

# Magnitude and Determinants of Exclusive Breast Feeding Among Children Age Less Than 23 Months in Bench Maji Zone, Southwest Ethiopia: Cross Sectional Study

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Received: November 27, 2018; Accepted: January 11, 2019; Published: March 25, 2019

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## Abstract

**Background:** Exclusive breastfeeding for 6 months confers many benefits to the infant and the mother. It has protective effect against gastrointestinal infections, which is observed not only in developing but also in industrialized countries. The risk of mortality because of diarrhea and other infections will increase many-fold in infants who are either part breastfed or not breastfed

**Objective:** The objective of this study was to determine magnitude and determinants of exclusive breast feeding among children age less than 23 months.

**Method:** Community based cross sectional study was conducted in Benchimaji zone, south west Ethiopia. Data was collected by interviewer administered questionnaire. A multi stage sampling technique was used to select 845 study participants. Data were entered into a computer using Epi data 3.1 and analyzed using SPSS version 20. Logistic regression was used to identify determinants of exclusive breast feeding.

**Result:** This study found 56 % of children received breast milk exclusively up to 6 months. On multivariate analysis; place of residency, and mother's knowledge about infant feeding practices have shown significant association with exclusive breast feeding.

**Conclusion:** About half of children have exclusively feed breast milk. Place of residency, attitude toward inclusion of animal source of food and knowledge about infant feeding practices were determinants of exclusive breast feeding. Emphasis should be given to exclusive breastfeeding education and counseling to mothers.

**Keywords:** Exclusive breast feeding, breast milk, determinants

## Abbreviations

ANC: Antenatal care; EBF: Exclusive breast feeding; WHO: World health organization; SNNPR: Southern Nations, Nationalities and Peoples Region; SPSS: Statistical package for social science; Ethics approval and consent to participate

## Introduction

Breast milk is that the natural initial food for babies, it provides all the energy and nutrients that the baby wants for the first months

of life, and it continues to produce up to half or a lot of a child's nutritional needs throughout the second half of the first year, and up to 1/3 during the second year of life. Exclusive breastfeeding implies that the baby receives solely breast milk not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines [1] [2].

Optimal breastfeeding practices have long been recognized to decline neonatal and child mortality. It could save the lives of over 820 000 children under the age of 5 years in each year [3].

Evidences showed that breastfeeding protects against child infections and malocclusion, increases intelligence, and probably reduces overweight and diabetes. For nursing women, breastfeeding gave protection against breast cancer and it improved birth spacing, and it might also protect against ovarian cancer and type 2 diabetes [2].

The scaling up of breastfeeding to a near universal level could prevent 823 000 annual deaths in under five children and 20 000 annual deaths from breast cancer. Recent epidemiological and biological findings from during the past decade expand on the known benefits of breastfeeding for women and children, whether they are rich or poor [2].

Determinants of breastfeeding exclusivity can be grouped into five broad categories of contextual factors: demographic variables, biological factors, attitudinal characteristics, hospital practices, and social variables [4]. Exclusive breast feeding must be understood in a specific context to develop tailored interventions. Since there were no sufficient studies that examined and documented the determinants of exclusive breastfeeding in the study area this study was conducted to assess the magnitude and determinants of exclusive breastfeeding in the study area.

## Method and Materials

### Study Area and Design

Community based cross-sectional study was conducted to identify determinants of exclusive breastfeeding among children age

less than 23 months in Bench Maji Zone, Ethiopia. It is one of the Zones of the Ethiopian Southern Nations, Nationalities and Peoples Region (SNNPR) and found 565km away from the capital city.

### Study Subjects

The source population of this study was children less than 23 months old who lived in Bench Maji Zone. The estimated proportion of children less than two years constitutes 2.1% of the total population of the study area [5]. Sampled mothers with children aged less than 23 months were study population. This range was selected because the optimum duration of breastfeeding practice is recommended to continue to the

### Sample Size Determination and Sampling Technique

The sample size (n) required for the study was calculated using a single population proportion formula. Considering the absence of previous data on most of the issues to be studied; 50 % estimated minimum dietary diversity, 5% marginal error and 95% confidence interval were used to obtain the maximum sample size. With the addition of 10% contingency and design effect 2, initial sample size inflated to 845. To obtain the participants, a two stage cluster sampling technique was used to select kebeles (smallest unit of administration). First, from 11 districts, 3 were selected by lottery method. From 60 kebeles of selected districts, 18 kebeles were selected by lottery method. All eligible households of selected kebeles listed with the help of health extension workers. Finally, 845 study participants were selected by using a systematic random sampling technique. The sample size was allocated proportionally to the population size of selected districts. For more than one eligible mother per household, a mother was selected by lottery method.

