

Exclusive Breastfeeding Practice and Its Associated Factors among Mothers with Infants Aged Less Than Six Months in Nono, Western Ethiopia: A Cross-Sectional Study

Tesfaye Solomon^{1*}, Gerba Fufa², Teka Girma³

¹Ethiopian Public Health Institute, Addis Ababa, Ethiopia; ²West Shewa Zonal Health Department, Ambo, Ethiopia;

³Public Health Department, Ambo University, Ambo, Ethiopia

ABSTRACT

Background: Exclusive breastfeeding is the best and cost-effective intervention to prevent childhood morbidities and mortalities in developing countries. But there was no evidence in the study area regarding the practice of exclusive breastfeeding and its associated factors. Therefore, this study was aimed to assess exclusive breastfeeding practice and its associated factors in a rural district, the Western part of Ethiopia.

Methods: A community-based cross-sectional study was conducted from August 15-30, 2020 among 565 mothers who have an infant less than six months in Nono District. Study participants were selected using random sampling. Data on infant breastfeeding practice were collected by trained interviewers by using a structured questionnaire. Multivariable logistic regression analysis was used to determine factors associated with exclusive breastfeeding. Statistical significance was declared at $P < 0.05$ at 95% confidence interval.

Results: A total of 565 participants were participated in this study, giving a 95.9% response rate. The prevalence of exclusive breastfeeding practice was 70.8%. Age of Mothers (AOR=2.67, 95%CI=1.79, 4.60), attended antenatal care during the recent pregnancy (AOR=2.31, 95%CI=1.31,4.71), attended delivery in health facilities (AOR=1.34, 95%CI=1.21,2.11), having information about exclusive breastfeeding (AOR=2.34, 95%CI=1.13,4.76) and knowing the importance of exclusive breastfeeding (AOR=1.46, 95% CI=1.12, 3.73) were associated factors with exclusively breastfeeding.

Conclusions: The prevalence of exclusive breastfeeding among infants less than six months in the Nono district was 70.8%. Factors associated with exclusive breastfeeding were the age of mothers, antenatal care service utilization, place of birth, mothers' information about breastfeeding, and knowledge of mothers about the importance of exclusive breastfeeding. Therefore, it is recommended that awareness should be continuously raised and pregnant women should be encouraged to attend health facilities for antenatal care and delivery by health service providers hence improving exclusive breastfeeding.

Key words: Exclusive Breastfeeding, Factors, Practice, Ethiopia

List of Abbreviations

ANC: Antenatal Care; AOR: Adjusted Odd Ratio; CHIS: Community Health Information System; CI: Confidence Interval; COR: Crude Odd Ratio; CSA: Central Statistical Agency; EBF: Exclusive Breastfeeding; EDHS: Ethiopian Demographic and Health Survey; FGD: Focus Group Discussion; HCW: Health Care Worker; HEW: Health Extension Worker; KI: Key Informant; PI: Principal Investigator; PNC: Postnatal Care; UNICEF: United Nations Children's Fund; WHO: World Health Organization

*Correspondence to: Tesfaye Solomon, Ethiopian Public Health Institute, Addis Ababa, Ethiopia, India; Tel: 251920117147; E-mail: abdiikoo50@gmail.com

Received: May 21, 2021; Accepted: June 05, 2021; Published: June 12, 2021

Citation: Solomon T, Fufa G, Girma T (2021) Exclusive Breastfeeding Practice and Its Associated Factors among Mothers with Infants Aged Less Than Six Months in Nono, Western Ethiopia: A Cross-Sectional Study . J Women's Health Care 10:538. doi:10.35248/2167-0420.21.10.538.

Copyright: © 2021 Solomon T, et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

Background

Exclusive breastfeeding (EBF) has been defined by the World Health Organization (WHO) as the infant has received only breast milk from his/her mother or a wet nurse, or expressed breast milk, and no other liquids or solids, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines [1].

Studies have demonstrated that it reduces deaths in infants and young children [2], especially it prevents death in low and middle-income countries due to preventable causes [3, 4]. EBF has important benefits for both the mother and child [5]. Babies who are breastfed exclusively for six months experience fewer illnesses because breast milk contains nutrients and substances that protect the baby from several infections and major childhood conditions, and it leads to improved cognitive development [6].

