$ =proportion of HCP in the study in a given governmental hospital,  $n_f$ =Final sample size obtained using correction formula (200),  $N$  is the total number of HCP in the selected governmental hospitals [5].

The sample size for this specific study was calculated using formula for a first single population proportion considering 95% CI and prevalence of BF cessation from study in Debre Markos  $p=0.32$  and  $q=0.68$  as follows:

$$n = \frac{(Z \cdot \sqrt{p(1-p)})^2}{d^2} = \frac{(1.96)^2 \cdot 0.32(1-0.32)}{(0.05)^2} = 335$$

Since the source population is manageable, Where,  $n$ =sample size,  $P=0.32$  proportion of CBF

$d$ =the margin of sampling error tolerated (0.05),  $Z$ =standard score corresponding to 95% CI=1.96

The final sample size was  $335 \cdot 1.5 = 503$

**Source population:** Source Population were all women who have children from birth to three years of age in Mekelle town.

**Study population:** Study Population were all women who have children from birth to three years of age in the Adi-Haki, Ayder and Kedamay Weyane sub city.

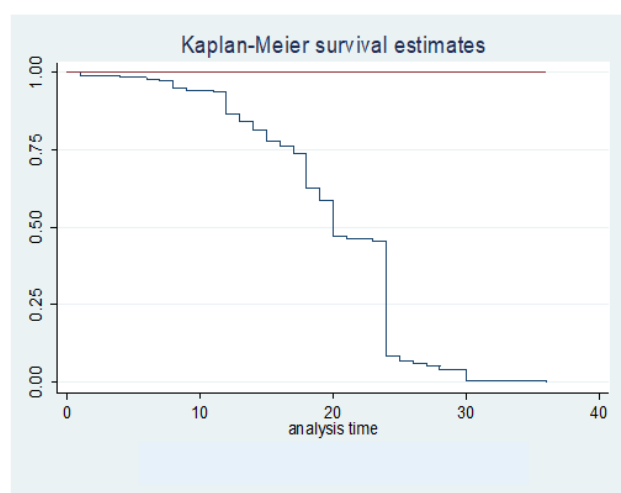
**Inclusion and exclusion criteria:** Mother-child pairs who have children and were participate in the study out of which 3200 (162, 174 and 167) eligible participants were selected for each sub-city then proportionally allocated to each Ketena of the sub-city.

### Data collection tools

Data was gathered using face to face interview structured questionnaire was used. The questions are drawn from the Ethiopian demographic health survey (2016) and some literatures on breastfeeding conducted in the Ethiopian. The questionnaire comprises socio-demographic, health service and obstetric related components [6].

### Data processing and analysis

The filled data was entered, coded and cleaned using EPI-data version 3.1 and then transferred to SPSS version 23 for more analysis. The Kaplan-Meier curve was done in order measure the breast-feeding length. Descriptive statistic including frequency, percentage and mean were calculated and displayed in tables, figures and graphs (Figure 1).



**Figure 1.** Kaplan-Meier estimate of survival on cessation of breastfeeding among mothers who have children from birth to three years of age in National regional state of Tigray, Mekelle town, Northern Ethiopia, 2019. Note: — BF\_Status=1, — BF\_Status=2

Incidence rate was measured as the number of events over the person-months of follow-up. Bivariate coxTproportional regression models were done to see the relation of factors with caseation of breast feeding and multivariate cox proportional regression models were used to control the effect of cofounders. Variables with P-value <0.05 in the bivariate cox regression model were cross the threshold intuitively into the multivariate cox reversion model to quantify the effect of individual variable on the hazard function following regulate the effects of other variables using the backward LR method. Variables with P-value <0.05 in the multivariate cox regression examination were measured as statistically significant for the cessation of breast feeding early or before 2 years [7-10].