### Measurement and Data Collection Tools

Data was collected using a structured questionnaire. The data collection tool regarding the various factors was adopted from previous studies. The questionnaire was pre-tested prior to the actual data collection on (5%) respondents that were not included in the main survey. The questionnaire was used to collect information on variables such as demographic characteristics, Knowledge of child feeding practice. Fifteen diploma nurses familiar with local customs were recruited to collect the data. Six BSC supervisors were selected.

### Data Quality Control

Data collectors and supervisors were trained. Every day, the collected data was reviewed and checked for completeness and consistency by the supervisors and the principal investigators. The questionnaire was Pre-tested. Data collectors who live and work in the study area were recruited.

### Data Processing and Analysis

Data was entered into Epidata3.1 for cleaning and coding then exported to SPSS version 20 for analysis. Descriptive statistics (mean, standard deviation, frequency,) were used to describe the study population. Binary logistic regression was considered the more appropriate statistical method to apply here because dependent variables are categorical and dichotomous. CI of 95% and adjusted

odds ratio was used to measure the strength of association. And those variables with a p value ≤ 0.05 were considered statistically significant in multivariate analysis.

## Result

### Sociodemographic Characteristics of Respondents

Of the 845 eligible mothers, 843 were interviewed in the study, which made a response rate of 99.7%. Majority of the participants 791 (93.8%) were married and 405 (48%) had no formal education. Majority of study participants 546 (64.5%) were housewives. Majority 381 (45.2%) fall in 24-30 year age group followed by less than 24 years 270 (32%). Of the total, 460 (54.6%) were from urban and the rest from rural kebeles. Among the study subjects, 403 (47.8%) were Orthodox Christian while 97 (11.5%) were Muslim. Out of the total study participants, 238(28%) were Bench followed by Kefa 189(22.4%). Regarding husband's educational and occupational status, 166 (21.1%) were employed, and 482(64%) had formal education. Concerning service utilization 780(92.5%) mothers had received ANC (antenatal care) service and 714(84.7%) were delivered at health institution [Table 1]

**Table 1:** Socio-demographic characteristics of respondents, Bench maji zone, south west Ethiopia 2016

	Frequency	Percent
<b>Age of the mother</b>		
15-24	270	32
25-29	381	45.2
30+	192	22.8
Total	843	100
<b>Ethnic group</b>		
Bench	238	28
Kefa	189	22.4
Amhara	186	22
Sheko	108	13
Oromo	41	5
Other	80	9.6
Total	843	100
<b>Religion</b>		
Protestant	403	47.8
Orthotics	339	40.2
Islam	97	
Other	4	0.5
Total	843	100
<b>Marital status</b>		
Married	791	93.8
Single	29	3.4
Divorce	17	2
Widowed	6	0.8

Total	843	100
<b>Occupation</b>		
Housewife	546	64.8
Government employed	134	15.9
Merchant	78	9.3
Farmer	66	7.8
Others	19	2.3
Total	843	100
<b>Educational status</b>		
Can't write and read	275	32.6
Able to write and read	130	15.4
Primary school(1-8)	219	26
Secondary school(10-12)	106	12.6
College diploma or Above	113	13.4
Total	843	100
<b>Place of residence</b>		
Rural	383	45.4
Urban	460	54.6
Total	843	100
<b>Occupational status of husband</b>		
Employed	553	70
Not employed	238	30
Total	791	100
<b>Educational status of husband</b>		
Can't write and read	166	21.1
Able to write and read	123	15.5
Primary school(1-8)	178	22.5
Secondary school(10-12)	147	18.5
College diploma or Above	177	22.4
Total	791	100
<b>Antenatal care</b>		
Yes	780	92.5
No	63	7.5
<b>Place of delivery</b>		
At health institution	714	84.7
At home	129	15.3

### Exclusive Breastfeeding Practice

In this study, 56 % of mothers were feed breast milk exclusively up to 6 months. On multivariate analysis, only place of residence, attitude toward inclusion of animal source of food and knowledge about infant feeding practices have shown significant association with exclusive breastfeeding (EBF) [Depicted in table2].