Breastfeeding is a well-established and recommended intervention for the improvement of child nutrition. EBF for the first six months of infants' life is a cost-effective intervention in saving children's lives and it is recommended by the WHO and United Nations International Children's Fund (UNICEF) that mothers initiate breastfeeding within the first hour after birth [7].

With exclusive breastfeeding universal coverage of 90%, approximately 13% to 14% of the deaths of infants and young children less than five years of age can be prevented in low and middle-income countries (3). WHO has set a target to increase the EBF rate to 50% by 2025 to improve maternal and infant nutrition [8].

Initiation of breastfeeding immediately after birth can reduce the risk of neonatal mortality in the first week of life by 22% globally. Initiating breastfeeding in the first one hour after birth can decrease the risk of newborn infant mortality by about 45% and exclusively breastfed children were 14 times more likely to survive the first 6 months of life than non-breastfed children [9].

Despite the established benefits of optimal breastfeeding, about 60% of infants in developing countries are not exclusively breastfed for six months and suboptimal breastfeeding is the major cause of over 30% of child deaths, especially in low income settings [10]. Previous studies carried out showed that 39%, 35%, and 52% of infants less than six months received exclusive breastfeeding in developing countries, Africa and Ethiopia respectively [11].

Despite the prevalence of breastfeeding is common in Ethiopia; the practice of exclusive breastfeeding among 0-6months age children differs by region. According to Ethiopian Demographic and Health Survey (EDHS) 2016 nearly all children, i.e., 97% are breastfed at some points while only 58% of infants below the age of six months are exclusively breastfed [9]. These demonstrate that most women do not practice EBF for six months despite breastfeeding practice is a vital component of primary health care. Hence, this study comes up with the magnitude and determinants of exclusive breastfeeding practice in the study area, which helps to promote exclusive breastfeeding practices for the first six months of infant life.

METHODS

Study area

The study was conducted in Nono District of West Shewa Zone, Oromia Regional State, and Western part of Ethiopia. Nono district is located at 214 km away from Addis Ababa, the capital

city and 100 km away from Ambo, zonal town. The district has four health centers and 33 health posts that provide primary health services to the community. Based on 2007 national census conducted by the Central Statistical Agency of Ethiopia (CSA), the district has a total population of 117,395 of which 50% are female, and 1303 are children less than six months of age [12]. Even though breastfeeding is a common experience, there was no published evidence on exclusive breastfeeding in the district. Hence, the study area was selected to fill this gap.

Study Design and Period

A community-based cross-sectional mixed with the qualitative study was conducted. Randomly selected mothers who had an infant less than six months old available at the time of data collection and who lived in the study area were included in this study. Mothers who were severely ill, unable to give the required information, or not presented at home with two visits were excluded. Data were collected from August 15-30th, 2020.

Study Variables

Dependent variable: Exclusive breastfeeding practice

The independent variables were as follows:

Maternal related factors: Include age of mothers, marital status, educational status of mothers, occupation of mothers, mother's knowledge on breastfeeding, and maternal illness.

Obstetric & health service-related factors: Include parity, antenatal care, breastfeeding counseling during pregnancy, place of delivery, mode of delivery, and postnatal care.

Infant related factors: Include age of infant, sex of infant, birth order, birth interval, colostrum feeding status, and infant illness.

Sample size determination

The sample size was calculated by Epi-info version 7 for the prevalence of EBF practice using single population proportion formula by considering the following assumptions: 95% level of confidence, 5% margin of error, and 58% prevalence of exclusive breastfeeding [9]. After considering a 5% non-response rate and design effect of 1.5, the final sample size was 589.

Sampling Techniques

Ten kebeles (28.5%) out of 35 kebeles in the district were selected randomly, supposing they were representative enough. The total sample size was allocated proportionally to the total number of mothers who had had a child less than 6 months in each selected kebele. A list of mothers who had children less than six months were collected from Community Health Information System (CHIS) available at the nearby health post and was used as a sampling frame. Finally, study subjects were selected using a simple random sampling method i.e. a lottery method was used. If more than one mother had an infant less than six months old found in the same house, then the mother with the youngest child was selected. The lottery method was used if mothers had a child of the same age.

