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Time to breastfeeding cessation and its predictors among mothers of index children aged 2–3 years in Bedele Town, Southwest Ethiopia: a community-based retrospective follow-up study

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ABSTRACT

Background Breastfeeding ensures the survival and health of a child. The WHO recommends exclusive breastfeeding for the first 6 months and continuing for up to 2 years. However, the duration of breastfeeding is below what is recommended globally. In Ethiopia, more than a quarter of mothers stop breastfeeding before the second birth date. Information on time to breastfeeding cessation and its predictors is needed to address this issue.

Objective To assess the time to the cessation of breastfeeding and its predictors among mothers who have children aged two to 2–3 years in southwest Ethiopia, 2022.

Methods: A community-based retrospective follow-up study was conducted among 471 randomly selected mothers with children aged 2–3 years in Southwest Ethiopia from 1 April 2019 to 31 March 2022. An interviewer-administered pre-questionnaire was used to collect the data. The collected data were entered into Epidata version 4.6 and exported to STATA version 14.1 for analysis. Both bivariate and multivariable survival models were fitted. The Weibull proportional hazard model was used to identify predictors for time to breastfeeding cessation.

Result The overall incidence of early cessation of breastfeeding was found to be 11.05 per 1000 person-months of the follow-up period. Nearly a quarter (23.38%) of mothers ceased breastfeeding early. Educational status (diploma and above) (AHR=2.49: 95% CI (1.27, 4.90)), not bottle feeding (AHR=0.32, 95% CI(0.13, 0.76)), complementary feeding before 6 months (AHR=1.82, 95% CI(1.40, 2.37), ≥4 ANC follow-up (AHR=0.60; 95% CI (0.37, 0.96)), number of children (2–4) (AHR=2.82, CI (1.73, 4.61)) and (>4) (AHR=3.66, CI (1.36, 9.87)) were independent predictors of early cessation of breastfeeding.

Conclusion The time to breastfeeding cessation was higher than that reported in previous studies. Therefore, strengthening maternal health education and breastfeeding counselling at both the health facility and community levels is recommended.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Extensive research highlights the importance of breastfeeding for infant health, with well-established benefits in providing essential nutrients and immune protection. Despite these benefits, many mothers in Ethiopia stop breastfeeding before the recommended 6 months. Several studies have explored factors influencing breastfeeding duration, but few focus specifically on the time to cessation of breastfeeding. There is a growing awareness of this issue, but limited data exist on how various factors, such as maternal education, support systems and cultural practices, affect the time to breastfeeding cessation, especially in regions like southwest Ethiopia.

WHAT THIS STUDY ADDS

⇒ This study provides new insights into the factors influencing the time to cessation of breastfeeding in southwest Ethiopia. It documents key predictors such as maternal education, bottle feeding, early introduction of complementary foods and the frequency of antenatal care visits. By examining these variables, the study offers a more nuanced understanding of how and why some mothers stop breastfeeding before the recommended 6 months. It also highlights that the time to breastfeeding cessation in this region may be occurring earlier than previously understood, offering a clearer picture of the challenges faced by local mothers.

INTRODUCTION

Breastfeeding embodies a profound synergy of nourishment, protection and bonding, serving as a pivotal public health strategy from infancy through childhood. Its benefits, ranging from immunological fortification in infancy to long-term health advantages and cognitive development, underscore its indispensable role in shaping healthier futures. Beyond individual well-being, breastfeeding serves as a cornerstone for community health,

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Understanding the factors that influence the time to cessation of breastfeeding can inform better policies and interventions to extend breastfeeding durations. By focusing on specific determinants like maternal education and antenatal care, the study provides actionable recommendations for improving breastfeeding support programsprogrammes. These insights could help guide health policy aimed at improving maternal and child health outcomes in Ethiopia, ultimately contributing to the broader goal of reducing infant mortality and achieving the Sustainable Development Goals related to health by 2030.

mitigating infant and child morbidity and mortality. It symbolises the enduring power of maternal care and the innate resilience of the human body, offering a pathway to a brighter, more compassionate world.[1 2] In addition, there is evidence that breastfeeding experience and a longer breastfeeding duration are associated with reduced risk of breast, thyroid and cervical cancer in women.[3 4] By safeguarding mothers, it reduces healthcare costs and fosters sustainable prosperity. It fortifies healthier families, contributing to national development and community empowerment.[5]

Despite the resounding endorsements from esteemed bodies like the WHO and the United Nations Children Fund, global statistics paint a sobering picture of breastfeeding practices.[6 7] From 2013 to 2018, only 43% of newborn-initiated breastfeeding within the crucial first hour of birth, while a mere 41% of infants under 6 months enjoyed the recommended exclusive breastfeeding. Even though approximately 70% of mothers valiantly persisted in breastfeeding for at least a year, these commendable efforts dwindled, with rates plummeting to a mere 45% by the time the child reached the tender age of 2.[8]