## Results

### Socio-demographic, health and health service-related characteristics

In the current study, 503 mother-child pairs were included. And all 503 (100%) were followed retrospectively. The mean age of the study participants was 29.198 ( $\pm$  5.26) years. Most of the mothers were married 464 (92.25%); they were Tigray 441 (93.64%) by ethnicity and 1 (0.20%) were Afar. Most of the mothers were Orthodox 390 (77.53%) and 8 (1.19%) of them were Catholic. Nearly half of the study participants were housewives 268 (53.28%) and 180 (35.79%) completed secondary school (Table 1).

Most of family monthly income earn 2990.5-4519.2EB (34.2%), were as 1.0%earn below ( $\leq$  1000EB). In study area 73.2% of the family size was  $\leq$  4, were as 26.8%of the family size was >4. Also, the number of children less than or equal to three ( $\leq$  3) was 87.5% (440), were as greater than three (>3) number of children were 12.5% (44.73%) of the mother had 1 child were as 3 (0.60%) of them had 6 children [11-15].

**Table 1.** Socio-demographic characteristics of mother s who have children age from birth to three years, in Mekelle town northern, Ethiopia 2019 (n=503).

Characteristics		Count	Percent
Maternal age	15 -19	5	1.00%
	20 -24	76	15.10%
	25 – 29	193	38.40%
	30 – 34	134	26.60%
	>35	95	18.90%
Marital status	Married	464	92.20%
	Divorced	31	6.20%
	Widowed	8	1.60%
Maternal education	Illiterate	28	5.60%
	Primary education	124	24.70%
	Secondary education	180	35.80%
	Certificate and above	171	34.00%
Educational status of father	Informal education	10	2.00%
	Primary education	88	17.50%
	Secondary education	154	30.60%
	Certificate and above	251	49.90%
Maternal employment	House wife	268	53.30%
	Government	97	19.30%
	Private	50	9.90%
	Private organization	88	17.50%
Family monthly income	$\leq$ 1000EB	5	1.00%
	1000-1780.8EB	61	12.10%
	1780.9-2990.4EB	141	28.00%
	2990.5-4519.2EB	172	34.20%
	$\geq$ 4519.3EB	124	24.70%
Gender of children	Male	223	44.30%
	Female	280	55.70%
Family size	$\leq$ 4	368	73.20%
	>4	135	26.80%
Number of children	$\leq$ 3	440	87.50%
	>3	63	12.50%
Parity	Primiparous	214	59.80%
	Multiparous	144	40.20%

**Table 2.** Health and health service-related characteristics of mothers who have children age from birth to three years at Mekelle town, northern Ethiopia, 2019 (n=503).

Variables		Count	Percent
Antenatal Care (ANC)	Yes	501	99.60%
	No	2	0.40%
BF counseling during ANC	Yes	411	81.71%
	No	92	18.29%
Place of delivery	At home	5	0.99%
	Government hospital	360	71.57%

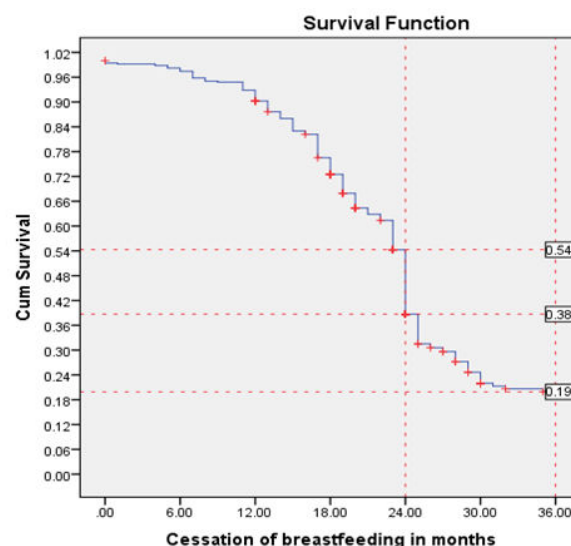
	Health center, post	138	27.44%
Mode of delivery	Cesarean section	114	22.66%
	Vaginal	360	77.14%
	Instrumental	1	0.20%
Attendant of delivery	Health professional	499	99.20%
	Relative/friend	4	0.80%
BF counseling after delivery	Yes	493	98.01%
	No	10	1.99%
Maternal HIV status	Positive	11	2.19%
	Negative	474	94.23%
	Unknown	18	3.58%
Breast feeding experience	Yes	292	58.05%
	No	211	41.95%
Perceived paternal feeding preferences	Breastfeeding	481	95.63%
	Others	22	4.37%
Intended breastfeeding	≤8	374	74.40%
	≥ 8	129	25.60%
Timing of decision on feeding Method	Before pregnancy	55	10.90%
	During pregnancy/after pregnancy	448	89.10%
First feed	Breast milk	490	97.42%
	Formula feeding	12	2.39%
	Others	1	0.20%
Timing of solid foods introduction	<6 months	17	3.40%
	≥ 6 months	486	96.60%
Bottle feeding	Yes	162	32.21%
	No	341	67.79%
Mother has depression	Yes	132	26.24%
	No	371	73.76%
CBF before 2 years	Yes	161	32.01%
	No	342	67.99%
Breastfeeding status	Ceased	331	65.81%
	Continued	172	34.19%
Time to cessation of breastfeeding	Mean	23.809	
	Median	24	
Attitude	Unfavorable attitude	126	25.00%
	Favorable attitude	377	75.00%
Knowledge	in-Adequate knowledge	3	0.60%
	Adequate knowledge	500	99.40%