Purposive sampling technique was used to select study subjects for qualitative study. Four (two women and two men) focus group discussions (FGD) in which 8-12 participants of women currently breastfeeding infants were selected to participate from kebeles in which quantitative data was not collected. Individuals of similar backgrounds and residents of the study area for more than six

months were included in the same group. For key informant (KI) interview experienced and well-informed health care workers (HCWs) were randomly selected from different health facilities.

Data Collection Tool and Techniques

A structured questionnaire adapted from different works of literature was used to data about socio-demographic characteristics, maternal/infant health service utilization, breastfeeding practices and related factors, and barriers to exclusive breastfeeding.

For qualitative study data, the collection instrument was an interview guide for FGD and a semi-structured open-ended interview guide for key informant. The questionnaire was originally prepared in English and translated into Afan Oromo by a language expert and back into English by another expert to ensure its consistency. The questionnaires were administered to mothers currently breastfeeding from the selected source population by trained data collectors through a face-to-face interview. Supervision was conducted on the process of the data collection. Ten trained health extension workers were recruited for data collection from nearby kebeles and supervised by three Public Health Officers and two BSc Nurse (1 supervisor per 2 data collectors) from the catchment health center.

For qualitative part, the discussion guide was prepared in English and translated into Afan Oromo by a language expert. Then Afan Oromo was retranslated to English to ensure consistency. FGD was held in Afan Oromo and translated to English. The next completed transcription was compared with handwritten notes to fill inaudible phases or gaps in tapes. All FGDs and KIs were tape-recorded, after seeking oral consent from the participants.

Data Quality Control and Management

Data collectors were trained for one day by the principal investigator (PI) about the purpose of the study, how to approach the respondents and how to conduct the interview. Closer supervision was conducted during data collection. Each questionnaire was checked daily by the supervisors and randomly by the PI. The questionnaire was pre-tested on 5% of the total sample in a kebele out of those randomly selected for the study and accordingly, some amendments on jargon questions were made to regulate and ensure its validity.

Data Analysis

Each filled questionnaire was coded and checked manually for completeness and consistency. Then, the data entered into Epidata version 3.1 and exported to Statistical Package for Social Sciences (SPSS) version 22 for further statistical analysis. Frequency distribution was done for categorical data. Measures of central tendency and measures of dispersion were computed for continuous variables. Bivariate analysis was done to select candidate variables with $P < 0.25$ and then entered into a multivariable logistic regression to control for confounding effects. In multivariable logistic regression, Adjusted Odds Ratio (AOR) with 95% Confidence Interval (CI) and $P < 0.05$ was set as a cut-off point to declare for the significance of the association between dependent and independent variables.

For qualitative data, the tape-recorded and note obtained from FGD's and KI's was transcribed by the principal investigator into Afan Oromo and arranged with the written notes taken at the time of discussion and interviewed. Then the obtained information was translated into English. The data were grouped based on thematic

frameworks (thematic areas). Concepts were extracted from themes and presented in narratives, and data were categorized and analyzed thematically. A verbatim quotation was used to illustrate responses on relevant issues and themes. The results were presented in narratives and triangulated with the quantitative information to answer the research question.

Operational Definitions

Exclusive breastfeeding: If the infant fed only breast milk (except for ordered medicines and vitamins by health professionals) one day (24hrs) before the survey was conducted.

Infant: A person from birth to 12 months of age; and in this study children aged 0-6 months were considered as infants.

Kebele: The lowest government administrative hierarchy.

Pre-lacteal feeding: If an infant within the first three days of life feeds something other than breast milk.

Timely initiation of breastfeeding: If an infant within one hour (including one hour) of birth is put on the mother's breast to feed.

RESULTS

Socio-Demographic Characteristics

In the study, 565 participants participated which made a response rate of 95.9%. Concerning ethnicity, 463 (81.9%) study participants were Oromo and 19 (16.1%) were Amhara. The majority (58.4%) were Orthodox in religion. Concerning the educational status of mothers, the majority (60.5%) could not read and write. The mean age of the mothers was 28 years (standard deviation, $SD \pm 5.0$) (Table 1).

Infant and Maternal Health Service Utilization Characteristics

The majority (91.7%) of the mothers had an antenatal care visit during their recent pregnancy and was counseled about breastfeeding. More than half (55.4%) of the mothers gave birth to their last child in health facilities (Table 2).

