

# Level of Exclusive Breastfeeding and Its Enabling Factors Among Lactating Women Who Delivered in Health Facilities of Asosa Town, Ethiopia: a Cross Sectional Study

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## Research Article

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# Abstract

**Background:** Despite the enormous benefit of exclusive breastfeeding (EBF) to mothers and infants, the practice of exclusive breastfeeding is globally low. In sub-Saharan Africa and Ethiopia, the prevalence of EBF stands at 35% and 58%, respectively. The low EBF practice in Ethiopia calls for further study and thus we studied the EBF practice in the study area since little is known about its current magnitude and factors influencing its practice for some programmatic improvements.

**Methods:** A cross-sectional study was conducted from June-July 2019 among 412 mothers who delivered in health facilities of Asosa town. Data on socio demographic characteristics and other important variables were collected through face to face interview by trained health extension workers in accordance with relevant ethical guidelines and regulations. The collected data were then cleaned and entered into Epi-data software version 3.02. Analysis was done by SPSS version 20. Binary and multivariate logistic regression were performed to identify the contributing factors. P-value of less than 0.05 and 95% confidence interval was considered to determine statistical significance.

**Results:** Of the 412 respondents, the majority (88.1%) were multi-gravida and above. Less than a quarter (26.0%) and over half (55.4%) had neither received antenatal nor postnatal care. The proportion of mothers who exclusively breastfed their children was 76.0% and the overall aggregated good practice of EBF score was 64.1%. mothers who completed primary school [AOR=4.5; 95%CI=1.1,18.2], had three or more ANC [AOR=0.018;95CI=0.003-0.12], and postnatal follow-up [AOR=0.218;95%CI=0.07-0.67], and had male infants [AOR= 2.3; 95%CI=1.0-4.95] were among the enabling factors influencing the exclusive breastfeeding practice score.

**Conclusion:** Women's retention on the continuum of the maternal care pathway is low with about a quarter of mothers were not practicing EBF and one in two had no postnatal care. To narrow the observed maternal and child health disparities, it is essential to intervene through focused actions that address the above enabling factors.

## Introduction

Exclusive breastfeeding (EBF) has been defined as provision of breast milk only to infants from their biological mothers wet nurses' expressed milk with the exception of medicines (1). Feeding breast milk (BM) alone for the first six months of life is adequate because it contains all the necessary nutrient requirements in terms of quantity as well as quality in addition to its immunological properties which protects the infants from frequent illnesses and improves his/her chance of survival (2).

It is widely documented that the first year of life is very central for all growing child in improving the quality of life and thus nature has provided them with is a perfect natural food that contains all the essential nutrients needed for growth and development. To maximize the benefits obtained from BM, infants need to be fed demand at least 8 times in 24 hours (3). Infants that are exclusively breastfed are often healthier than their counterparts during their first year of life and consequently retards their growth

(4). Other benefits documented are economical such as reducing healthcare costs (5, 6) improving maternal-child bonding, lowering the risk of developing non communicable diseases and beyond (7).

Breast milk is the healthiest form of milk for human babies with few exceptions like when the mother is taking certain drugs or is infected with tuberculosis or HIV (8). Because of its enormous benefits, researchers advise the use of human milk to feed their babies, especially the initial milk, called colostrum, rich in immunoglobulins that coat the gastrointestinal tract and protect the newborns until their own immune system starts properly functioning and creates a mild laxative effect, expelling meconium and preventing the buildup of bilirubin (9).

The World Health Organization (WHO) and UNICEF strongly recommend mothers to breastfeed their newborns within one hour after birth and continue doing so exclusively for the first six months of life (10, 11). Despite the aforementioned recommendations, the proportion of mothers who practiced EBF was 52.0% in 2011, and 58.0% in 2016 based on the Ethiopian Demographic Health Survey reports (12–13). Although the 2016 survey report showed a slightly increment in the proportion of mothers to EBF the practice declined with age from 74% in 0–1 months to 36% in 4–5 months with some regional variations. A more recent pocket study in rural Ethiopia reported EBF practice of 43.6% which is even lower than the 2016 national findings (14). It is important to note that the observed gap in EBF practice is not only due to lack of awarenesses—it is compounded by low physical access to health care facilities, economic, societal and cultural settings (15–18) are among other barriers to EBF practice. Such information however is limited in the studied area and thus we studied the level of EBF and its enabling for some programmatic improvements.

## Methods

### Study area and population

A facility based cross sectional study was conducted from June to July 2019 in Assosa town, the capital city of Benishangul-Gumuz (BG) among lactating mothers. BG is amongst the nine regional states of the Federal democratic republic of Ethiopia and is composed of 3 zones and 20 districts. This region shares common borders with the state of Amhara in the East, the Sudan in the North-East, and the state of Oromia in the South. The town has one public hospital and one health center which provide health care services for over 600,000 inhabitants. The study participants were all postnatal volunteer mothers who visited the facilities during the study period.