**Table 2:** Bivariate and multivariate logistic regressions of exclusive breastfeeding among mothers in Bench Maji zone southwest Ethiopia 2016

	COR	AOR	95% C.I. for AOR		P value
			Lower	Upper	
<b>Ethnicity(Bench=0)</b>					
Amhara	1.968	1.318	0.847	2.05	0.221
Kefa	1.724	1.273	0.835	1.94	0.263
Sheko	0.36	0.337	0.174	0.649	0.001
<b>Educational status (Informal=0)</b>					
Formal	1.8	1.192	0.855	1.662	-
<b>Maternal occupation (House wife=0)</b>					
Government Employed	1.458	0.77	0.488	1.213	0.26
Merchant	1.792	1.212	0.702	2.094	0.49
Farmer	0.362	1.296	0.602	2.793	0.507
<b>Radio/TV(no=0)</b>					
Yes	2.35	0.997	0.687	1.447	0.987
<b>Place of residency(Rural=0)</b>					
Urban	2.9	1.914	1.389	2.638	0.001
<b>ANC Follow up(no=0)</b>					
Yes	1.7	1.308	0.73	2.343	-
<b>Knowledge(Not=0)</b>					
Knowledgeable	2.3	1.714	1.259	2.334	0.001
<b>Attitude toward animal source of food(Bad=0)</b>					
2 Good	1.73	1.514	1.006	2.28	0.047

COR = Crude odds ratio, AOR= Adjusted odds ratio

### Discussion

In this study 56 % of mothers were feed breast milk exclusively up to 6 months. This finding was comparable with nationwide study in Ethiopia which showed EBF during the first six months after birth was not widely practiced in which 52% of mothers exclusively breastfeed their child [7] and study in Southern region in which 48.2% of mothers exclusively breastfeed their child [8] and Harar; in which 51.8% mothers exclusively breastfeed their child [9] and studies in other countries including West Bengal 57.1% [10] and East Delhi; 57.1% [11] mothers exclusively breastfeed their child.

On multivariate analysis, the only places of residence and knowledge about infant feeding practices have shown significant association with EBF. Urban mothers had two times more likely practice exclusive breastfeeding than their rural mothers (AOR (95%CI), 1.9: (1.38, 2.63). This possibly explained by urban residents have greater access to information than rural one this may create a knowledge gap about EBF. The second reason may be a difference in belief about breast milk as a result of knowledge gap; rural mothers may believe that breast milk alone was not sufficient during the early age of infants than the urban.

This finding contradicts some other previous studies including, study done in North Gondar Ethiopia in which rural residents were more likely to EBF their child (AOR = 3.01; 95% CI 2.65, 3.84) [12], in Debre Birhan Ethiopia, the odds of EBF practiced mothers from rural area was 4.54 times higher than urban residents (AOR 4.54; 95% CI: 2.64, 7.81,  $p = 0.001$ ) [13], in a study done in Malaysia mothers from rural area were more likely to exclusively breastfeed compared to mothers from urban area (OR = 1.16; 95% CI: 1.03, 1.89) [14]. This reciprocal relationship noticed in this study may signal the need for another study to elaborate the reason for this difference.

In this study mothers who had adequate knowledge were more likely to EBF than those mothers who hadn't (AOR: (95%CI) 1.7(1.25, 2.33) since knowledge precedes action. Similar findings were reported in different studies including study done in Jimma town, having good knowledge of breastfeeding practice (AOR: 2.1 (95% C.I: 1.54 - 4.33)), were independent predictors of exclusive breastfeeding practice [15], a study done in South West Shoa, those who had knowledge on EBF were 2 times more likely to breastfeed exclusively than the ones who had no knowledge on EBF (Adjusted OR = 2.02, 95% CI = 1.12, 4.48) [16] and a study done in Kinshasa Congo, low level of breastfeeding knowledge (AHR = 1.52; 95% CI 1.08, 2.15) significantly associated with none EBF [17]. But in this study different factors which have shown to be independently associated with EBF were not shown to be significantly associated on multivariate analysis such as antenatal clinic visit, place of delivery. The limitations of this study include difficulty in establishing cause and effects relationships between variables because it is a cross-sectional study. Another limitation of this study is lacked support from qualitative data due to resource limitation. So, in the study area, exclusive breastfeeding needs to be understood through qualitative study design.

## Conclusion

About half of children have exclusively feed breast milk. Place of residency and knowledge about infant feeding practices were determinants of exclusive breastfeeding. Emphasis should be given to provide exclusive breastfeeding education and counseling to mothers.

## Acknowledgements

We are very thankful all mothers or caregivers of children, Bench maji zone health office managers for their kind cooperation in providing required information during the study.

The research was approved by Mizan-Tepi University before data collection was initiated. An informed verbal consent was received from each study subjects. To ensure confidentiality of respondents, their names were not indicated on the questionnaire.

## Availability of Data and Materials

Data sets used and analyzed during the current study are available from the corresponding author on reasonable requests

## Funding

The study was conducted getting the fund from Mizan Tepi University. We declare that the funding body had no role in the

design of the study, the collection, analysis and interpretation of the data, the writing of this manuscript, and in the decision to submit it for publication.

## Authors' Contributions

MM and NT developed the protocol, supervised the data collection, analyzed the data and prepared the draft manuscript; TL participated in the development of the protocol, analysis, interprets and finalized the manuscript. All authors read and approved the final manuscript to submit it for publication.

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