The qualitative finding proved that majority of the discussants mentioned the ideal desire of their exclusive breastfeeding and most of the women FGD discussants mentioned, "Breastfeeding is our culture". However, they perceived mixed feeding than exclusive breastfeeding. A 31 years old breastfeeding mother said, "We have been informed by health professionals that giving cow's milk and other foods even water to infants less than six months old are unnecessary".

Women FGD discussants agreed, "Even if, majority of mothers attend antenatal care and get breastfeeding counseling, they did not apply exclusive breastfeeding practice properly". The Men FGD discussants described exclusively breastfed babies as having higher intelligence, physically stronger, and protected from illness. Exclusively breastfed babies described as much healthier than babies who started additional foods or liquids before six months of age.

Knowledge about Breast-Feeding

The majority, 564(99.8%), of mothers had known the importance of breastfeeding. but 70(12.4%) of mothers had known the importance of breastfeeding which is very low. The majority 562(99.5%) of mothers knew to initiate breastfeeding immediately after birth.

Table 1: Socio-demographic characteristics of mothers with infants aged less than six months in Nono, Western Ethiopia, and November 2020.

CHARACTERISTICS	CATEGORY	NUMBER	PERCENT
Age of mother (years)	15-19	16	2.8
	20-24	114	20.2
	25-29	204	36.1
	30-34	151	26.7
	≥35	80	14.2
Religion of mother	Orthodox	330	58.4
	Muslim	147	26.0
	Protestant	87	15.4
	Others*	1	0.2
	Total	565	100.0
Ethnicity of mother	Oromo	463	81.9
	Amhara	91	16.1
	Others**	11	1.9
Educational status mother	Can't read & write	342	60.5
	Primary(1-8)	178	31.5
	Secondary & above	45	8.0
Occupation of mother	Housewife	493	87.3
	Government employed	19	3.4
	Private organization	1	0.2
	Merchant	29	5.1
	Daily laborer	23	4.1
	Single	4	0.7
Marital status	Married	547	96.8
	Others***	14	2.5

Table 2: Infant and maternal health service utilization characteristics of study participants in Nono, Western Ethiopia, November 2020.

CHARACTERISTICS	CATEGORY	NUMBER	PERCENT
Sex of infant	Male	262	46.4
	Female	303	53.6
Age of infant (months)	<1	85	15.0
	1-2	113	20.0
	3-4	255	45.1
	5-6	112	19.8
	Birth order of infant	1	87
	2	118	20.9
	3	138	24.4
	≥4	222	39.3
Birth interval (years)	1-2	218	38.6
	3-4	335	59.3
	≥5	12	2.1
Antenatal care services	Yes	518	91.7
	No	47	8.3
Counseled about breastfeeding during Antenatal Care (ANC)	Yes	518	91.7
	No	47	8.3
Place of birth	Health facility	313	55.4
	Home	252	44.6
Mode of delivery	Vaginal	528	93.5
	Cesarean section	37	6.5
Postnatal care	Yes	305	54.0
	No	260	46.0
Counseled about breastfeeding during Postnatal Care (PNC)	Yes	200	35.4
	No	365	64.6

A 27 years old mother explained her knowledge about the importance of breastfeeding for infant health as shown in the following extract. "Feeding a baby only breast milk for the first 6 months is becoming our culture due to the information we got from the health facility and the house-to-house visits of the health extension workers. Our current practice is only breast milk, no other additional foods for the first 6 months." Some women of FGD discussants mentioned that they do not know the importance of breastfeeding for maternal health.

Exclusive Breastfeeding Practices

The prevalence of exclusive breastfeeding practice was 400(70.8%). Among mothers who did not exclusively breastfeed their infant, perception of breast milk only being not sufficient for the infant 113(68.5%) was the main reason mentioned. More than half, 328(58.1%), of mothers have been advised about exclusive breastfeeding by their husbands (Table 3).

In-depth interviews identified that poor knowledge was the main barrier to exclusive breastfeeding. For instance, a 29 years old rural health extension worker expressed that "Mothers do not consider breast milk as adequate and important."