### Sample size determination, data collection, processing and analysis

The sample size required was determined using single population proportion formula assuming a proportion of 34.7% were knowledgeable on EBF (19) with level of significance of 5% ( $\alpha = 0.05$ ), 95% confidence level ( $Z_{\alpha/2} = 1.96$ ) and absolute precision or margin of error of 5% ( $d = 0.05$ ) and 10% for non-response rate which inflated to 412. Of these, 80 and 332 of the expected participants were distributed to

the health center and the hospital, respectively proportionately and subsequently enrolled them in order of arrival until the required sample size was reached.

To standardize the data collection process, 2 days training was given for the health extension workers who were hired temporarily to serve as data collectors. Data on sociodemographic, obstetric factor, neonatal factor and culture related variables were collected from all sampled participants through face to face interview. Six practice questions were included in the tool to assess practice of EBF and distributed as; 1) breastfeed your last child (2 items); 2) initiation of breastfeeding (3 items); 3) frequency of BF (3 items); 4) substance given before initiating BF (2 items); 5) types of Prelacteal feeding (4 items) and 6) child BF from 0–6 months only breast milk (2 items). The items in each construct were then added together, with equal weights, to generate the mean score and then categorized the collected information into good and poor EBF practices when the overall mean scores of the is above and below the mean, respectively.

Data were entered and analyzed using SPSS software version 25.0. Binary and Multiple logistic regressions was used to analyze the contributory factors for EBF. A p-value less than 5% was declared as statistically significant.

## **Results**

### **Sociodemographic Characteristics**

All the 412 enrolled mothers were interviewed and responded adequately with 100% response rate. The proportion of mothers belonging to the age of 26–35 years was 70.1% and 165(40%) were Orthodox Christians. Less than a quarter (20.1%) were unable to read and write and about one-third (30.3%) were housewives. About half (47.6%) were from rural settings and most (76.5%) of them were earning below 5000 ETB 52.4 (Table 1).

Table 1  
 Respondents sociodemographic characteristics

<b>Respondents Characteristics</b>	<b>Number</b>	<b>Percent</b>
<b>Age of the mother</b>		
< 25 years	82	19.9
26–35 years	289	70.1
36–45 and above	41	10
<b>Religion of the mother</b>		
Orthodox	165	40.0
Muslim	124	30.1
Catholic	41	10.0
Protestant	82	19.9
<b>Marital status</b>		
Married	306	74.3
Single	33	8.0
Divorced	65	15.8
Widowed	8	1.9
<b>Educational status of the mother</b>		
Unable to read and write	83	20.1
Read and write	163	39.6
Primary school	58	14.1
Secondary school	52	12.6
10 + 2 and above	56	13.6
<b>Maternal Occupation</b>		
Government Employee	124	30.1
Private Employee	163	39.6
House Wife	125	30.3
<b>Residency</b>		
Urban	216	52.4
ETB-Ethiopian Birr (1 USD is equivallen to 39 ETB)		

<b>Respondents Characteristics</b>	<b>Number</b>	<b>Percent</b>
Rural	196	47.6
<b>Income</b>		
< 1500	154	37.4
1500–2500	71	17.2
2501–5000	90	21.8
> 5000	97	23.5
ETB-Ethiopian Birr (1 USD is equivallen to 39 ETB)		

### **Maternal Behavior Before and after Delivery**

Of the 412 respondents, the majority (88.1%) were multi-gravida and above. Less than a quarter (26.0%) had no antenatal care. The proportion of mothers who had three and more ANC was 61.9%. Over half (55.4%) had no postnatal care showing women's retention on the continuum of the maternal care pathway is low. The proportion of mothers who had normal range of gestational age, low birthweight and exclusively breastfed their children was 79.9%, 12.2% and 76.0%, respectively (Table 2).

Table 2  
Maternal behavior before and after delivery

<b>Maternal Characteristics</b>	<b>Number</b>	<b>Percent</b>
<b>Gravidity</b>		
Primigravida	49	11.9
Multigravida	245	59.5
Grand multipara	118	28.6
<b>Antenatal care (ANC)</b>		
None	111	26.9
only one times	43	10.4
Twice	3	0.7
More than 3	255	61.9
<b>Postnatal care (PNC)</b>		
Yes	184	44.7
No	228	55.3
<b>Gestational Age</b>		
32–37weeks	83	20.1
37- 42weeks	329	79.9
<b>Child birthweight</b>		
< 2500 gm	71	12.2
2500-4000gm	176	42.7
> 4000gm	85	20.6
Unknown	80	19.44
<b>Breastfed the child exclusively</b>		
Yes	313	76.0
No	99	24.0

