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Early Termination of Breast-Feeding Practice and Associated Factors Among Mothers of Children Under 2 Years Old in Asella Referral and Teaching Hospital, Asella, 2023

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Abstract

Background: *Despite global efforts to promote breastfeeding, exclusive breastfeeding rates among infants under six months remain low. Breastfeeding is crucial for maternal and child health, as it improves infant growth and reduces the risk of illness and mortality.*

Objective: *To evaluate the prevalence and factors associated with early termination of breastfeeding among mothers attending a pediatrics outpatient department (OPD) in Asella Teaching and Referral Hospital, Ethiopia.*

Methods: *A cross-sectional study was conducted among 311 mothers attending the pediatrics OPD with children under two years of age. Data was collected through interviews, and was checked for completeness and entered in to Epi Info version 7 then analyzed using SPSS version 25. Bivariate and multivariate analyses were performed to identify factors associated with early breastfeeding termination. Independent variables with p - value < 0.05 were declared as statistically significant.*

Result: *Three hundred eleven mothers from Asella Teaching and Referral Hospital have participated in this study. About 47% (147) mothers terminate breast feeding at less than 24 months. Mode of delivery, (AOR = 0.05, 95% CI: (0.007 – 0.35)), artificial milk use, (AOR = 29.9, 95% CI: (4.3 – 207.8)), time to complementary feeding start, ((AOR = 0.02, 95% CI: (0.001 – 0.391)), pacifier use, (AOR = 9.57 ,95% CI: (1.78 – 51.25)), low milk quantity, (AOR = 8.75, 95% CI: (1.46 – 52.51)), number of ANC visit (AOR = 14.91, 95% CI: (2.45 – 90.54)), breastfeeding council during ANC, (AOR = 0.11, 95% CI: (0.017 – 0.76)), breast-related problem after birth, (AOR = 182 ,95% CI: (6.6 - 4982)), PNC follow up, (AOR = 0.02, 95% CI: (0.001 – 0.35)), and lack of a breastfeeding place at the workplace, (AOR = 0.01, 95% CI; (0.001 – 0.074)) were statistically significant identified factor.*

Conclusion: *Early breastfeeding termination is a significant public health concern that is influenced by various factors, including mode of delivery, artificial milk use, feeding practices, and maternal support systems. Interventions aimed at addressing these factors are necessary to promote exclusive breastfeeding and improve maternal and child health outcomes.*

Keywords: Early, Termination Breast, Feeding, Asella, Ethiopia

Introduction

Background

Early termination of breastfeeding refers to the cessation of breastfeeding before the age of 2 years. Breastfeeding provides numerous health benefits for both infants and mothers. It reduces the risk of infectious diseases in infants and helps prevent overweight and obesity. Breastfeeding also offers long-term health benefits, such as reducing the risk of breast and ovarian cancer

in mothers. The World Health Organization recommends exclusive breastfeeding for the first 6 months, followed by continued breastfeeding along with appropriate complementary foods until at least 2 years of age [1].

Breastfeeding has been shown to lower the risk of various childhood illnesses, including middle ear infections, pneumonia, sudden infant death syndrome, diabetes, malocclusion, and diarrhea. It also promotes a strong mother-child bond and supports healthy brain development, leading to higher intelligence test scores in children and adolescents. Mothers who breastfeed experience benefits such as weight loss, reduced risk of hemorrhage, postpartum depression, and certain cancers. Breastfeeding can also serve as a natural family planning method known as the lactation amenorrhea method [2].

Despite the benefits of breastfeeding, many mothers cease breastfeeding earlier than desired. Approximately 60% of mothers stop breastfeeding before their intended duration. Several factors influence the cessation of breastfeeding, including healthcare-related factors, maternal and child health conditions, multiple births, breastfeeding experience, HIV status, type of delivery, place of birth, birth intervals, and prenatal care [3].

Optimal breastfeeding practices reduce the risk of infectious diseases, which are major contributors to infant mortality. It also helps prevent childhood obesity. Continuing to breastfeed beyond the recommended 12-month period has been shown to have positive effects on a child's health and development [4, 5].

Breastfeeding is globally recognized as a public health priority due to its cognitive and neurodevelopmental benefits for infants, as well as its role in reducing the risk of gastrointestinal and respiratory infections, diabetes, obesity, asthma, and cardiovascular disease. It also has positive effects on postpartum and long-term maternal health, such as weight reduction, decreased blood loss and stress, and reduced risk of type 2 diabetes, hypertension, breast, and ovarian cancers [6, 7].

However, the global adoption of appropriate breastfeeding practices is still not at the desired level. In 2013, only 32.07% of infants worldwide were exclusively breastfed until 6 months of age. Promoting proper breastfeeding practices is considered one of the most cost-effective interventions to ensure optimal health and development in newborns. It can prevent half a million infant deaths and 13% of child deaths globally and reduce the incidence and severity of childhood illnesses. Despite the widely acknowledged benefits by the World Health Organization, few Australian women breastfeed their children to the recommended age of 2 years and beyond [8, 9].

In Africa, exclusive breastfeeding for up to 6 months is relatively uncommon. Many mothers in Africa breastfeed their children for longer than a year. In Ethiopia, breastfeeding rates are high, but the practice of optimal breastfeeding is disproportionately low. It has been reported that suboptimal breastfeeding practices account for nearly 70% of neonatal deaths, 24% of infant mortality, and 58% of child mortality in Ethiopia [10].