Among qualitative findings, both men and women FGD discussants raised that the reasons for not exclusively breastfeeding were due to different perceptions of the community such as breast milk only not sufficient, babies thirsty unless they drink water, breast milk alone enough for only the first two months, and workload of mothers. The role of the father was as a supporter, the expectation being that they were responsible for financially supporting the

family and enabling the purchase of food that would contribute to the health of the mother and their children. The men FGD discussants perceived that exclusive breastfeeding is important for babies but not for mothers. For example, a 24 years old breastfed mother explained, "The baby fed with breast milk for 6 months will have better health. If I breastfeed for six months, it will be good for the health of the baby but not for the mother."

Regarding the importance of breastfeeding for the mothers, the majority of men discussants perceived that mothers frequently breastfeeding their infants and breastfeeding for a long period were physically weak and ill.

EBF is a culturally acceptable practice among all of the participants. The majority 328 (58.1%) of mothers were supported by their husbands to feed their infant exclusively on breast milk. Most 192 (34%) of mothers had heard information about exclusive breastfeeding was from health providers.

A qualitative study showed that only a few fathers participate in caring for children in addition to financial supporting of the family. As FGD discussants mentioned that, they know different sources of information on the importance of breastfeeding such as health professionals, different Media such as television, radios, and their neighbors. However, most of them have not been following attentively this source of information regarding the importance of breastfeeding. For instance, a 37 years old man from the men FGD group said that "I have Television in my house, health extension workers also counseling our community on the importance of exclusive breastfeeding by going house to house but I didn't follow

Table 3: Breastfeeding practices of mothers with infants aged less than six months in Nono, Western Ethiopia, and November 2020.

CHARACTERISTICS	CATEGORY	NUMBER	PERCENT
Colostrum feeding	Yes	507	89.7
	No	58	10.3
Time interval within breastfeeding started after birth	Immediately within 1 hour	400	70.8
	1 hour up to 1 day	165	29.2
Reason of delaying breastfeeding more than one hour	Caesarian delivery	35	21
	Infant illness	17	10
	Maternal illness	29	18
	Delayed milk secretion	84	51
Type of additional food given to infant before the breast start to flow in the first 3days	Nothing other than breast milk	543	96
	Butter	7	1.3
	Caw milk	15	2.7
Additional food given to infant in the previous 24 hours	Yes	165	29.2
	No	400	70.8
The reason of giving additional food to infant	Decreased milk secretion	22	13.3
	Breast milk only not sufficient	113	68.5
	Infant is thirsty	13	7.9
	Workload	17	10.3
Who advised you on feeding of your infant	Husband/spouse	128	22.7
	My mother	70	12.4
	Mother in law	5	0.9
	Health worker	60	10.6
	My own decision	302	53.5
Role of husband in exclusive breast feeding	He gives advice	328	58.1
	Give economic Support	154	27.3
	Has no role	83	14.7

Table 4: Predictors of exclusive breastfeeding practice among mothers with infants aged less than six months in Nono, Western Ethiopia, 2020.

Characteristics	Category	EBF practice		COR (95% CI)	AOR (95% CI)	P-Value
		Yes	No			
Age of mothers	15-19	7	9	3.49 (1.19, 5.48)*	1.53 (0.22, 2.41)	0.08
	20-24	31	49	2.04 (1.09, 3.80)*	2.67 (1.79, 4.60)*	0.04
	25-29	50	93	1.67 (0.97, 2.88)	1.23 (0.72, 2.50)	0.72
	30-34	56	140	1.28 (0.70, 2.24)	1.13 (0.56, 2.77)	0.21
	≥35	28	102	1	1	1
Antenatal care service	Yes	140	378	3.07 (1.68, 5.62)*	2.31 (1.31, 4.71)*	0.00
	No	25	22	1	1	1
Place of birth	HF	233	80	1.48 (1.03, 2.13)*	1.34 (1.21, 2.11)*	0.03
	Home	167	85	1	1	1
Mothers have information about EBF	Yes	221	117	1.97 (1.34, 2.91)*	2.34 (1.13, 4.76)*	0.00
	No	179	48	1	1	1
Mothers know importance of EBF for maternal health	Yes	339	156	3.12 (1.51, 6.44)*	1.46 (1.12, 3.73)*	0.04
	No	61	9	1	1	1

it due to workload as well as because of negligence by perceiving as it is important only for women.”

