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Research Article

Prevalence and Determinants of Exclusive Breastfeeding Practices among Infants in Hossana Town, Southern Ethiopia: A Community Based Cross-Sectional Study

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Abstract

Introduction: Different researches provide convincing evidence for the effect of human milk in decreasing the risk of infant mortality and morbidity from acute and chronic diseases. The World Health Organization (WHO) advocates for breastfeeding as the best source of food for optimal infant growth and development. They recommend that infants should be exclusively breastfed, receiving no other foods or liquids besides breast milk, until 6 months of age.

Objective: To assess prevalence of exclusive breastfeeding practices and determinants among infants in Hossana Town, Southern Ethiopia, 2015.

Method and Materials: A community based cross sectional study was conducted from January to February 2015, in Hossana town, Hadiya Zone, Southern Ethiopia. Multi stage sampling technique was used to select 720 respondents. All the questionnaires were entered, edited, coded and cleaned into Epi-info version 3.5.3 and exported to SPSS version 20 soft ware packages for analysis. The degree of association between independent and dependent variables were assessed using odds ratio, 95% confidence interval and p-value < 0.05 to be considered as significant.

Result: A total sample of 707 mothers having infants aged 0–12 months was interviewed which had the response rate of 98%. The prevalence of exclusive breastfeeding in the study area was 74%. Age group of the respondents 15 - 24 [AOR = 3.2, 95% CI: 1.6, 6], illiterate educational level of the respondents' husband [AOR = 0.34, 95% CI: 0.12, 0.95], age of the infants <6 months [AOR = 2.7, 95% CI: 1.3, 3.9], prelactal feeding [AOR= 4, 95% CI: 2.6, 6.5], early initiated breast feeding (AOR = 1.91, 95% CI = 1.16, 3), plan to exclusive breastfeeding (AOR = 2, 95% CI = 1.4, 3), advice/ counseling on infant feeding (AOR = 1.85, 95% CI = 1.2, 2.8).

Conclusion: Promotion of exclusive breastfeeding for age group 34 - 49, encouragement of education for husbands, provision of EBF for all less than 6months, supporting early initiated breast feeding, and enabling every mother a prenatal exclusive breastfeeding plan during antenatal care were recommended in order to increase the proportion of women practicing EBF.

Keywords: *Prevalence; Exclusive breastfeeding; predictors; Southern Ethiopia*

Background

Different researches provide convincing evidence for the effect of human milk in decreasing the risk of infant mortality and morbidity from acute and chronic diseases [1-3]. The World Health Organization (WHO) recommends for breastfeeding as the best source of food for optimal infant growth and development. It advocates that infants should be exclusively breastfed, receiving no other foods or liquids besides breast milk, until 6 months of age [4,5].

Breastfeeding is a unique way of providing ideal food for the healthy growth and development of infants; it is also an integral part of the reproductive process with important implications for the health of mothers.

Exclusive breastfeeding reduces infant mortality due to common childhood illnesses such as diarrhoea or pneumonia, and helps for a quicker recovery during illness. These effects can be measured in resource-poor and affluent societies. Breastfeeding contributes to the health and well-being of mothers; it helps to space children, reduces the risk of ovarian cancer and breast cancer, increases family and national resources, is a secure way of feeding and is safe for the environment [6].

Despite its demonstrated benefits, EBF prevalence and duration in many countries including Ethiopia are lower than the international recommendation of exclusive breastfeeding for the first six months of life [2,12]. Based on several studies done in Ethiopia, breastfeeding is nearly universal but the proportion of exclusively breastfed children up to 6 months is less than the optimal recommendations [13,14]. The low prevalence of EBF in most developing countries including Ethiopia is attributed to various maternal and child factors such as place of residence, sex and age of the child, mother working outside home, maternal age and educational level, access to mass media and economical status by several researchers [7,12,15-17].

Cognizant of the high prevalence of inappropriate child feeding practices and the importance of exclusive breastfeeding, the Ethiopian government developed the Infant and Young Child Feeding (IYCF) guideline in 2004. Since then, varying levels of interventions, giving due emphasis to key messages of exclusive breastfeeding, were being given both at health institution and community level. To strengthen the effort in reducing child mortality, the FMOH had targeted an increase in the proportion of exclusively breastfed infants under age 6 months to 70 percent by 2015 as one strategy to improve child health. But, The 2011 EDHS showed the proportion of infants less than six months who received EBF as 52% which improved slightly (only 3%) compared to 2005 EDHS.

Nonetheless, these efforts were not based on organized evidence on the level of existing practices, which might be due to lack of studies which explored the factors predicting the low proportion of exclusive breastfeeding. There are no studies that examined and documented the magnitude and associated factors of exclusive breastfeeding in the study area. Therefore, assessing factors associated with exclusive breastfeeding is crucial to implement interventions that speed up the government efforts and decrease the rates and burden of infant morbidity and mortality.