Despite the mounting evidence linking non-breastfeeding to higher mortality and morbidity rates, efforts by governments to promote exclusive breastfeeding and sustain breastfeeding rates have had limited success. Globally, only 41% of infants under the age of six months were exclusively breastfed in 2017, and just 45% continued breastfeeding until two years of age. These low rates indicate that breastfeeding is a complex issue that requires interventions at multiple levels to identify mothers at risk of early breastfeeding cessation [5].

Several maternal bio-psycho-social factors have been found to influence breastfeeding patterns and duration. These factors include age, education level, socioeconomic status, prim parity (first-time mother), and maternal employment. Identifying these factors is crucial for understanding the challenges faced by mothers in sustaining breastfeeding [11].

The consequences of early breastfeeding cessation are significant. It is estimated that globally, early cessation of breastfeeding could result in 823,000 deaths in children under the age of five and 20,000 deaths from breast cancer in mothers annually. In sub-Saharan countries, 334,892 child deaths can be attributed to breastfeeding cessation before the WHO recommendation. Children who cease breastfeeding are at a twofold higher risk of mortality from infectious causes compared to breastfed children aged 6-23 months, with diarrheal-related morbidity and mortality being particularly affected [12].

Studies have also found that early cessation of breastfeeding is associated with factors such as spousal support, postpartum employment, maternal attitude, and knowledge about breastfeeding. The timing of breastfeeding termination varies from country to country, with different rates observed in the United States, Iran, and Italy. For example, 60% of mothers in the United States, 57% in Iran, and 12% in Italy stopped breastfeeding before the recommended two-year mark [3].

In Ethiopia, suboptimal breastfeeding is a significant contributing factor to child mortality, morbidity, and malnutrition. More than 24% of mothers in Ethiopia cease breastfeeding before their infants reach 24 months of age, resulting in millions of cases of diarrhea and pneumonia each year and thousands of preventable deaths in children [12].

The study conducted at Asella Referral and Teaching Hospital in Ethiopia aims to shed light on the early termination of breastfeeding and the factors associated with it. By understanding these factors, interventions and support can be developed to promote and sustain breastfeeding, leading to improved health outcomes for both infants and mothers.

Methods and Materials

The Study Setting (Area)

The study was conducted at Asella Teaching and Referral Hospital, located in Asella Town of the Arsi Zone in Ethiopia. Asella is situated 186 km southeast of the capital city, Addis Ababa. Asella Teaching and Referral Hospital is located in the Arsi Zone of the Oromia Region, 126 km south of Addis Ababa. Its coordinates are 7°57′N 39°7′E, and it has an elevation of 2,430 meters above sea level. Asella is the administrative center of Arsi Zone and Tiyo Woreda (district).

The hospital provides various services to the surrounding communities, including: Outpatient and inpatient care, Delivery services, Pediatric services, Antiretroviral therapy (ART) services, Tuberculosis (TB) services, Neonatal intensive care unit (NICU), Intensive care unit (ICU), Minor and major operating rooms, Ophthalmic services, Fistula services, Orthopedic services and Dental services.

Study Design and Period

An institutional-based cross-sectional study was conducted at Asella Teaching and Referral Hospital from May to June 2023. The study aimed to assess the prevalence of early termination of breastfeeding among mothers with children under two years of age attending the pediatrics outpatient department.

Source Population

The study population included all mothers with children under two years of age who attended the pediatrics outpatient department of Asella Teaching and Referral Hospital.

Study Population: Using systematic random sampling, mothers with children under 2 years of age who were attending the pediatrics outpatient department were selected based on predefined inclusion criteria.

Study Unit: The study unit for this study was an individual mother with a child under 2 years of age who was attending the Pediatrics Outpatient Department.

Inclusion and Exclusion Criteria

Inclusion Criteria: The study participants included in the study were women of reproductive age (15-49 years) who attending the pediatrics outpatient department with a child under 2 years of age, Physically and mentally ready and willing to participate in the study and Agreed to sign informed consent.

Exclusion Criteria: Mothers with children over 2 years of age during the study period, Mothers with hearing or speaking difficulties (deaf or dumb), Mothers with infants who had congenital anomalies and Mothers who were unable to breastfeed due to illness were excluded from this study.

Sample Size Determination and Sampling Procedure

Sample Size Determination: Sample size determination using single population formula

$n = (Z\alpha/2)2 * p(1-p) = (1.96)2 * 0.757(1-0.757) = 283$
$d2 \quad (0.05)2$

$3.8416*0.757*0.243/0.0025 = 283$

by adding 10% of none respondent = 283*10% = 28 and the total sample size is 28+283 = 311

where: d is 5% margin of error and 95% confidence interval (alpha) = 0.05 by using proportion (p) 75.7% of the prevalence of early termination of breast feeding in Dukem town [8].

Sample size estimation for the second objective by Epi Info version 7.2.5

Table 1: Summary of sample size calculation for using Epi Info for factors associated with early termination of breast-feeding at Asella Referral and Teaching Hospital 2023.

Variables as exposure	OR	% of exposure in unexposed	Ratio	Power	CI	N
PNC follow-up (13)	2.6	33.4%	1:1	80%	95%	160
Complementary feeding(14)	1.6	74%	1:1	80%	95%	270
Mode of delivery (15)	2.5	61.4%	1:1	80%	95%	210
Pacifier use(16)	2.4	48.5%	1:1	80%	95%	192

Where: OR = odds ratio, Ratio = exposed to unexposed, CI = confidence interval, n = minimum sample size. The sample size of the 1st objective is found to be larger than the second objective, therefore, the final sample size is 311.