In Africa, many mothers face challenges that hinder breastfeeding continuation beyond infancy. Cultural, economic and social factors contribute to this trend, with pressures from modern lifestyles conflicting with traditional beliefs and practices.[9 10] Across different regions, notable variations in breastfeeding practices underscore the intricate interplay of socio-economic factors and cultural influences. In West and Central Africa, despite economic challenges, a significant proportion of infants from impoverished families continue to receive breast milk at 2 years, contrasting sharply with lower rates in wealthier nations.[11] Conversely, Eastern Europe and Central Asia exhibit uniform low rates of breastfeeding at 2 years among both the wealthiest and poorest families, indicating broader societal influence.[11] In Ethiopia, a sizeable percentage of infants miss out on the recommended 24 month breastfeeding duration, and the time to cessation of breastfeeding is 22.56.[12 13]

At the heart of child survival strategies lies the profound impact of optimal breastfeeding practices for infants under 2 years old. This ancient tradition holds unparalleled potential to avert 1.4 million deaths of children under five in impoverished nations, underscoring its pivotal role in global health. However, realising this potential is hindered by complex socio-economic disparities and cultural intricacies.[14] In Africa, including our own nation, the act of breastfeeding is deeply ingrained in the fabric of maternal care, with over 90% of mothers embracing this timeless tradition. However, despite its widespread acceptance, the journey of breastfeeding faces challenges that hinder its optimal practice. Issues such as delayed initiation, premature weaning and inadequate continuation up to the recommended 2 year mark persist, casting shadows on the potential benefits.[15] The consequences of early discontinuation are stark, with a heightened risk of pneumonia-related morbidity and mortality looming over infants deprived of the protective shield of breastfeeding.[16]

Amidst a tapestry of international and national research, a mixture of factors emerges as predictors for the duration of breastfeeding. Maternal age, marital status, educational attainment, occupation, financial stability, parity, birth intervals, antenatal care attendance and even the availability of cow's milk at home intertwine to shape the course of breastfeeding practices. Past breastfeeding experiences, the timing of initiation and the number of children in the family also play pivotal roles in determining the duration of breastfeeding[10 13 17–22]

The National Nutrition Programme II (NNP II) and the National Guideline on Adolescent, Maternal, Infant and the Young Child Nutrition Initiative 2016 were established in Ethiopia by the Ministry of Health to encourage mothers to exclusively breastfeed their child for the first 6 months without the addition of any additional fluids or foods and to continue breastfeeding until the child is 2 years old. Nevertheless, from 2011 to 2016, the percentages of early breastfeeding initiation and EBF practice increased from 52% to 73% and 32% to 58%, respectively.[12] The median duration of breastfeeding in Ethiopia decreased from 25.20 months in 2000 to 23.90 months in 2016.[12]

Despite Ethiopia's government efforts and the well-documented benefits of breastfeeding for up to 2 years, scant research has delved into the timeframe for breastfeeding cessation in the country. Previous studies primarily focused on the cessation of exclusive breastfeeding and used non-parametric survival regression analysis, lacking the depth of a parametric survival model. Recognising the importance of identifying breastfeeding cessation and its predictors, particularly in the context of reducing neonatal and infant mortality rates, this study in Southwest Ethiopia aimed to fill this gap. By pinpointing predictors of breastfeeding cessation, we aim to inform strategies vital for achieving Sustainable Development Goals, particularly in reducing under-five mortality rates by enhancing optimal feeding practices and preventing avoidable childhood deaths by 2030. Therefore, this study aimed at assessing the time to cessation of breastfeeding and its predictors in Southwest Ethiopia.

METHODS

Study setting and period

The study was conducted in Bedele town, Buno Bedele Zone, Southwest Ethiopia, to assess the time to the cessation of breastfeeding and its predictors among mothers who have children aged 2–3 years from 1 April 2019 to 31 March 2022. And the data collection period was from 1–31 March 2022.

Study design, population, and sample size

A community-based retrospective follow-up study was conducted among randomly selected mothers who had a child aged between 2 and 3 years of age in Bedele town during the data collection period. The required sample size was computed using the Schoenfeld formula in STATA software version 14 using factors strongly linked with the early termination of breastfeeding from prior studies.[17]

$E = \frac{\left(\frac{z\alpha}{2} + Z\beta\right)^2}{P1P2\left(lnHR\right)^2}$ And $n = \frac{E}{P(E)}$ = Schoenfeld formula for a manual calculation.

where the number of required events, n=sample size, HR is the HR of selected covariates, p1 is the proportion of subjects under the exposure group, $p2 = 1 - p1$ and $P(E)$ is the probability of an event from the previous study.