Almost all the mothers 459 (91.25%) had adequate knowledge, were as more than half of them 361 (71.77%) had satisfactory attitude and the most of them favored breastfeeding (Table 2).

### Survival analysis for breastfeeding cessation

In the current study, all of the study participants 503 (100%) were followed retrospectively without failure from the beginning. The number of observations who experienced the event were 331; cessation of breastfeeding. The median survival time was 24 months and this indicates about 50% of women experienced cessation of breastfeeding by time of 24 month. The overall person-time of CBF

observation was 10969 person- months. The overall incidence rate of CBF before 2 years of age was 3.017 per 100 person-months (95% CI: 0.027-0.033). The cumulative survival probability in life table indicated that the percentage of children who remained on breastfeeding for the first two years was 54.3%. Similarly, the cumulative survival probability in life table indicated that the percentage of children who remained on breastfeeding for the first month to three years was 19.9% (Figure 2) [16-18].



**Figure 2.** Survival of breastfeeding among mothers who have children from birth to three years of age at Mekelle, Northern Ethiopia in 2019. Note: — survival function, + Censored

According to life table of cumulative failure estimate of reasons linked with period of CBF among mothers who have children birth to three years of age in National regional state of Tigray, Mekelle town was 72.56% of lactating mother terminate breastfeeding between 18 and 30 months (Table 3) [19,20].

**Table 3.** Life table of cumulative failure estimate of factors associated with time to cessation of breastfeeding among mothers who have children from birth to three years of age in Mekelle town, north Ethiopia, 2018/2019.

Interval	Beg. Total	ceased	Lost	Cum. Failure	Std. Error	[95% Conf. Int.]
0-6	503	5	0	0.0099	0.0044	0.0041 0.0237
6-12	498	16	0	0.0417	0.0089	0.0274 0.0633
12-18	482	68	0	0.1769	0.017	0.1463 0.2132
18-24	414	114	0	0.4036	0.0219	0.3622 0.4478
24-30	300	251	0	0.9026	0.0132	0.8747 0.9265
30-36	49	23	0	0.9483	0.0099	0.9265 0.9653
36-42	26	26	0	1		

# Multivariate survival analysis

In the bivariate cox regression analysis, educational status of the mother, maternal employee, Family size, number of child, antenatal care visit, breast feeding counseling during ANC, place of delivery, mode of delivery, BF counseling after delivery, intended breast feeding duration, HIV status, first feeding, Timing of complimentary feeding started, Bottle feeding and depression status of mother were significantly associated with CBF before two years of age ( $p=0.25$ ) [21].

To prevent protentional cofounder's effect multivariate cox regression analysis was used and employee, Breast feeding counseling during ANC, place of delivery, mode of delivery, BF counseling after delivery, first feeding and bottle feeding were significantly associated with time to cessation of breastfeeding at 95% confidence level ( $p\text{-value} < 5\%$ ).