Sampling Procedure: Due to financial constraints, simple random sampling was used to select one hospital from the seven functional district hospitals and one teaching and referral hospital in Arsi zone. Asella Teaching and Referral Hospital was selected using lottery methods. A total of 311 mothers with children under 2 years of age were interviewed by two clinical nursing professionals who had received proper training on the data collection tools. The study participants were selected based on the inclusion criteria.

Variables of the Study

Dependent (Outcome variable)

- Early termination of breast feeding
- Independent Variables
- Socio-demographic factors: (Age, Religion, Educational status, Occupation, Income Residence)
- Maternal Related Factors: (mode of delivery, health status of the mother, ANC&PNC utilization, Parity, and Perception of mother)
- Environmental Related Factors: (Distance from work place, Place of delivery, Work shift, Duration of maternity leave, support from husband)

Data Quality Control

To ensure data quality, the following measures were implemented:

Data collectors and supervisors received two days of training on the study purpose, questionnaire, data collection methods, and ethical concerns. The questionnaire was pretested on 5% of the sample size in an adjacent area (Bekoji Hospital) before the actual data collection. Supervisors and the investigator closely supervised the data collection process and Supervisors and investigators checked the data for completeness on a daily basis.

Data Collection Procedures and Techniques

A structured interview questionnaire was developed and was tested for accuracy. This was used as the data collection tool. All questions were prepared in English, then translated to the local

language which are Afan, Oromo, and Amharic and pretested in a similar area. Data was checked for completeness and entered into Epi info7 and exported to SPSS version 25 for analysis.

Data Analysis

Descriptive statistics were calculated and presented in tables, graphs, and charts. Bivariate logistic regression analysis was performed to identify candidate variables for multivariable analysis. Variables with a p-value ≤0.25 in the bivariate analysis were considered as candidates. Multivariable logistic regression analysis was then performed to identify factors independently associated with the outcome variable (early termination of breastfeeding). The strength of association was measured using odds ratios and 95% confidence intervals. A p-value <0.05 was considered statistically significant.

Results

Sociodemographic Characteristics of the Study Participants

A total of 311 mothers with children under 2 years of age participated in the study. The mean age of the mothers was 29.72 years (SD = 6.46), with a range of 18 to 45 years. The majority of mothers (50.2%) were between the ages of 21 and 30, and 35.7% were between the ages of 31 and 40. The gender ratio of the children was 0.96:1 female.

Regarding education, 36.7% of the mothers had a high school education, 22.2% had a degree or higher, and 49.5% of the fathers had a college education or higher. In terms of occupation, 39.9% of the mothers were merchants and 31.2% were government workers. Over half of the respondents (62.7%) were Oromo, and 25.7% were Amhara. The majority of the respondents (88.4%) lived in urban areas. Households with more than three members accounted for over half (58.5%) of the study sample. Nearly half (43.7%) of the households had an average monthly income between 5000 and 9999 Ethiopian Birr. (Table 2)

Table 2: Sociodemographic characteristics of the respondents at University of Asala teaching and Referral Hospital, southeast Ethiopia, 2023 (n = 311).

Variable	Category	Frequency	Percent
Sex of the child	Male	156	50.2
	Female	155	49.8
	Total	311	100.0
Educational status of mother	Cannot read and write	7	2.3
	Can read and write	20	6.4
	Elementary school (1_8)	33	10.6
	High school (9_12)	114	36.7
	Diploma	68	21.9
	Degree and above	69	22.2
	Total	311	100.0
Educational status of partner	Cannot read and write	1	.3
	Read and write	8	2.6
	Primary education	41	13.2
	Secondary education	107	34.4
	College and above	154	49.5
	Total	311	100.0
Occupation of mother	House wife	33	10.6
	Government worker	97	31.2
	Merchant	124	39.9
	Student	13	4.2
	Other	44	14.1
	Total	311	100.0
Occupation of partner	Farmer	38	12.2
	Merchant	129	41.5
	Civil servant	129	41.5
	Student	1	.3
	Others	14	4.5
	Total	311	100.0
	Oromo	195	62.7

Ethnicity	Amara	80	25.7
	Tigre	14	4.5
	Gurage	18	5.8
	Others	4	1.3
	Total	311	100.0
Residence	Urban	275	88.4
	Rural	36	11.6
	Total	311	100.0
Family size	< = 3 person /HH	129	41.5
	> 3 person/HH	182	58.5
	Total	311	100.0
Age of mothers	</= 20	34	10.9
	21-30	156	50.2
	31-40	111	35.7
	> 40	10	3.2
	Total	311	100.0
Monthly income	< 5000	63	20.3
	5000-9999	136	43.7
	10000-14999	55	17.7
	> 15000	57	18.3
	Total	311	100.0

This study found that 174 (47.3%) mothers terminated breastfeeding before their children reached two years of age while the rest 164(52.7%) did not terminate before two years. (Fig 1).