By taking HR for three factors significantly associated with the early cessation of breastfeeding and the probability of events from studies the sample size is calculated for survival outcome. Therefore, the final maximum sample size calculated was (n=624). Since the study population was less than 10 000, the correction formula was used as follows: n'=N/n+n-1

n=624×1355/624+1355–1=428

where n' is the revised sample size, n is the original sample size and N is the population size.

So, after adding a 10% non-response rate to increase the power, the final minimum sample size was 471. All four kebeles (the lowest administrative unit) were included from Bedele town. Before data collection, an exhaustive series of house-to-house visits was conducted to identify eligible mother–child pairs across these kebeles. Following this, the sample size was meticulously distributed among the kebeles, proportionate to the number of eligible participants—mothers with index children aged between 2 and 3 years. Ultimately, employing a systematic random sampling technique, children–mother pairs were carefully selected, with a sampling interval of every second household, until the desired sample size was achieved. If a family had more than one child within the target age range, one child from each eligible family was selected randomly to participate in the study. To report this study, we followed the guidelines in the Strengthening the Reporting of Observational Studies in Epidemiology Statement[23] (online supplemental file 1).

Eligibility criteria

Inclusion criteria

Mothers who had children aged 2 to 3 years and had lived in Bedele town for at least 6 months before the data collection period were included in the study.

Exclusion criteria

Non-biological mothers or caregivers and mothers who were ill and could not communicate verbally were excluded from the study.

Operational definitions

Early breastfeeding cessation: breastfeeding that stopped before 24 months of age of a child.
Event: breastfeeding a child for less than 24 months, as reported by the mother during the data collection period.
Censored: a mother who was breastfeeding the child during the data collection period.
Survival time: the number of months between the first-time breastfeeding started (after delivery) and when it was stopped or censored.

Data collection tools and procedures

The data collection tool was adapted from literature and the Ethiopian Demographic Health Survey.[12 21 22 24] The questionnaire was translated into the local language (Afan Oromo) by language experts and professionals in the field and then translated back into English again to ensure consistency of language translation. The questionnaire contains maternal socio-demographic, obstetric, health service, health status and nutritional-related factors. Two data collectors participated in the collection process. Mothers were asked to provide the exact date when breastfeeding ended, using their child's birth date as the starting point for the event of interest. The termination of breastfeeding marked the endpoint, representing the length of the survival time in the study. A well-structured data collection tool, equipped with detailed prompts and targeted questions, was used to help participants recall these key events accurately. Rather than asking vague questions like 'When did breastfeeding stop?,' we encouraged mothers to remember the exact month and year by using contextual cues such as notable holidays or life events, which have been shown to enhance memory recall. This approach helped improve the reliability of the reported data, ensuring that key milestones were captured with greater precision.

Data on socioeconomic status was gathered using the Ethiopian Demographic and Health Survey items, which included information on the type and number of livestock, the presence of an improved sanitation facility, the type of cooking fuel, the condition of the house, the number of sleeping rooms, chair ownership and the possession of a functional mobile phone.[12] The assumptions of overall sampling adequacy (Kaiser–Meyer–Olkin (KMO) of >0.5), Bartlett's test of sphericity (p<0.05), commonality of>0.5 and the lack of the complex structure correlation of 0.40 were tested. The latent factor was

then used to divide the wealth index produced by principal components analysis into wealth tertiles. The principal investigator gave 1 day of training to the supervisors and data collectors on the topic and objectives of the study, how to approach the study participants and how to administer the questionnaire. The principal investigator and the supervisors carried out on-site supervision. The principal investigator examined each completed questionnaire for clarity, consistency and completeness before entering the data.

Data processing and analysis

The data were entered into Epi-Data version 4.6 and then exported to STATA version 14 for further analysis. Frequency and cross-tabulations were used to summarise descriptive statistics of the data, and tables were used for data presentation. The breastfeeding failure probability was estimated using the Kaplan–Meier (KM) method and the log-rank test. And KM was again used to compare survival times between groups of categorical variables. Variables with a p value of less than 0.2 in the bivariable analysis were included in the multivariable survival models. Cox regression and parametric regression (exponential, Weibull and Gompertz) models were compared based on AIC and BIC, and the distribution that had the lowest AIC or BIC was considered the best model. Based on the result, the Weibull proportional hazard (PH) model was selected to fit the data set. The Cox PH assumptions were checked using Schoenfeld residual statistics, and the Cox Snell residual test was used for checking the final model adequacy. Then, a multivariable analysis with the Weibull PH model was made. Finally, variables with a p value of less than 0.05 in the multivariable analysis were considered independent predictors of early cessation of breastfeeding (CBF).

Patient and public involvement

Patients and the public were not involved in the design, conduct or reporting of this research. The study was designed by the research team, who determined the objectives, methodology and analysis without direct input from patients or community members. While the study focused on maternal health and breastfeeding practices, the participants (mothers of children aged 2 to 3 years) were recruited based on predefined criteria, and their involvement was limited to providing data through interviews. No formal mechanisms, such as patient advisory groups or public consultations, were used to guide the research process. As such, the perspectives of patients and the broader community were not formally integrated into the research design or dissemination process.