### Maternal Practice Towards Exclusive Breastfeeding

Table 3 displays the maternal experiences towards EBF. Most (70.1%) of the mothers breastfed their infants and 248(60.2%) initiated BF immediately, and over one-third (39.8%) fed their infants regularly

ever 3–4 hours. Eighty two (19.9%) had provided pre-lacteal feeding of whome, 12.3% gave plain water, cow's milk in 10.9%, butter in 24.4% and formula milk in 52.4%. The overall aggregated good EBF practice score was 64.1%,

Table 3  
Maternal practice towards Exclusive Breastfeeding

<b>Characteristics</b>	<b>Number</b>	<b>Percent</b>
<b>Breastfeed the infant</b>		
Yes	289	70.1
No	123	29.9
<b>Initiation of breastfeeding after delivery</b>		
Immediately	248	60.2
Between 2 and 24 hours	123	29.9
After 24 hours	41	10.0
<b>Frequency of breastfeeding</b>		
On demand	124	30.1
Regularly every 3–4 hours	164	39.8
Randomly	124	30.1
<b>Pre-lacteal feeding</b>		
Yes	82	19.9
No	330	80.1
<b>Types of Pre-lacteal feeding provided (n = 82)</b>		
Plain water	10	12.3
Cow milk	9	10.9
Butter	20	24.4
Formula milk	43	52.4
<b>Since birth to 6 months child was given</b>		
Breast milk only	313	76.0
Formula milk	99	24.0
<b>Overall Practice of EBF score</b>		
Good	264	64.1
Poor	148	35.9

Prior to the regression analysis, maternal responses on the six dichotomized practice questions were fit into the binary regression model. The output revealed that mothers that had education, from urban setting, had antenatal and postnatal follow-up, and gave birth to male child were significantly associated with practicing EBF. Nonetheless, in the multivariate regression analysis, only mothers who had completed primary schooling [AOR = 4.5; 95%CI = 1.1,18.2], had three and more ANC [AOR = 0.018;95CI = 0.003–0.12] and postnatal follow-ups[AOR = 0.218;95%CI = 0.07–0.67], and had delivered male infant [AOR = 2.3; 95%CI = 1.0-4.95] retained their significant association with exclusive breastfeeding practice score. Although more mothers that had received information from health facilities adhered to EBF, there was no significant association with the EBF practice (Table 4).

Table 4  
Maternal and child factors contributing to practice exclusive breastfeeding

Characteristic	EBF score		COR95%CI	AOR95%CI
	Good	Poor		
<b>Education status of mother</b>				
Unable to read and write	9	42	1	1
Read and write	39	87	2(0.93–4.7)	0.26(0.06–1.02)
Primary school	96	19	23.6(9.8–56.4) *	4.5(1.1–18.2) *
Secondary school	49	57	4(1.8–9.06) *	0.54(0.13–2.35)
10 + 2 and above	13	1	60(7.01–524.8) *	8.5(0.77–94.3)
<b>Residency</b>				
Urban	133	83	2.7(1.8–4.02) *	2.3(1.17–04.56)
Rural	73	123	1	1
<b>Frequency of ANC follow up</b>				
None	18	93	1	1
One	3	40	0.12(0.06–0.23) *	0.14(0.06–0.36) *
Twice	0	3	0.046(0.013–0.16) *	1.7(0.86–3.5)
Three and more	185	70	2.2(1.4–3.6) *	0.02(0.003–0.12) *
<b>Infant gender</b>				
Female	80	111	1	1
Male	126	95	0.54(0.36–0.8) *	2.3(1.0-4.95) *
<b>Received PNC</b>				
Yes	105	166	2.4(1.55–3.55) *	0.22(0.07–0.67) *
No	45	88	1	1
<b>Source of information</b>				
Friends	44	41	1	1
Mass media	48	80	0.55(0.32–0.97)	1.7(0.6–5.4)
Facilities	114	85	1.25(0.75–2.18)	0.7(0.29–1.75)
*Denotes significance (p < 0.05); COR = Crude odds ratio; AOR = Adjusted odds ratio				

## Discussion

The world health organization adopted a comprehensive strategy called the Continuum of Care to improve reproductive, maternal, neonatal, and child health (20–21). In view of this, we studied the behavior of lactating mothers EBF practice and the factors enabling towards EBF practice among mothers who recently delivered in the two available health facilities of the town. Based on our findings, about three-fourth adhered to EBF which indicates that present finding is better than the the 2016 national figure reported by Ethiopian Demographic Health Survey report (13) which was 58%. It is likely to see such discrepancies since the nature of the sampled mothers enrolled in our study were all from health facilities suggesting that they all had probably accessed the services provided and to some extent attributed to their awarenesses about the importance of breastfeeding.