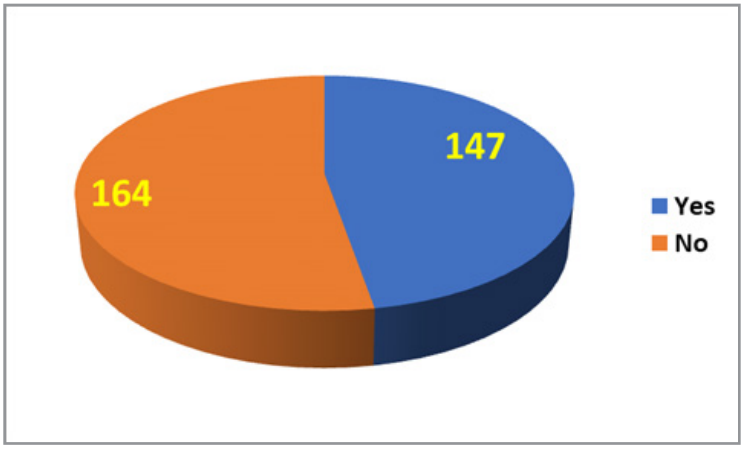

Figure 1: Breast feeding termination status of mothers participated in the study at ATRH

Maternal, Infant Feeding Practice and Environmental Related Factors

Among children under 24 months old, 47.3% had been weaned from breastfeeding, while 52.7% of mothers continued breastfeeding for 24 months or longer. Over half (65.0%) of the mothers in the study had previously given birth to children (multipara). Almost all (99.7%) of the mothers attended antenatal care (ANC) follow-up appointments. Of those who attended ANC follow-up, 50.8% had at least 4 visits, and 75.6% received counseling on infant feeding during the appointments.

The majority of mothers (69.1%) gave birth vaginally, and nearly all gave birth in health institutions. Additionally, 88.7% of the pregnancies were planned. Nearly 84% of the mothers had postnatal care (PNC) follow-up appointments. Among the 311 respondents, 65.3% had given birth to a second or subsequent child, and 34.7% had given birth to their first child.

Approximately 17% of the mothers experienced breast problems. The majority of mothers (73.6%) reported starting breastfeeding within one hour of birth, and over two-thirds (73.6%) introduced complementary feeding timely at six months. Re-

garding maternal employment, 64.3% of the mothers worked in the private sector or factories, and 35.7% worked in the government sector (Table 3).

Table 3: Obstetric and gynecological-related factors of respondents at University of Asala teaching and referral Hospital, south east, Ethiopia, 2023 (n = 311).

Variable	Category	Frequency	Percent
Child birth order	1st	108	34.7
	> = 2nd	203	65.3
	Total	311	100.0
Mode of delivery	Vaginal	215	69.1
	C/S	96	30.9
	Total	311	100.0
Neonatal jaundice	Yes	78	25.1
	No	233	74.9
	Total	311	100.0
Artificial milk	Yes	124	39.9
	No	187	60.1
	Total	311	100.0
Pacifier use	Yes	169	54.3
	No	142	45.7
	Total	311	100.0
Low milk quantity	Yes	112	36.0
	No	199	64.0
	Total	311	100.0
Fatigue during breast feeding	Yes	123	39.5
	No	188	60.5
	Total	311	100.0
Parity	Primi-para	109	35.0
	Multi-para	202	65.0
	Total	311	100.0
ANC follow up	Yes	310	99.7
	No	1	.3
	Total	311	100.0
Breast feeding council during ANC	Yes	235	75.6
	No	76	24.4
	Total	311	100.0
Delivery Assistant	Health professional	305	98.1
	Non-health professional	6	1.9
	Total	311	100.0
Was the last delivery planned	Yes	276	88.7
	No	35	11.3
	Total	311	100.0
Breast feeding initiated within one hour of delivery	Yes	229	73.6
	No	82	26.4
	Total	311	100.0
Breast related problem	Yes	53	17.0
	No	258	83.0
	Total	311	100.0
PNC follow up	Yes	261	83.9
	No	50	16.1
	Total	311	100.0

Child day care	Yes	40	12.9
	No	271	87.1
	Total	311	100.0
Return to work after delivery	< = 2 months	78	25.1
	2_4 months	135	43.4
	> = 4 months	98	31.5
	Total	311	100.0
Breast feeding at work place	Yes	173	55.6
	No	138	44.4
	Total	311	100.0
Lactation break	Yes	205	65.9
	No	106	34.1
	Total	311	100.0
Pumping breast milk	Yes	99	31.8
	No	212	68.2
	Total	311	100.0
Birth weight	< 2500 gm	85	27.3
	2500_4000 gm	207	66.6
	> 4000 gm	19	6.1
	Total	311	100.0
Time to start complimentary food	> = 6 months	229	73.6
	< 6 months	82	26.4
	Total	311	100.0
Breast feeding duration	< 24 months	147	47.3
	> = 24 months	164	52.7
	Total	311	100.0
Gestational age	9 months	255	82.0
	< 9 months	56	18.0
	Total	311	100.0
Number of ANC visit	< 4	153	49.2
	> = 4	158	50.8
	Total	311	100.0
Number of babies delivered	Singleton	280	90.0
	Multiple	31	10.0
	Total	311	100.0
Birth interval	Primiparous	103	33.1
	1_3 years	180	57.9
	> = 3 years	28	9.0
	Total	311	100.0

Nearly all (305) study participants gave birth in a hospital or health center, with only 6 home deliveries. Regarding the mode of delivery, 215 participants preferred vaginal delivery, while 96 participants delivered via cesarean section (Fig 2 and 3)

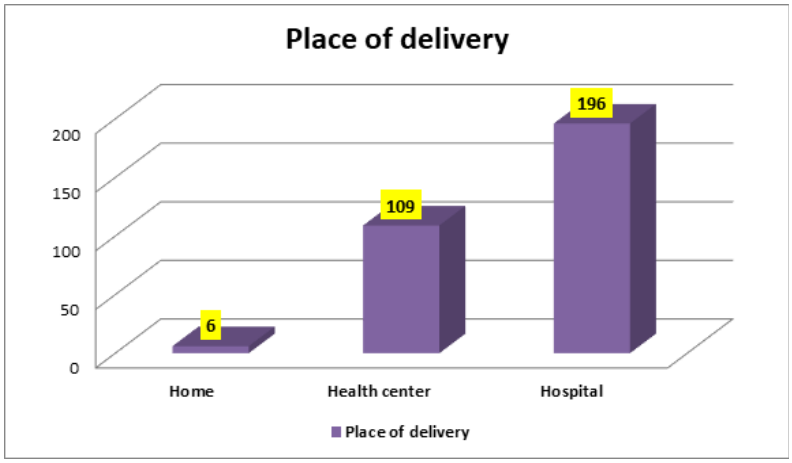

Figure 2: Birth place of study participant for early breastfeeding cassation at ATRH