A 35 years man FGD discussant mentioned on “Health posts didn’t provide their duties regularly, it was closed on most of the working days, because of this my wife has interrupted her ANC follow up and gave birth at home”. Majority of men FGD discussants mentioned that there was no health education given at the community level during different meetings, rather than during home visits. KI interview added, “Breastfeeding mothers experience several challenges in their quest to practice exclusive breastfeeding”. These challenges include knowledge gaps especially for mothers who do not attend ANC follow up.

Barriers of Exclusive Breast-Feeding

Among the barriers mentioned by the participants, 22 (3.7%) of mothers had experienced breastfeeding problems (like mastitis and soreness) and lack of organizational/social support for breastfeeding, 545 (96.5%). The women FGD discussants said, “No adequate information about exclusive breastfeeding was provided to mothers from health care providers.” Thus, mothers who were not breastfeeding infants were implemented properly. Most men FGD discussants said, “Health facilities only invite pregnant mothers during ANC follow up.”

Independent Predictors of Ebf

Bivariate analysis was conducted to select candidate variables with P-value < 0.25. Independent predictors of exclusive breastfeeding practice were determined using multivariable logistic regression. In the final model, variables with P-value < 0.05 were considered significant.

In this study, the mother’s age was found to be an independent predictor of EBF practice. Mothers in the age of 20-24 years interval were found more than two times more likely and exclusively breastfed their infant as compared to those breastfeeding mothers aged 35 and above years [AOR=2.67 (1.79, 4.60)].

Mothers who had attended antenatal care services during their pregnancy exclusively breastfeed their infants two times more likely than mothers who were not attended antenatal care services during their pregnancy [AOR: 2.31 (1.31, 4.71)]. Mothers who attended

delivery in health facilities exclusively breastfeed their infant 1.34 times more likely as compared to mothers delivered at home [AOR: 1.34 (1.21, 2.11)].

Mothers who had information about exclusive breastfeeding were two times more likely to exclusively breastfeed than those mothers who had no information [AOR: 2.34 (1.13, 4.76)]. Mothers who knew the importance of exclusive breastfeeding for maternal health were more than one times more likely to exclusively breastfed their infants up to six months of age when compared with breastfeeding mothers who hadn’t the knowledge on the importance of exclusive breastfeeding of infants less than six months for maternal health [AOR: 1.46 (1.12-3.73)] (Table 4).

DISCUSSION

The purpose of this study was to assess exclusive breastfeeding practice and associated factors during the first six months of age among breastfeeding mothers. This study revealed that the prevalence of EBF in the Nono district was 70.8%. This finding is similar to a study conducted in Goba district, Ethiopia (71.3%) [13], on the other hand, greater than studies in other parts of the country such as Bahirdar (49.1%) [6], and Galkayo, Somali region (5.2%) [3]. However, the result of this study is lower than the study conducted in Ambo district (82.2%) [14], Afar (81.1%) [15], and Gozamin district (74.1%) [16]. Even though breastfeeding is common in the study area, the differences that enable or abandon mothers to EBF their infant during the first six months of age might due to socio-economic and demographic factors.

This study revealed that breastfeeding mothers aged 20-24 years had 2.67 times chance of exclusively breastfeeding their infants who are less than six months years old as compared with breastfeeding mothers of 35 years old and above. This implies that exclusive breastfeeding has a negative association with maternal age. However, this study contradicts the study conducted in Brazil which shows adolescent mothers had a 1.5 times greater risk of abandoning EBF before their babies were six months of age when compared with adult women [17]. The differences might be due to the difference in the study settings.

Mothers’ breastfeeding knowledge has been found significantly associated with EBF. Mothers who knew the importance of exclusive

breastfeeding were 1.46 times more likely to exclusively breastfeed their infants than those who did not know the importance of EBF. This has a similarity with a study finding from Mecha district, North West Ethiopia [18]. This indicates improved knowledge of mothers about the benefits of breastfeeding helps for the health of themselves and their infants.

The finding of this study indicates that the odds of practicing EBF among women who attended by a health care provider in a health facility during childbirth were 1.5 times more likely to exclusively breastfeed their infants than those who were delivered in the home. This study finding is consistent with study findings in Northern Ghana [19] and India [5]. An explanation for the observed association in this study could be that mothers who gave birth with the help of health care provider in health facilities might get the opportunity to be counseled by the delivery attendant on the benefits of early initiation and maintenance of exclusive breastfeeding up to six months.