The hazard rate of cessation in health center and post-delivery was about 64.1% times less likely compared with these mothers delivered at home (AHR=0.359, 95% CI: 0.145, 0.886). Were as study done at Debre Markos mothers with a delivery place at health center and post increased the time of breastfeeding by 68.3% when compared with home delivery [22].

Mode of delivery was also significantly associated with hazard rate of cessation of breastfeeding ( $p\text{-value}=0.020<5\%$ ). C/S mode of delivery was considered as reference category but vaginal mode of delivery was not significantly different from C/S. The hazard rate of cessation for instrumental mode of delivery was 10.171% times more likely decrease the time of breastfeeding when compared with C/S (AHR=10.171, 95% CI: 1.388, 74.522).

The hazard rate of cessation of breastfeeding in these mothers with formula milk for first feeding was about 3.933% times more likely than breast milk for first feeding (AHR=3.933, 95% CI: 2.091, 7.397). Mothers with a formula milk for first feeding decreased the time of breastfeeding by 3.933% times compared with breast milk for first feeding. The hazard rate of cessation of breastfeeding in those mothers with no bottle feeding was about 39.4% times less likely to terminate breastfeeding compare with these mothers those used a bottle feeding (AHR=0.606, 95% CI: 0.485, 0.758) [23-25].

The hazard rate of cessation for intended breastfeeding duration  $\geq 8$ times in 24 hrs breastfeed mothers 27.9% times less likely terminate breastfeeding compared with these mothers' breastfeeding duration  $\leq 8$ times a day (AHR=0.721, 95% CI: 0.576, 0.902).Timing of complementary food was also significantly associated with cessation of breastfeeding (AHR=0.448, 95% CI: 0.485, 0.758). Mothers who start complementary food above six months 55.2% time less likely decreases breastfeeding compared with these mothers start complementary food below six months. The other significant factor associated with cessation of breastfeeding was maternal depression (AHR=0.620, 95%CI: 0.090, 0.156).

Mothers who have no depression about 38% times less likely cessation of breastfeeding compared with aid these mothers have depression (Table 4) [26-28].

**Table 4.** Bivariate and multivariate cox regression of CBF among mothers who have children aged from birth to three years at Mekelle, northern Ethiopia 2019 (n=503).

		Censored	Ceased			
		N (%)	N (%)	CHR(95 %CI)	AHR	p-value
Educational status of the mother	Illiterate	13 (2.6)	15 (13.0)		1	0.603
	Elementary	48 (9.5)	76 (15.1)	1.37 [0.85-2.56]	1.407 [0.809-2.450]	0.226
	Secondary	64 (12.7)	116 (23.1)	1.57 [0.91-5-2.9]	1.503 [0.877-2.575]	0.138
	Certificate and above	47 (9.3)	124 (24.7)	2.28 [1.33-3.9]	2.194 [1.281-3.756]	0.004
Maternal employee	House wife	108 (21.5)	160 (31.8)		1	0.004
	Governmental employed	21 (4.2)	76 (5.1)	2.44 [1.65-2.6]	1.975 [1.501-2.599]	0.002
	Non-governmental employed	9 (1.8)	41 (8.2)	3.075 [1.3-7.2,7]	1.937 [1.373-2.734]	0
	self employed	34 (6.8)	54 (10.7)	1.072 [0.8-1.63]	1.155 [0.848, 1.572]	0.359
Family size	$\leq 4$	121 (24.1)	247 (49.1)		1	
	$>4$	51 (10.1)	84 (16.7)	0.806[0.6-1.08]	1.152 [0.899, 1.476]	0.261
No child	$\leq 3$	143 (28.4)	297 (59.0)			
	$>3$	29 (5.8)	34 (6.8)	0.564 [0.4-0.9, 0.99]	1.434 [1.005, 2.046]	0.046
Antenatal care visit	Yes	172 (34.2)	329 (65.4)		1	
	No	0 (0)	2 (0.4)	1.045 [1.2-19.5]	4.984 [1.2-31, 20.174]	0.024
Breast feeding counseling during ANC	Yes	133 (26.4)	278 (55.3)		1	
	No	39 (7.8)	53 (10.5)	0.650 [0.5-1.04]	0.768 [0.572, 1.031]	0.079
Place – Delivery	Home	0 (0)	5 (1.0)		1	0.006
	Hospital	119 (23.7)	241 (47.9)	0[0.13, 0.76]	0.442 [0.182, 1.073]	0.072
	Health of center and post	53 (10.5)	85 (16.9)	0[0.10, 0.62]	0.359 [0.145, 0.886]	0.026