Methods

Study design and study setting

Community based cross-sectional study was carried out in Hossana town from September to October, 2015. The total number of mother infant pairs who are residing for at least six months preceding the survey was estimated 3218 The source population of the study was all lactating women who were residing in Hossana town and study population were all sampled lactating mothers whose children's age less than one year.

Women who were mother-infant pairs resided in the study area for at least six months were included in the study whereas seriously ill, unable to hear and mentally disabled among cases and controls during survey were excluded.

Sampling

The sample size had been determined by using single population proportion formula by assumption of 95% confidence interval, a design effect of 2, a non-response rate of 5%, marginal error (d) of 5 % and by taking 50.3% prevalence (P) of exclusive breast feeding from research conducted in Bahr Dar town. Since the estimate of the population size was less than 10,000, by adjusting the sample size was 343. There are three kifleketema and eight kebeles in the town. Multi stage sampling technique was used to select the study population by considering a design effect of two. Since there are eight kebeles, four kebeles were selected from by simple random sampling (lottery method) in order to represent fairly the source population. Before sampling frame, census was conducted in each selected kebele

to obtain the list of mother-infant pairs. Finally, the sample size was 343*2 = 686, and by adding 5% of non response rates, a total of 720 respondents were selected.

Data collection and quality control

Data was collected by face-to-face interview using a structured and pre-tested questionnaire. The questionnaire was prepared first in English and it was translated into Amharic to suit local applicability. Finally, to ensure its consistency, the questionnaire was back translated into English by other person who has similar work experience. These questionnaires were adapted from different literatures developed for similar purpose by considering the local situation of the study subjects. Six diploma female nurses were selected and recruited for data collection and two Bachelor of Science nurse supervisors were assigned.

Data quality was maintained by pre-testing the questionnaire on 5% of the randomly selected lactating mothers.

Data processing and analysis

All questionnaires were entered, edited, coded and cleaned into Epi-info version 3.5.3 and exported to SPSS version 20 soft ware packages for analysis. The data were analyzed using logistic regression to determine the effect of various factors on the outcome variable and to control confounding. The variables which had a p value ≤ 0.2 in the bivariate analysis were further entered into multivariate logistic regression model. In the multivariate analysis, standard enter techniques were fitted. Variables having p value ≤ 0.05 in the multivariate analysis were taken as significant predictors. Crude and adjusted odds ratios with their 95% confidence intervals were calculated. The Hosmer and Leme show goodness of- fit test was used to assess whether the necessary assumptions for the application of multiple logistic regression were fulfilled and p value > 0.05 was considered a good fit.

Ethical consideration

Ethical clearance and supportive letter was obtained from the Wachemo University Ethical review board and formal letter of permission was taken from Hossana town health office. All the study respondents were informed about the objective and importance of the study and their verbal consent was obtained before conducting data collection. They were also informed about their right of not participating in the study at any time. Privacy and confidentiality of the information were secured throughout the entire study period.

Results

Socio-demographic characteristics of respondents

A total sample of 707 mothers having infants aged 0 - 12 months was interviewed which had the response rate of 98%. The mean age of the mothers was 29.7 years (SD ± 5.3 years). Almost all (98%) of the mothers were married, majority 423 (59.8) were protestant Christian by religion, 401 (56.7%) were Hadiya by ethnicity, and 222 (31.8%) were housewife by occupation. With regarding to family size, 422 (59.7%) of the respondents had five and above family size. Pertaining to educational status of the study subjects 80 (11.3%) could not read and write (illiterate) and 327 (46.3) of them had primary educational level while 300 (42.4%) achieved secondary and above. Among the respondents, the most earned monthly income were between 10001 - 2000ETB (Table 1).

Variables	Frequency no (%)
Age Group	
15 - 24	119 (16.8)
25 - 34	440 (62.2)
35 - 49	148 (21)
Family size	
1 - 2	4 (0.6)
3 - 4	281 (39.7)
5 and above	422 (59.7)

Religion	
Orthodox	175 (24.8)
Protestant	423 (59.8)
Muslim	65 (9.2)
Others	44 (6.2)
Ethnicity	
Hadiya	401 (56.7)
Amhara	73 (10.3)
Kanbata	128 (18.1)
Gurage	41 (5.8)
Others*	64 (9)
Educational level of women	
Illiterate (can't read or write)	80 (11.3)
Primary	327 (46.3)
Secondary and above	300 (42.4)
Educational of husband	
Illiterate (can't read or write)	19 (2.7)
Primary	262 (37.1)
Secondary and above	426 (60.3)
Occupation of women	
Merchant	187 (26.4)
GOV and NGO employed	237 (33.4)
House wife	222 (31.4)
Others**	60 (8.5)
Marital Status	
Married	693 (98)
Divorced	6(0.7)
Widowed	8 (1.1)
Sex of infants	
Male	356 (50.4)
Female	351 (49.6)
Age of infants	
<6months	231 (32.7)
≥6months	476 (67.3)
Birth order of infants	
First	180 (25.5)
2^{nd}-4^{th}	438 (62)
≥5^{th}	89 (12.6)