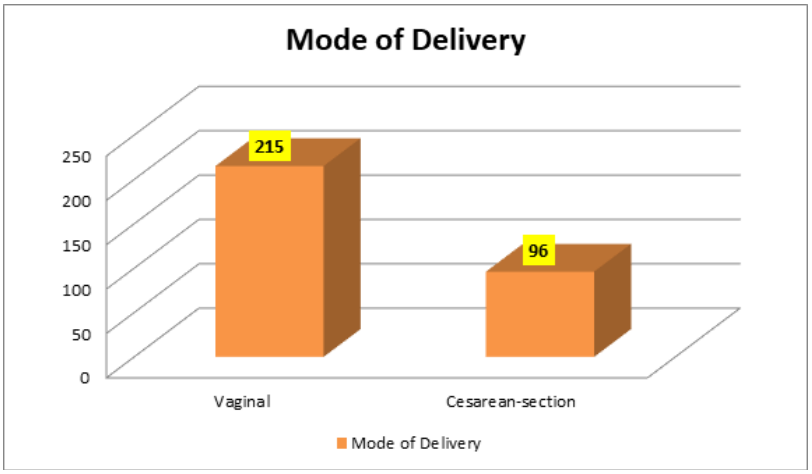

Figure 3: Mode of delivery of study participant for early breastfeeding cassation at ATRH

Approximately 14% of the study participants reported that their partner does not support them in domestic activities. Only 13% of the study participants have access to childcare at their workplace. For more detail, look at Table 4.

Table 4: Environmental related factors of the respondent at University of Asala teaching and referral Hospital, south east, Ethiopia, 2023 (n = 311).

Variable	Category	Frequency	Percent
Partner support at home	Yes	267	85.9
	No	44	14.1
	Total	311	100.0
Place of birth	Home	6	1.9
	Health center	109	35.0
	Hospital	196	63.0
	Total	311	100.0
Flexible work	Yes	169	54.3
	No	142	45.7
	Total	311	100.0
Child day care	Yes	40	12.9
	No	271	87.1
	Total	311	100.0

Duration of work per day	Over time	52	16.7
	Full time	259	83.3
	Total	311	100.0
Work load	Yes	68	21.9
	No	243	78.1
	Total	311	100.0
Working in shift	Yes	56	18.0
	No	255	82.0
	Total	311	100.0
Maternity leave	< = 2 months	78	25.1
	> 2 months	233	74.9
	Total	311	100.0
Type of organization to work	Governmental	111	35.7
	Private	200	64.3
	Total	311	100.0
Intention to return work	Yes	175	56.3
	No	136	43.7
	Total	311	100.0

Factor Associated with Early Termination of Breastfeeding

In the bivariate analysis, mode of delivery, neonatal jaundice, artificial milk, pacifier use, low milk quantity, fatigue during breastfeeding, ANC visit, breast feeding council during ANC, time to start complementary food, had no PNC follow-up, did not initiate breastfeeding early (within 1 hour), breast-related problem after birth, lack of a breastfeeding place at the work-place, duration of work, work load, numbers of babies delivered, lack of partner support and planned pregnancy were the candidate variables at P value < 0.25.

Table 5: Bivariate logistic regression output of study participants at Asala teaching and referral hospital, south east Ethiopia, 2023 (n = 311).

Variable		Early breast-feeding cessation		COR	95% CI	P-value
		Yes	No			
Mode of delivery	Vaginal	143	21	0.141	(0.08 - 0.247)	0.000
	Cesarean section	72	75	1		
Neonatal jaundice	Yes	153	11	11.65	(5.83 – 23.2)	0.000
	No	80	67	1		
Artificial Milk	Yes	150	14	31.85	(16.4 – 61.7)	0.000
	No	37	110	1		
Complementary feeding starts at	>/= 6 months	159	5	34.98	(13.5 – 90.1)	0.000
	< 6 months	70	77	1		
Pacifier use	Yes	135	29	93	(39.4 – 219.)	0.000
	No	7	140	1		
Low milk quantity	Yes	155	9	40.3	(18.8 – 86.1)	0.000
	No	44	103	1		
Fatigue during breast feeding	Yes	155	12	39	(19.4 – 78.5)	0.000
	No	36	111	1		
Residence	Urban	151	13	0.46	(0.23 – 0.95)	0.037
	Rural	124	23	1		
Partner support	Yes	154	10	.21	(0.10 - .45)	0.000
	No	113	34	1		
Number of ANC visit	< 4	132	32	19.2	(10.8 – 34.1)	0.000
	>/= 4	26	121	1		