Mode-delivery	C/S	37 (7.4)	77 (15.3)		1	0.03
	Vaginal	135 (26.8)	253 (50.3)	0.90 [0.68, 1.13]	0.895 [0.694, 1.156]	0.399
	Instrumental	0 (0)	1 (0.2)	[1.7, 92.2]	10.171 [1.388, 74.522]	0.022
BF counseling after delivery	Yes	171 (34.0)	322 (64.0)		1	
	No	1 (0.2)	9 (1.8)	4.77 [0.95, 3.59]	1.822 [0.939, 3.536]	0.076
Intended breast feeding duration	≤ 8	126 (25.0)	248 (49.3)		1	
	>8	46	83	0.916 [0.67, 1.10]	0.721 [0.576, 0.902]	0.004
HIV	Positive	3 (0.6)	8 (1.6)		1	0.164
	Negative	164 (32.6)	310 (61.6)	0.708 [0.27, 1.12]	0.511 [0.253, 1.031]	0.061
	Unknown	5(1)	13 (2.6)	0.975 [0.35, 2.05]	0.870 [0.360, 2.104]	0.758
First feeding	Breast Milk	170 (33.8)	320 (63.6)		1	
	Formula milk	2 (0.4)	11 (2.2)	2.921 [1.97, 6.59]	3.933 [2.091, 7.397]	0
Timing-complimentary feeding started	<6	4 (0.8)	13 (2.6)		1	
	≥ 6	168 (33.4)	318 (63.2)	0.582 [0.33, 1.02]	0.448 [0.485, 0.758]	0.005
Bottle feeding	Yes	38 (7.6)	124 (24.7)			
	No	134 (26.6)	207 (41.2)	0.473 [0.4, 6.72]	0.606 [0.485, 0.758]	0
Mother had depression	Yes	31 (6.2)	101 (20.1)			
	No	141 (28.)	230 (45.7)	0.500 [0.49, 0.79]	0.620 [0.090, 0.156]	0

# Discussion

In this study, the incidence rate of breastfeeding cessation before two years of age was 3.017% person-months. But, this prevalence is lower than study done in Debre Markos (32%) and national average, also lower than that of a study in Iran (57%). But the difference between this and the Iranian study may be due to the difference in socio-demographic variations between the two countries [29].

In the bivariate cox regression model, educational status of the mother, maternal employee, Family size, number of child, antenatal care visit, Breast feeding counseling during ANC, place of Delivery, mode of delivery, BF counseling after delivery, intended breast feeding duration, HIV status, first feeding, Timing of complimentary feeding started, Bottle feeding and depression status of mother

were independent predictors of CBF before two years of age ( $p=0.25$ ). In the multivariate cox regression analysis employee, Breast feeding counseling during ANC, place of Delivery, mode of delivery, BF counseling after delivery, first feeding and Bottle feeding were significantly associated with time to cessation of breastfeeding at 95% confidence level ( $p$ -value  $<5\%$ ). Maternal characteristics such as maternal age, income, educational status and culture, including support and guidance from family, friends, community and healthcare professionals have been associated with the initiation and continuation of EBF. The lack of support, encouragement and education from healthcare professionals, family and friends were factors affecting time to CBF [29].