Ethical considerations

The study followed the Helsinki Declaration on Human Subjects Medical Research.[2521] Ethical approval was obtained from the ethical review committee of Mattu University, College of Health Science (Ref. No. RPG/221/14). An oficial letter was written to the Bedele town health office, other relevant offices and both kebeles. Written informed consent was obtained from the study participants after explaining the purpose of the study and anticipated benefits of the research project. The study participants were also informed of their full right to refuse, withdraw or completely reject part or all of their participation in the study. Confidentiality was maintained throughout the research process.

RESULTS

Sociodemographic characteristics of the participants

A total of 462 participants were included in the study, with a response rate of 98.09%. The mean (±SD) age of the mothers was 26.98±5.305 years ranging from 16 to 40 years, most of them 389 (84.2) were married. One-third (32.9%) of the mothers were Muslim religious followers. Out of the total respondents, 181 (39.2%) have attended a diploma or above educational level. The mean (±SD) age of their children was 29.00±3.321 months and more. The distribution of children in the study is almost evenly split by gender, with 51.9 5%were males (table 1).

Obstetric and health service utilisation-related characteristics

All of the mothers had at least one ANC follow-up, and more than half 261 (56.5%) of them had four and above ANC follow-up history. Nearly half (47.6%) of the respondents were multiparas. Of all, 443 (95.9%) respondents gave birth in health institutions, and of which about 81 (17.5%) of them gave birth by caesarean section (table 2).

Maternal breastfeeding-related characteristics

More than half of the mothers (55.4%) had started complementary feeding at 6 months, whereas nearly three-fourths (74.6%) of mothers used bottle-feeding for their current child, and the majority preferred breastfeeding to formula feeding (table 2).

Incidence of early cessation of breastfeeding

After birth, study participants were retrospectively followed for a total of 10 763 person-months (PM)—a measure of the number of individuals and the duration of their involvement in the study, calculated by multiplying the number of participants by the number of months each participant was observed. The average (mean) follow-up time was 23.35 months, with a minimum of 6 months and a maximum of 35 months. The cumulative incidence of early cessation of breastfeeding was 23.38% (95% CI: 19.65, 27.56). The overall incidence rate of early breastfeeding cessation was 11.05 per 1000 PMs, with a 95% CI of 9.15, 13.34).

Survival probability

The cumulative probability of event-free survival was found to be 0.9262, 0.8305, 0.4556 and 0.2441 at the 12 month, 18 month, 24 month and end of the follow-up period, respectively (figure 1). The median survival time was computed at 24 months, which indicates half of the

Table 1 Sociodemographic characteristics of the study participants, Bedele town, southwest Ethiopia, 2022

Variable	Category	Number	%
Maternal age	15–25	46	10
	26–35	310	67.1
	36–45	106	22.9
Marital status of the mother	Single	11	2.4
	Married	397	85.9
	Divorced	27	5.8
	Widowed	27	5.8
Educational status of the mother	Cannot read and write	33	7.1
	Primary education	106	22.9
	Secondary (9–12)	142	30.7
	Diploma and above	181	39.2
Occupation of the mother	Farmer	69	14.9
	Housewife	149	32.3)
	Government employee	116	25.1
	Private work (self-employee)	106	22.9
	Others*	22	4.7
Number of children	1	177	38.3
	2–4	259	56.1
	>4	26	5.6
Religion of mothers	Muslim	152	32.9
	Protestant	138	29.9
	Orthodox	153	33.1
	Others†	19	4.1
Wealth Index	Lower	154	33.3
	Middle	155	33.5
	Higher	153	33.1
Child's sex	Male	240	51.9
	Female	222	48.1

*Daily laborers, students .
†*Catholic, 7th day Adventist*.

study participants who ceased breastfeeding at 24 months. Furthermore, a Kaplan–Meier hazard estimate revealed that mothers who gave birth by caesarean session used bottle feeding (figure 2), and those who started food or liquid before 6 months had an increased risk of early breastfeeding cessation than their counterparts.

Predictors of time to breastfeeding cessation

As variable selection precedes model diagnostics, eight factors significantly associated with the cessation of breastfeeding in the bivariate analysis with p values of less than 0.2 were included in the multivariable survival model. The Weibull PH model, which has the lowest AIC when compared with other models, was used to examine the predictors of early breastfeeding cessation. The pseudo-VIF values ranged from 1.1 to 1.79, showing that the independent variables did not have collinear relationships. The PH assumption was satisfied as the Schoenfeld residual test of the assumption was not significant (with a global p value of 0.146). Furthermore, the Cox Snell residual plot revealed that the model's goodness of fit was fulfilled because the cumulative hazard plot follows a 45° straight line through the origin with slope 1. In the multivariable Weibull PH model, there are five independent variables (educational status, number of children, ANC follow-up, bottle feeding and starting complementary feeding before 6 months) were identified as independent predictors of hazard of early breastfeeding cessation after controlling for other variables (table 3).