Breast feeding council during ANC	Yes	150	14	0.12	(0.07 – 0.24)	0.000
	No	85	62	1		
Number of babies delivered	Single	162	2	0.05	(0.01 – 0.22)	0.000
	Multiple	118	29	1		
Planned pregnancy	Yes	157	7	0.18	(0.08 – 0.45)	0.000
	No	119	28	1		
Breast fed within one hour	Yes	159	5	0.03	(0.01 – 0.07)	0.000
	No	70	77	1		
Breast feeding problem	Yes	162	2	43	(10.2 – 180)	0.000
	No	96	51	1		
PNC follow up	Yes	154	10	0.17	(0.08 – 0.36)	0.000
	No	107	40	1		
Duration of work	Over time	154	10	6.16	(2.96 – 12.9)	0.000
	Full time	105	42	1		
Breast fed at work place	Yes	114	50	0.29	(0.18 – 0.47)	0.000
	No	59	88	1		
Work load	Yes	145	19	3.82	(2.1 – 6.87)	0.000
	No	98	49	1		
Intension to return to work	Yes	82	82	1.72	(1.1 – 2.71)	0.019
	No	54	93	1		
Pumping beast milk	Yes	61	103	0.58	(0.36 – 0.96)	0.033
	No	38	109	1		

In the multiple logistic regression analysis, the following variables were found to be statistically significantly associated with early cessation of breastfeeding (p-value < 0.05):

Mode of delivery: Women who delivered vaginally were 0.005 times less likely to stop breastfeeding early compared to women who delivered by cesarean section (AOR = 0.05, 95% CI: 0.007 - 0.35).

Artificial milk use: Mothers who used artificial milk were about 30 times more likely to stop breastfeeding than non-users (AOR = 29.9, 95% CI: 4.3 - 207.8).

Time to start complementary feeding: Mothers who started complementary feeding early were 0.02 times less likely to stop breastfeeding early (AOR = 0.02, 95% CI: 0.001 - 0.391).

Pacifier use: Pacifier users were 9.5 times more likely to stop breastfeeding than non-users (AOR = 9.57, 95% CI: 1.78 - 51.25).

Low milk quantity: Women with low milk quantity were 8.75 times more likely to stop breastfeeding early (AOR = 8.75, 95% CI: 1.46 - 52.51).

Number of ANC visits: Mothers who visited ANC less than 4 times were about 15 times more likely to stop breastfeeding early (AOR = 14.91, 95% CI: 2.45 - 90.54).

Breastfeeding counseling during ANC: Women who were counseled on breastfeeding during ANC were 0.11 times less likely to stop breastfeeding early (AOR = 0.11, 95% CI: 0.017 - 0.76).
Breast-related problem after birth: Mothers who had a breast-related problem after birth were 182 times more likely to stop breastfeeding early (AOR = 182, 95% CI: 6.6 - 4982).

PNC follow-up: Mothers who utilized PNC services were 0.02 times less likely to stop breastfeeding early (AOR = 0.02, 95% CI: 0.001 - 0.35).

Lack of a breastfeeding place at the workplace: Mothers who did not have a breastfeeding place at work were 0.01 times less likely to stop breastfeeding early (AOR = 0.01, 95% CI: 0.001 - 0.074) (Table 6).

Table 6: Multivariable logistic regression of factors associated with early cessation of breastfeeding at Asala teaching and referral hospital, south east Ethiopia, 2023 (n = 311).

Variable		Early breast-feeding cessation		COR	95% CI	AOR	95% CI	p-value
		Yes	No					
Mode of delivery	Vaginal	143	21	0.141	(0.08 - 0.24)	0.05	(0.01 – 0.3)	0.003*

	Cesarean S	72	75	1				
Neonatal jaundice	Yes	153	11	11.65	(5.83 – 23.2)	1.61	(0.16 – 16)	0.681
	No	80	67	1				
Artificial Milk	Yes	150	14	31.85	(16.4 – 61.7)	29.9	(4.3 – 207)	0.001*
	No	37	110	1				
Complementary feeding starts at	>/= 6mths	159	5	34.98	(13.56 – 90)	0.018	(.001– 0.3)	0.010*
	< 6 mnths	70	77	1				
Pacifier use	Yes	135	29	93	(39.5 – 219.)	9.57	(1.78–51.2)	0.008*
	No	7	140	1				
Low milk quantity	Yes	155	9	40.3	(18.87 – 86)	8.75	(1.46 – 52.)	0.018*
	No	44	103	1				
Fatigue during breast feeding	Yes	155	12	39	(19.4 – 78)	2.350	(0.27 - 19.)	0.432
	No	36	111	1				
Residence	Urban	151	13	0.46	(0.23 – 0.95)	3.887	(0.12 - 122)	0.441
	Rural	124	23	1				
Partner support	Yes	154	10	.21	(0.10 - .45)	0.244	(0.018 - 3)	0.288
	No	113	34	1				
Number of ANC visit	< 4	132	32	19.2	(10.82 – 34)	14.91	(2.45 – 90.)	0.003*
	>/= 4	26	121	1				
BF council during ANC	Yes	150	14	0.12	(0.07 – 0.24)	0.11	(0.02 – 0.7)	0.025*
	No	85	62	1				
Number of babies delivered	Single	162	2	0.05	(0.01 – 0.22)	0.091	(0.001 - 43)	0.447
	Multiple	118	29	1				
Planned pregnancy	Yes	157	7	0.18	(0.08 – 0.45)	1.183	(0.061 - 22)	0.911
	No	119	28	1				
Breast fed within one hour	Yes	159	5	0.03	(0.01 – 0.07)	0.31	(0.015 - 6)	0.446
	No	70	77	1				
Breast feeding problem	Yes	162	2	43	(10.2 – 180)	182	(6.6 - 4982)	0.002*
	No	96	51	1				
PNC follow up	Yes	154	10	0.17	(0.08 – 0.36)	0.017	(0.001–0.4)	0.008*
	No	107	40	1				
Duration of work	Over time	154	10	6.16	(2.96 – 12)	1.971	(0.09 - 39)	0.657
	Full time	105	42	1				
Breast fed at work place	Yes	114	50	0.29	(0.18 – 0.47)	0.006	(.001–0.07)	0.000**
	No	59	88	1				
Work load	Yes	145	19	3.82	(2.1 – 6.87)	1.844	(0.17 - 19)	0.612
	No	98	49	1				
Intension to return to work	Yes	82	82	1.72	(1.1 – 2.71)	1.635	(0.10 - 25)	0.724
	No	54	93	1				
Pumping beast milk	Yes	61	103	0.58	(0.36 – 0.96)	1.314	(0.10 - 17)	0.835
	No	38	109	1				