Government employed mothers cut the time of breastfeeding about 1.975% times compared to housewife mothers (AHR=1.975, 95% CI:1.501, 2.599). Mothers who were government employees had a higher probability of cessation breastfeeding by about 1.975% times as compared to housewife mothers. This may be due to the fact that Ethiopia government worker mothers return to work within a short time of break (three months) after delivery before a year. In addition, in Ethiopia there are no milk banks like day care areas or breastfeeding rooms in working areas.

HIV positive mothers decreased the time of breastfeeding almost by 48.9% times compared to HIV-negative mothers (AHR=0.511, 95% CI:0.253-1.031). This result lower than that of a study done in Debre Markos. This might be due to the fear of HIV transmission to their children and mothers' illness due to HIV/AIDS [30-32].

In this study, mothers who had higher educational status had higher time of breastfeeding compared to mothers who had less educational statuses relatively. According to a study conducted in China, the mean period of BF was 6.0 months in residents of sophisticated cities and 8.0 months in small cities and village group residents and it was 8.6 months in the UAE. Were as in this study, done in Mekelle town time to cessation of breastfeeding median was 24.000 month. In Pakistan and Tanzania most mothers terminate breast feeding before six month and below 15 months respectively [33-35].

Breastfeeding counseling during ANC was also significantly associated with cessation of breastfeeding (AHR=4.984, 95% CI: 1.231, 20.174). Mothers who had no breastfeeding counseling during ANC were 4.984% more likely to terminate a breastfeeding compared with these mothers who had breastfeeding counseling during ANC. Research shows that women who began prenatal care in the first trimester were twice as likely to exclusively breastfeed during the early postpartum period than women who began prenatal care after the first trimester. The hazard rate of cessation of breastfeeding in these mothers with formula milk first feeding was about 3.933% times more likely than breast milk for first feeding (AHR=3.933, 95% CI: 2.091, 7.397). Evidence also indicated that women who intend to combine both breast and formula feeding actually breastfeed for shorter durations than those planning only to breastfeed. Family members often encouraged mothers to use formula supplementation along with breast milk for babies who were not obese, as obese babies were perceived as healthy babies [36-39].

Place of delivery was also significantly associated with cessation of breastfeeding (AHR=0.859, 95% CI:0.145, 0.886). Mothers who were delivered at health center had about 14.1% less likely

to cessation of breastfeeding compared to those delivered at home. Hence, hospital delivery has a longer breastfeeding time compared to home delivery.

The hazard rate of cessation in health center and post-delivery was about 64.1% times less likely compared with these mothers delivered at home (AHR=0.359 , 95% CI: 0.145, 0.886). Were as study done at Debre Markos mothers with a delivery place at health center and post increased the time of breastfeeding by 68.3% when related with home delivery [40].

## Conclusion

The Incidence rate of Cessation of Breast feeding before two years of age was 3.017% per 100 person-months (95% CI: 0.027-0.033). The collective survival probability in life table showed that the percentage of children who were on breastfeeding for the first two years was 54.3%.

Similarly, the survival probability in life table showed that the percentage of children who remained on breastfeeding for the first month to three years was 19.9% Mothers who were government employees had a higher probability of cessation breastfeeding by about 1.975% times as compared to housewife mothers.

## Recommendation

The principal investigator would like to recommend to all government organization, the results of this study are expected to come up with the encouraging breast feeding in mothers who are working in industries and government offices by facilitating day care institutions in near by work places. It also expected to maximize the delivery leave from 4 months to 6 months.

## Declarations

To conform the Declaration of Helsinki and Population Screening Act, Mekelle University Institutional Review Board approved the study. Participation was voluntary and information was collected anonymously after obtaining written consent from each respondent. Confidentiality of data was ensured throughout the study.

## Consent for publication

Not applicable

## Funding

This study was conducted in collaboration with Mekelle University. Every step of the project was followed by Mekelle University, College of Health Sciences, School of Nursing and Midwifery. The university has no role in designing, analysis and writing of the study.

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## Strengths and limitations of the study

### Strengths

The strength of this study was that it assessed breastfeeding duration for one month. This helps us to explore many variables associated with the dependent variable. Pretest and standard training of data collectors and supervisors was given.

### Limitations

There was no data on potential confounding factors because the data was recorded in the past.

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