Keeping other variables constant, the hazard of early cessation of breastfeeding for mothers with diplomas and above was 2.49 times higher compared with those with no formal education (AHR=2.49, 95% CI (1.27, 4.90)). The probability of early cessation of breastfeeding for mothers who have four or more ANC follow-up was 40% lower than their counterparts (AHR=0.60: 95% CI 0.37, 0.96). Likewise, the risk of early cessation of breastfeeding decreased by 68% for mothers who did not use bottle feeding, compared with those mothers who used bottle feeding for their children (AHR=0.32, 95% CI: 0.13, 0.76). Similarly, the probability of early cessation of breastfeeding was 1.82 times higher among mothers who started complementary feeding before 6 months than mothers who had started complementary feeding at 6 months (AHR=1.82: 95% CI: 1.40, 2.37). Respondents with 2–4 and ≥4 children had also 2.82- and 3.66-times higher risk of early cessation of breastfeeding compared with those mothers with one under-five child (AHR=2.82, 95 CI (1.73, 4.61) and (AHR=3.66, 95% CI (1.36, 9.87), respectively (table 3).

DISCUSSION

The study tried to identify the time to cessation of breastfeeding among mothers of children aged 2–3 years in southwest Ethiopia. The study revealed a notable total incidence rate of early breastfeeding cessation, calculated at 11.05 per 1000 PM observations, with a 95% CI of 9.15, 13.34. This figure, notably higher than the findings of a study conducted in Northwest Ethiopia,[13] underscores the regional nuances and varying factors influencing breastfeeding practices. The previous study reported an incidence rate of breastfeeding cessation before the infant reaches 24 months, standing at 7.77 per 1000 PM observations. Such disparities between regions illuminate the complex interplay of sociocultural, economic and healthcare factors shaping breastfeeding behaviours and cessation patterns, necessitating tailored interventions and localised strategies to promote sustained breastfeeding practices.[17] Nevertheless, contrasting the current study's results with those from Debre Markos Town unveils intriguing distinctions. In Debre Markos Town, the total incidence rate of breastfeeding discontinuation before the child reached 24 months was notably higher, recorded at 13.70 per 1000 PM observations.[21] This variance could potentially stem from several factors, including the demographic makeup of the study

Table 2 Obstetric, health service utilisation and maternal breastfeeding characteristics of study participants, Bedele Town, Southwest Ethiopia, 1 April 2019 to 31 March 2022

Variable	Category	BFC	
		Event (N, %)	Censored (N, %)
Number of ANC follow-up	< 4 ANC follow-up	65 (58.0)	136 (38.9)
	≥ 4 ANC follow-up	47 (42.0)	214 (61.1)
Total number of deliveries at the birth of the current child	Prim-gravida	32 (28.6)	142 (40.6)
	Multipara	60 (53.6)	160 (45.7)
	Grand multipara	20 (17.9)	48 (13.7)
Place of delivery	Home	2 (0.9)	17 (4.9)
	Health institution	110 (49.1)	333 (95.1)
Mode of delivery	SVD	83 (37.1)	298 (85.1)
	Caesarean section	29 (12.9)	52 (14.9)
Age at the initiation of complementary feeding	Before 6 months	98 (87.5)	108 (30.9)
	At 6 months	14 (12.5)	242 (69.1)
Ever used bottle-feeding for current child	Yes	105 (93.8)	248 (70.9)
	No	7 (6.3)	102 (29.1)
Ever used formula milk for current child	Yes	65 (58.0)	79 (22.6)
	No	47 (42.0)	271 (77.4)
Presence of cow milk in the house	Yes	47 (42.0)	186 (53.1)
	No	65 (58.0)	164 (46.9)
Used cow milk for the current child	Yes	49 (43.8)	189 (54.0)
	No	63 (56.3)	161 (46.0)
Pacifier use	Yes	39 (34.8)	34 (9.7)
	No	73 (65.2)	316 (90.3)

ANC, antenatal care; BFC, breastfeeding cessation; SVD, spontaneous vaginal delivery.

population. Notably, the study in Northwest Ethiopia encompassed both urban and rural mothers, with rural mothers often exhibiting higher rates of sustained breastfeeding practices. Additionally, disparities in socioeconomic status and temporal variations in the study period could further elucidate the observed differences. Such nuanced contrasts underscore the multifaceted nature of breastfeeding behaviours, necessitating a nuanced approach to intervention strategies tailored to specific contexts and demographics. Furthermore, contrasting our study's outcomes with those from Tehran illuminates interesting distinctions. In Tehran, the reported incidence rate of early cessation of breastfeeding stood notably higher, at 16.02 per 1000 PM observation, surpassing the findings of our present study.[26] This difference may derive from methodological disparities; while the Tehran study adopted a registry-based retrospective follow-up approach, our study employed a community-based methodology. Such methodological nuances bear implications for data collection and interpretation, with community-based follow-up studies potentially susceptible to recall bias compared with registry-based counterparts. These divergent methodologies underscore the importance of considering study design intricacies when interpreting and contextualising breastfeeding cessation rates across different settings.