Discussion

The purpose of this study was to evaluate early termination of breastfeeding practices and the factors associated with it. The prevalence of early termination of breastfeeding in this study was 47.3%, which is higher compared to a study in Debrelibanos district where 79.5% of mothers continued to breastfeed their children [13-17]. A study in Iran reported that 34.2% of mothers ceased breastfeeding before 24 months, with a termination probability of 34% at 24 months [3]. Similarly, research in Australia indicated that mothers cease lactating earlier than recommended, although at a lower rate than the current study.

In Gozamin district, a study found that 82.5% of mothers were breastfeeding up to the 24th month of follow-up. In Debre Markos town, the proportion of mothers breastfeeding until the child's 24th month was 68.5%, which is higher than the present

study where only 50.3% of mothers continued breastfeeding up to 2 years or beyond [12]. A study based on the Nigerian Multiple Indicator Cluster Survey (MICS 2017) revealed a similar trend, with only 37.1% of mothers continuing breastfeeding up to 2 years [18].

According to the finding, 73.6% of the children studied received complementary foods timely. This finding is in line with reports from developing countries such as Nepal (70%), North Showa (69.2%), and Bangladesh (71%). However, the finding is lower when compared to other African countries, including Uganda (75%), Tanzania (92.3%), and Kenya (81%) but higher than other studies conducted in Ethiopia (51–62.8%), India (55.1%), and national prevalence as per EDHS, 2016 (60%) [17].

In a study conducted in Abu Dhabi, 21.7% of the children of 6 months or older had been introduced to complementary feeding before they were six months, a practice that has been associated with suboptimal health and growth in infants. A study conducted in Radwan in the UAE found that 83.5% of the children had received complementary feeding before six months. However, in this finding, the prevalence of starting complementary feeding at less than six months was 26.4% [19].

A study conducted in Iran showed that the use of pacifiers has a negative effect on breastfeeding duration. It should be noted that a number of studies claimed that the effect of pacifier exposure on the duration of breastfeeding is a debated topic. In the case of breastfeeding infants, the WHO strongly recommends that the pacifier should not be used at all, which was also confirmed in the present study. In this study, we showed that using pacifier and artificial milk significantly increased early cessation of breastfeeding before 2 years of age. Possibly, the infant's status of using artificial milk can be attributed to the inadequacy of breast milk. A study conducted in Ghana and Brazil showed that feeding a child with a pacifier puts them at a higher risk of getting an infection than those not fed with pacifiers [14]. This finding agrees with the present study.

In this study, a mother who had visited ANCLES more than 4 visits were about 15 times more likely to stop breastfeeding at an early time (AOR = 14.91, 95% CI: 2.45 – 90.54). This finding is supported by a study conducted in Assayita district, where mothers who had ANC follow-up were 4.2 times more likely to have appropriate feeding than their counterparts (AOR = 4.2, 95% CI: 2.2, 8.7), and similar to a study done in Shashemene (33).

A study conducted in Gozamin district showed that the risk of early breastfeeding cessation was higher among mothers who had no antenatal care follow-up compared to mothers who had four or more antenatal care follow-up visits. A national study in Ethiopia reported that mothers who didn't receive antenatal care services had a 10% shorter duration of breastfeeding than mothers who received 4 or more antenatal care services. This might be because as a mother receives more antenatal care service counseling regarding breastfeeding and its duration, her knowledge on the advantages of longer breastfeeding duration increases, which is similar to the findings of the current study [12].

Study conducted in Nigeria: When most mothers had an intention to breastfeed for between 12-18 months irrespective of the frequency of ANC attendance, a larger proportion of mothers with the least ANC attendance (< 4 times) intended to breastfeed for less than 12 months. Surprisingly, the proportion of mothers who attended ≥4 sessions of ANC had a relatively lower proportion of those intending to continue breastfeeding beyond 18 months [18].

In this study, women who received counseling on infant feeding during ANC were 75.6%, which is higher than the study conducted in Ghana (63.4%) [14]. Women who received counseling on infant feeding at ANC check-up were less likely to early terminate breastfeeding compared to those who did not receive counseling. This finding is consistent with studies conducted in Samara, Ethiopia, and Tanzania. This indicates that antenatal check-up is an appropriate time to provide essential messages about proper infant feeding practices [20].

The findings from this study highlight the importance of postnatal care (PNC) services in promoting continued breastfeeding. Mothers who utilized PNC services were significantly less likely to cease breastfeeding early compared to those who did not receive care. This is consistent with similar studies conducted in various regions of Ethiopia and Nigeria, which also showed a positive association between PNC utilization and exclusive breastfeeding (EBF) practices [21].

Furthermore, the study also emphasizes the impact of workplace support on breastfeeding continuation. Mothers who did not have reasonable lactation breaks during working hours were more likely to discontinue breastfeeding compared to those who had adequate breaks. This aligns with research from Samoa and other regions, which demonstrate that insufficient lactation breaks at the workplace can hinder breastfeeding practices among employed mothers [22].