Women who have information about exclusive breastfeeding were 2.34 times more likely to exclusively breastfeed than those who have no information. This finding is in line with a study conducted in East Ethiopia [20].

In this study, mothers' attendance of ANC service during their pregnancy was significantly associated with exclusive breastfeeding for infants less than six months old. Those mothers who received ANC service were 2.31 times more likely to exclusively breastfeed their infants compared to those who did not receive ANC service. This result is consistent with the study finding in Mecha district, North West Ethiopia [18]. This might be due to counseling of mothers on the importance of breastfeeding in the health facilities during the service delivery.

Strength of the Study

The study used a mix of quantitative and qualitative methods that adds value to make it a stronger study design.

Limitation of the Study

Breastfeeding mothers may interrupt exclusive breastfeeding at age of less than six months after the interview. As a result, this study may not include the recommended length of exclusive breastfeeding (six months) for all exclusive breastfeeding mothers.

CONCLUSION

The prevalence of exclusive breastfeeding among breastfeeding mothers with infants aged less than six months in the study area was 70.8%. Factors associated with EBF were the age of mothers, antenatal care service utilization, place of birth, mother's information about exclusive breastfeeding, and knowledge of mothers about the importance of exclusive breastfeeding contributed to exclusive breastfeeding of infants less than six months old. Therefore, health care providers should raise awareness and encourage pregnant women to attend health facilities for ANC and delivery, and encourage breastfeeding counseling during visits. The District Health Office should develop strategies to improve awareness about exclusive breastfeeding by integrating with concerned bodies to reduce non-optimal breastfeeding practices.

Ethics approval and consent to participate

Ethical clearance was obtained from the Institutional Ethical Review Board (IERB) of Rift Valley University, Ambo Campus School of Public Health, and submitted to Nono District Health

Office. An official letter of permission was written to the respective kebeles by the district health office. Informed oral consent was obtained from study participants after explaining the objective of the study, the benefit, and the risks of participating in this study.

CONSENT FOR PUBLICATION

The Ethics committee approved that the finding of the study could publish since identifying images or clinical details of participants that compromise anonymity was not applicable.

Availability of data and materials

All data supporting our findings are already described and included in the manuscript.

Competing interests

The authors declare that they have no competing interests.

Funding

The authors declare that there is no funding source.

AUTHORS' CONTRIBUTIONS

GF: participated in topic selection, design of the study, performed the data collection, and performed the statistical analysis. TS: participated in the design of the study, statistical analysis, contributed to the finalization of the manuscript, and served as the lead author of the manuscript. TG: participated in the design and statistical analysis. All authors read and approved the final manuscript.

Acknowledgements

Authors are very grateful to the supervisors, data collectors, respondents, and all other individuals for their contributions.

Authors' information

1West Shewa Zonal Health Department, Ambo, Ethiopia; gerbafufa24@gmail.com

2Ethiopian Public Health Institute, Addis Ababa, Ethiopia; abdiikoo50@gmail.com

3Public Health Department, Ambo University, Ambo, Ethiopia; teka_girma@yahoo.com

REFERENCES

1. Abdulmalek LJ. Factors affecting exclusive breast feeding practices in Benghazi, Libya. *Breast*. 2018;4:2.
2. Joshi PC, Angdembe MR, Das SK, Ahmed S, Faruque AS, Ahmed T. Prevalence of exclusive breastfeeding and associated factors among mothers in rural Bangladesh: a cross-sectional study. *Int Breastfeeding J*. 2014;9(1):1-8.
3. Mohamed AA, Mohamud SA, Mohamud FY, Ali KA, Abdulle FA, Hussein AA. Prevalence and Associated Factors of Exclusive Breastfeeding Practices Among Mothers of Infants Less Than Six Months in Galkayo, Somalia: A Community Based Cross-Sectional Study. *Sci J Pub Health*. 2018;6(5):133-139.
4. Azeze GA, Gelaw KA, Gebeyehu NA, Gesese MM, Mokonnnon TM. Exclusive breastfeeding practice and associated factors among mothers in Boditi Town, Wolaita Zone, Southern Ethiopia, 2018: a community-based cross-sectional study. *Int Journal of Pediatrics*. 2019.
5. Ogbo FA, Dhami MV, Awosemo AO, Olusanya BO, Olusanya J, Osuagwu UL et al. Regional prevalence and determinants of exclusive breastfeeding in India. *Int Breastfeeding J*. 2019;14(1):1-2.