The overall estimated mean follow-up time is 23.35 months (minimum of 6 and maximum of 35 months). The finding of this study is higher than the finding of the study conducted in Tehran (21.49 months).[26] This variation may be explained by differences in the educational levels in the study population, where educated women are more likely to be employed and cease breastfeeding to return to their jobs. On the other hand, this finding is lower than the EDHS report, which revealed that the meantime breastfeeding cessation was 25.64.[12] This might be because the national study is an aggregate data that included both rural and urban mothers, while the current study included urban mothers only and rural mothers are more likely to continue breastfeeding for 2 years or more compared with urban mothers.

Unveiling a noteworthy correlation, our study revealed that the risk of early breastfeeding cessation escalated twofold among mothers with higher educational levels, specifically those holding diplomas or above, compared with their counterparts with no formal education. This trend can be attributed to societal dynamics wherein educated women, often engaged in professional

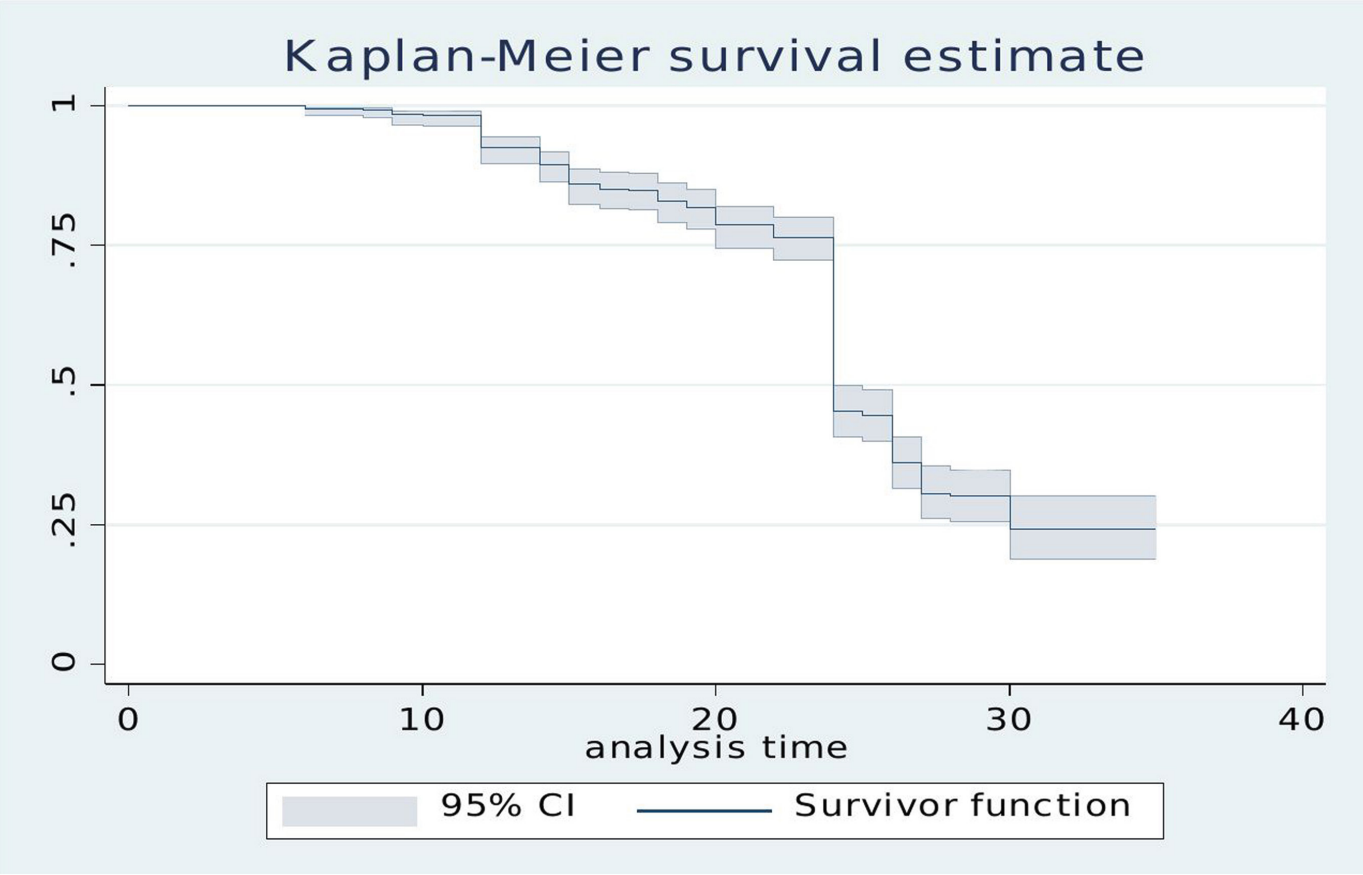

Figure 1 The Kaplan–Meier survival estimates of time to breastfeeding cessation, Bedele town, Southwest Ethiopia, 2022.

endeavours, face pressures to resume full-time employment approximately 4 months postpartum. Remarkably, this finding resonates with similar trends observed in studies from diverse regions such as Kuwait, South Africa and other parts of Ethiopia, suggesting the universality of this phenomenon across varying cultural and socioeconomic contexts.[10 21 27] Such parallels underscore the intricate interplay between education, employment and

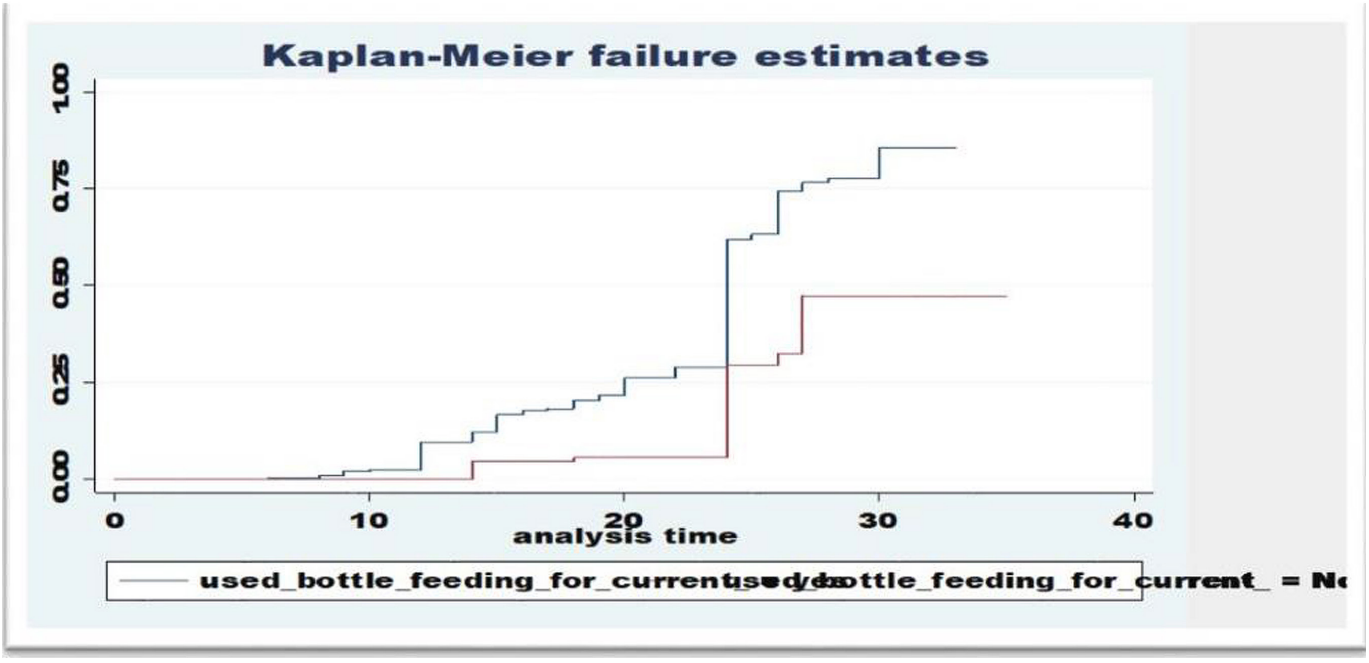

Figure 2 Kaplan–Meir failure/hazard curves by starting food or liquid before 6 months

Table 3 Multivariable Weibull proportional hazard model analysis of time to the cessation of breastfeeding, Bedele town, southwest Ethiopia, 2022