To address this issue, it is crucial for workplaces to provide legal provisions for paid breastfeeding breaks and support mechanisms for working mothers. Recommendations from the World Health Organization (WHO) and the International Labour Organization (ILO) advocate for a minimum of 14 weeks of paid maternity leave and daily lactation breaks or reduced work hours to facilitate breastfeeding. By implementing these policies, employers can create a supportive environment that enables women to balance work responsibilities with breastfeeding commitments, ultimately promoting optimal infant feeding practices [23].

The prevalence of breastfeeding problems among mothers in this study (17%) is consistent with findings from studies conducted in Vietnam (16.4%), and Lithuania, which also reported similar rates of breastfeeding challenges among participants [24, 25]. However, the study conducted in Sweden, revealed a higher prevalence of breastfeeding problems, with 27% of breastfeeding women experiencing issues in the first month after birth [26]. This higher rate of breastfeeding problems in Sweden may be attributed to factors such as perceived insufficient milk supply, concerns about the baby's weight, and other challenges related to breastfeeding.

The study from Lithuania also highlighted a significant relationship between weaning off breastfeeding and specific issues

such as swollen breasts, wounded or painful nipples, and anxiety related to breast appearance. These findings underscore the importance of addressing breastfeeding problems promptly and providing adequate support to mothers to prevent early weaning.

Overall, the comparison with findings from Vietnam, Lithuania, and Sweden emphasizes the global nature of breastfeeding challenges faced by mothers and the need for comprehensive support systems to address these issues effectively. By identifying and addressing breastfeeding problems early on, healthcare providers can help mothers overcome challenges and continue breastfeeding for longer durations, ultimately benefiting both maternal and infant health.

In this study, the prevalence of cesarean section (C/S) among mothers was 30.9%. This prevalence is lower than the findings from a study conducted in Vietnam, which reported a prevalence of 38.1%, and another study conducted in Da Nang province, which reported a prevalence of 58.5%. However, it is higher than the national average of 27.5% reported for the years 2010-2014 [27].

Furthermore, the study found that mothers who delivered by cesarean section were about twice as likely to experience early cessation of breastfeeding compared to mothers who delivered vaginally. Similar studies conducted in Eastern Lancashire and Saudi Arabia also revealed a higher risk of early breastfeeding cessation among mothers who delivered by cesarean section [15]. In this study, it was found that women who delivered vaginally were 0.005 times less likely to stop breastfeeding early compared to women who delivered by cesarean section (Adjusted Odds Ratio (AOR) = 0.05, 95% Confidence Interval (CI): 0.007 - 0.35).

It is indeed well-known that mothers who undergo cesarean section (C-section) often experience longer recovery periods and require more medical care compared to mothers with a normal delivery. As a result, studies conducted in Bangladesh, China, and Vietnam have found that the mean duration of breastfeeding (DB) is shorter among C-section mothers [4, 15].

In this study, it was also observed that women who delivered via a cesarean section were more likely to discontinue both full and any breastfeeding early, which is consistent with findings from previous studies. Several factors contribute to the early cessation of breastfeeding among mothers who undergo a cesarean section. These factors include chronic pain, surgical trauma, anxiety, postpartum depression, and difficulties in correctly positioning the infant due to discomfort [6].

Conclusion

The overall prevalence of early termination of breastfeeding at less than 24 months was 47.3%. Several factors were found to be associated with this early termination, including cesarean delivery, absence of antenatal counseling, absence of postnatal care (PNC) follow-up, breast problems (such as persistent nipple pain, mastitis, engorgement, perception of insufficient milk supply, pain, and breast mass during lactation), having less than 4 antenatal care (ANC) visits, use of pacifiers and artificial milk, introduction of complementary feeding before 6 months, and workplace barriers to breastfeeding.

To decrease the early termination of breastfeeding, the study suggests several interventions. These include counseling pregnant women about breastfeeding issues during ANC and PNC services, encouraging mothers to attend antenatal and postnatal care to improve the duration of breastfeeding, supporting breastfeeding in the workplace, and providing education to mothers before and after cesarean section, considering the established benefits of breastfeeding for both maternal and child health. Additionally, it is important to ensure that breast problems are appropriately treated or referred as needed.

Based on these findings, it is recommended that stakeholders implement measures to prolong the duration of breastfeeding by incorporating these significant predictors into breastfeeding counseling and education at the institutional level.

Declarations

Ethics Approval and Consent to Participate

This research was approved by Institutional Review Board of Arsi University College of Health Sciences

Consent for Publication

This section is not applicable because the research does not include individuals' image or videos.

Availability of Data and Materials

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

Competing Interests

The authors declare that they have no competing interests

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Authors' Contributions

BBT=Original draft preparation, Conceptualization, Methodology, Investigation, Data Curation,
MTA= Conceptualization, Methodology, Analysis, Data Curation,
DSG= Methodology, Review and editing
SG= Original draft preparation, Conceptualization, Methodology, Review and editing TD=Analysis, Methodology, Review and editing
DB= Methodology, Review and editing

Ethical Consideration

Ethical approval for the study was obtained from the Arsi University Health Science College Ethics Review Board. Supportive letters were written by Arsi University College of Health Sciences to Asella Teaching and Referral Hospital and other concerned bodies. Informed consent was obtained from all participants after a comprehensive explanation of the purpose and procedures of the study in their local languages. The data collected from the participants will remain anonymous indefinitely.

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