Though breastfeeding is almost universal in Ethiopia and exclusive breastfeeding up to 6 months after birth is an important contraceptive method, the status of exclusive breastfeeding in the studied area as well as in the country is less than the global recommendations (22) calls for more focused advocacy work to be done in this regard.

The good practice when compared with previous studies report, our study is concordant with Mizan-Aman town findings which reported 60.2% of the mothers to initiate breastfeeding immediately within an hour (60.2% vs 60.1%). The similarity of the findings is attributed to the fact that all the sampled mothers are from health facilities where they had access to appropriate counselling on newborn feedings (19, 23) though still more is expected to achieve a better result and maximize the benefits of EBF.

In this study, pre-lacteal feeding (PF) observed is higher compared to the findings reported by other authors (18, 22–24). The differences may be attributed to time constraints emanating from work related activities - most mothers with better education often get better job with better income and often such mothers rush to their work and consequently forced to practice PF. There could be others as well which need further exploratory study. The most common PF given in this study was plain water, cow's milk, butter and formula milk. Compared with the Mizan Aman findings on provision of water (12.3% vs 48.2%), and cow's milk (24.4% vs 50.2%), our finding is by far better. These differences might be due to the socioeconomic factors and to some extent to maternal awareness towards EBF though needs further study.

The major enabling factors that influenced mothers to adhere to EBF were education, proper antenatal and postnatal cares, and infant's gender. Mothers who had primary education were 4.5 times more likely to adhere to EBF than their counterparts. Although the education system differs and various experiences exist across the world, some studies reported maternal and paternal educational attainment as a common predictor for maternal service utilization in developing countries including Ethiopia (25–26).

Mothers who had 3 or more antenatal follow-up were 20 percent more likely practicing EBF than those who had none. In the same breath, mothers who had postnatal follow-up also were 22.0% more likely practicing EBF than those who had no PNC. Some previous studies documented service utilization of

mothers to be low particularly among rural women due to the high domestic workload and little time left after attending to essential household chores until term and beyond (27–28).

Interestingly, mothers who delivered male infant were observed to practice 2.3 times more likely than those who delivered females probably due to cultural preferences for males. Unexpectedly, although more mothers that had received information from health facilities adhered to EBF, there was no significant association with the maternal practice of EBF in our study probably due to an unfocused counselling/less trained health educators. This is in contrary to some previous studies where they reported some associations and thus needs to be interpreted cautiously (15, 26). Therefore, this calls for further exploratory study to uncover why the sources of information did not bring the desired/expected change toward EBF practice.

### **Strength and Limitations**

The strength of the study is that it included the available health facilities in the town and has generated some new evidence for programmatic implications to improve the EBF practice in the region. The information generated would be a bench mark for future studies as well. Despite the aforementioned strengths, the findings had some limitations and thus need to be interpreted cautiously since facility-based studies as well as the design employed may make estimates unstable and associations between dependent and independent variables undetectable.

## **Conclusion**

The study has highlighted that women's retention on the continuum of the maternal care pathway is low with about a quarter of mothers not practicing EBF. The major determinants identified to enabled mothers to adhere to EBF were education, antenatal and postnatal cares and infant's gender. To narrow the disparities observed among mothers and their children, it is essential to intervene through focused actions that address the above determinants by all stakeholders since the issue is a cornerstone of public health and it has been reiterated at many international conferences and initiatives to lower morbidities and mortalities of mothers and children (28–29).

## **Abbreviations**

ANC: antenatal Care

AOR: Adjusted Odds Ratio

BG: Benishengul-Gumuz

BM: Breastmilk

EBF: Exclussive Breastfeeding

ETB: Ethiopian Birr

PF: Prolactin Feedings

PNC: Postnatal Care

## Declarations

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### Authors contribution

MK has collected the data and drafted the MS while JH has supervised the work and critically reviewed the draft for the intellect and submitted the MS. All authors had approved the final version of the MS.

### Funding Sources

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### Availability of data and materials

All data generated or analysed are included in this published article.

### Ethics approval and consent to participate

Ethical clearance and approval was obtained from Ethical approval committee of Sante medical college as well as from all relevant sectors of BG Regional state. Each study participant was adequately informed about the purpose, methods, and anticipated benefits of the study by the data collectors. **Written informed consent was also obtained from all** respondents who volunteer and were available at the time of data collection. All participants were interviewed without writing their names to ensure confidentiality. In addition, mothers with poor EBF practice were counselled upon completion of the study. All methods were carried out in accordance with relevant guidelines and regulations.

### Consent for publication

Not applicable.

### Competing interests

The authors declare that they have no competing interests.

### Declaration of interest

No conflict of interest.

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