Variables	Categories	Event	Censored	Chr (95% CI])	Ahr (95% CI)
Child sex	Male	165	75	1	1
	Female	185	37	0.48(0.33, 0.72)	0.67([0.42, 1.06)
Educational status	No formal education	24	9	1	1
	Primary education	89	17	1.00 (0.58, 1.73)	(0.99 (0.53, 1.84)
	Secondary (9–12)	124	18	1.69 (1.01, 2.81)	1.74 (0.91, 3.32)
	Diploma and above	113	68	3.68 (2.23, 6.06)	2.49 (1.27, 4.90)*
Wealth Index	Lower	122	32	1	1
	Middle	87	68	1.20 (0.92, 1.56)	1.16 (0.86, 1.56)
	Higher	141	12	0.89 (0.67, 1.17)	0.87 (0.61, 1.24)
Number of children	One	149	28	1	1
	2–3	185	74	1.99 (1.29, 3.08)	2.82 (1.73, 4.61) *
	≥4	16	10	3.09 (1.5, 6.37)	3.66 (1.36, 9.87) *
Number of ANC follow-up	<4	214	47	1	1
	≥4	136	65	0.58(0.40, 0.84)	0.60(0.37,0.96] *
Bottle feeding	Yes	248	105	1	1
	No	102	7	0.16 (0.07, 0.35)	0.32 (0.13, 0.76) *
Started complementary feeding before 6 months	No	242	14	1	1
	Yes	108	98	2.21 (1.76, 2.77)	1.82 (1.40, 2.37) *
Cow milk at home	Yes	186	47	1	1
	No	164	65	1.37 (0.94, 1.99)	0.82 (0.52, 1.32)
Mode of delivery	SVD	298	83	1	1
	CS	52	29	2.13 (1.39, 3.26)	1.06 (0.64, 1.75)

P value < 0.05
AHR, adjusted hazard ratio; CHR, crude hazard ratio.

breastfeeding practices, advocating for tailored support systems to facilitate sustained breastfeeding among working mothers across global landscape.

Mothers with many children have a higher hazard of early cessation of breastfeeding compared with those mothers with few children. This finding is supported by several studies.[17 21 26] The underlying mechanism behind this association may stem from the escalating demands on mothers as the size of their family expands. With each additional child, the maternal workload and caregiving responsibilities multiply, inevitably encroaching on the breastfeeding duration for the current infant. Consequently, mothers may find themselves compelled to stop breastfeeding prematurely. This observation underscores the critical importance of family planning initiatives in ensuring optimal breastfeeding practices and maternal well-being. By empowering mothers to make informed choices regarding the spacing of their children, family planning interventions can help mitigate the challenges posed by large family sizes, thereby promoting sustained breastfeeding and fostering healthier outcomes for both mother and child.

Our study unveiled a noteworthy trend: mothers initiating complementary feeding before the recommended 6 month mark had a heightened hazard of early breastfeeding cessation. This correlation may stem from the possibility that mothers opt for formula milk alongside solid or semi-solid food's introduction, potentially hastening the discontinuation of breastfeeding. Interestingly, this observation diverges from findings in a study conducted among HIV-positive mothers in southern Ethiopia, where such a correlation was not evident.[24] This inconsistency likely arises from variances in the study populations, emphasising the nuanced interplay of factors influencing breastfeeding practices across different demographic and health contexts. Such disparities underscore the importance of tailored interventions and targeted support systems to promote optimal breastfeeding practices tailored to specific population needs and health considerations.

Using bottle feeding was also an independent predictor of time to cessation of breastfeeding. The risk of early cessation of breastfeeding was lowered by 68% for mothers who did not use bottle feeding for their children compared with those who did. This finding is supported by research done in Brazil and Tehran.[26 28] This may be because, bottle-fed babies learn to use a different kind of sucking action at the

bottle than at the breast, which might be the reason for the early cessation of breastfeeding. This finding implies the need for behavioural change communication on optimal child feeding practice.

The probability of early cessation of breastfeeding among mothers who had four or more ANC follow-ups was lower. Mothers who had four or more ANC follow-ups had a 40% lower probability of ceasing breastfeeding early compared with their counterparts. This finding is supported by the study conducted in Northwest Ethiopia.[17] The rationale behind this correlation lies in the notion that frequent visits to health facilities afford women opportunities to glean vital health-related insights, thereby bolstering their understanding of optimal infant feeding practices. Thus, the repeated ANC visits emerge as a valuable avenue for disseminating crucial information. This study had some limitations; the major one is recall bias, which might have led to an overestimation or underestimation of the actual time of breastfeeding duration. Another limitation of this study was that some important possible factors that could affect early CBF practice were missed due to incompleteness of information, such as the HIV sero-status of the mother since the study was a community-based study.

CONCLUSION

The cumulative incidence rate of early cessation of breastfeeding was 23.38%. The total incidence rate of early cessation of breastfeeding was found to be 11.05 per 1000 PM. Educational status of the mother, bottle feeding, starting food or liquid before 6 months, the number of ANC follow-up and the number of children were significant predictors of the time to CBF. Therefore, strengthening maternal health education and breastfeeding counselling both at the health facility and community levels through incorporating these significant predictors as one part of education is forwarded to prolong the duration of breastfeeding. In addition, an employer-based programme to support breastfeeding among working mothers should be endorsed and implemented.

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