6. Mamo K, Dengia T, Abubeker A, Girmaye E. Assessment of Exclusive Breastfeeding Practice and Associated Factors among Mothers in West Shoa Zone, Oromia, Ethiopia. *Obstetrics and gynecology international*. 2020.
7. Mundagowa PT, Chadambuka EM, Chimberengwa PT, Mukora-Mutseyekwa F. Determinants of exclusive breastfeeding among mothers of infants aged 6 to 12 months in Gwanda District, Zimbabwe. *Int Breastfeeding J*. 2019;14(1):1-8.
8. Gupta A, DADHICH JP, Rundall P, Bidla N. Interpreting the World Health Assembly Targets on Exclusive Breastfeeding by 2025: What is expected of each country?. *World Nutrition*. 2019;10(4):152-5.
9. Woldeamanuel BT. Trends and factors associated to early initiation of breastfeeding, exclusive breastfeeding and duration of breastfeeding in Ethiopia: evidence from the Ethiopia demographic and health survey 2016. *Int Breastfeeding J*. 2020;15(1):1-3.
10. Wanjohi M, Griffiths P, Wekesah F, Muriuki P, Muhia N, Musoke RN, Fouts HN, Madise NJ, Kimani-Murage EW. Sociocultural factors influencing breastfeeding practices in two slums in Nairobi, Kenya. *Int Breastfeeding J*. 2016 ;12(1):1-8.
11. Abera M, Abdulahi M, Wakayo T. Fathers' involvement in breast feeding practices and associated factors among households having children less than six months in Southern Ethiopia: a cross sectional study. *Pediatr Ther*. 2017;7(1):1000306.
12. office Ndh. Nono district health office: Annual report, 2019: Silkamba, West Shewa Zone, Ethiopia. Nono district health office, 2019.
13. Setegn T, Belachew T, Gerbaba M, Deribe K, Deribew A, Biadgilign S. Factors associated with exclusive breastfeeding practices among mothers in Goba district, south east Ethiopia: a cross-sectional study. *International breastfeeding journal*. 2012;7(1):1-8.
14. Bayissa ZB, Gelaw BK, Geletaw A, Abdella A, Alemayehu A, Yosef A, Tadele K. Knowledge and practice of mothers towards exclusive breastfeeding and its associated factors in Ambo Woreda West Shoa Zone Oromia Region, Ethiopia. *International J of Res and Develop in Pharmacy & Life Sci*. 2015;4(3):1590-1597.
15. Liben ML, Gemechu YB, Adugnew M, Asrade A, Adamie B, Gebremedin E, Melak Y. Factors associated with exclusive breastfeeding practices among mothers in dubti town, afar regional state, northeast Ethiopia: a community based cross-sectional study. *Int Breastfeeding J*. 2016;11(1):1-6.
16. Hunegnaw MT, Gezie LD, Teferra AS. Exclusive breastfeeding and associated factors among mothers in Gozamin district, northwest Ethiopia: a community based cross-sectional study. *Int Breastfeeding J*. 2017;12(1):1-8.
17. Bomfim LT, Novaes TF, Bonanato K, Navarro RS, Tedesco TK, Imparato JC et al. Factors related to the practice of exclusive breastfeeding in different cities of the States Minas Gerais and Bahia, Brazil. *Pesquisa Brasileira em Odontopediatria e Clínica Integrada*. 2017;17(1):1-0.
18. Mazengia AL, Demissie H. Knowledge and Practice of Employed Mothers towards Exclusive Breastfeeding and Its Associated Factors in Mecha District, Northwest Ethiopia. *J of Nutrition and Metabolism*. 2020;2020.
19. IDDRISU S. Exclusive breastfeeding and family influences in rural Ghana: a qualitative study.
20. Egata G, Berhane Y, Worku A. Predictors of non-exclusive breastfeeding at 6 months among rural mothers in east Ethiopia: a community-based analytical cross-sectional study. *Int Breastfeeding J*. 2013;8(1):1-8.