Table 1: *Socio-demographic characteristics of breastfeeding mothers with their infants in Hossana, southern Ethiopia, 2015 (n = 707).*

Others Silite, Oromo, Wolayta Others** students, daily laborers.*

Regarding infants, there were almost similar sex configurations between male 356 (50.4%) and female 351 (49.6%) infants, and 476 (67.3) were six months of age and more at the time of data collection. Look upon the birth order of the infants, more than half 438 (62) of the infants within 2-4 birth order (table 1).

Obstetric characteristics of the respondents

Of all participants, more than two third 525 (74.3%) were multiparous. Most of the respondents, 678 (96%) of the mothers reported that they had received antenatal care during their recent pregnancy and 243 (36%) percent of mothers had sufficient (≥ 4) antenatal care visits. Among who had taken ANC service, majority 438 (64%) of the mothers had received at health centers and the proportion of respondents who had taken ANC during the first trimester, second trimester and third trimester period were 178 (26.2%), 314 (46.4%) and 186 (27.4%), respectively. With regards to the place of delivery, the majority 605 (94.3%) delivered at governmental health institutions and among all, the mode of delivery was spontaneous vaginal delivery in 472 (66.6%) cases, and instrumental deliveries and cesarean sections in 124 (19.7%) and 86 (13.7%) cases among who gave birth in health facilities, respectively. The majority 551 (77.9%) had postnatal care (PNC) follow up at health organizations.

Variables	Frequency (%)
Antenatal follow up	
Yes	678(96)
No	29(4)
Time of first ANC visit (n = 678)	
First trimester	178(26.2)
Second trimester	314(46.2)
Third trimester	186(27.4)
Type of health facility for ANC (n = 678)	
Hospital	209(31)
Health centers	438(65)
Private health facilities	30(5)
Intention to give birth in future	
Yes	495(70)
No	212(30)
Number of delivery	
Prim porous	182(25.7)
Multiporous	525(74.3)
Number of children alive	
1-2	363(51.3)
3-4	266(36.7)
≥5	76(11)
Number of ANC follow up (n = 678)	
<4	435(74)
≥4	243(36)
Mode of delivery	
Spontaneous	471(66.6)

Instrumental (vacuum and forceps)	139(19.7)
Cesarean section	97(13.7)
Place of delivery	
Home	79(11)
Governmental Health facilities	605(86)
Private health facilities	23(3)
Postnatal care follow up	
Yes	551(78)
No	156(22)
Gestational age at birth	
<37weeks	247(35)
≥37 weeks	460(65)

Table 2: *Obstetric characteristics of breastfeeding mothers-infant pairs in Hossana, southern Ethiopia, 2015 (n = 707).*

Practices of breastfeeding

Regarding to receive breastfeeding advice or counseling, less than half (43%) and 60% of the mothers during ANC and delivery obtained general feeding advices from health workers, respectively. Thirteen percent of the infants received prelacteal feed and large percentage (96%) had got colostrums from their mothers. The prevalence of exclusive breastfeeding in the study area was 74%. Five hundred thirty five (76.0%) of the mothers initiated breastfeeding within one hour of birth while one hundred seventy two (24%) of respondents initiated breastfeeding after the one hour of birth. Five hundred and thirty seven (76%) study participants discussed and decided about EBF with their husbands. Six hundred and ninety nine (99%) of the respondents received exclusive breastfeeding counseling/advice from different sources at some point in their life time such as health professionals other than health extension workers 233 (33%), media 67 (9.5%), health extension workers 286 (40.5%), and family members 103 (16%). Majority of the mothers (84%) were support exclusive feeding practice.

Variables	Frequency (%)
Advice about EBF during ANC	
Yes	304 (43)
No	403 (57)
Prelactal feeding	
Yes	89(13)
No	618(87)
Ever breast feeding	
Yes	541(75.5)
No	166(23.5)
Number of feeding within 24 hours	
2-4	15(2)
5-7	99(14)
8-10	315(47)
≥11	278(39)

Early initiation of breast feeding	
Yes	568(80.5)
No	138(19.5)
First breast milk(colostrums)	
Infant fed	679(96)
Discarded	29(4)
Practice of EBF	
Yes	522(74)
No	185(26)
Discuss about EBF with husband	
Yes	537
No	170

Table 3: *Breastfeeding practice of mothers-infant pairs in Hossana, southern Ethiopia, 2015 (n = 707).*

Factors associated with exclusive breastfeeding practice

Variables which could persist in having determinant effect in the multivariate analyses were age group of the respondents, educational level of husband, age of infants, prelactal feeding, early initiation of breast feeding, plan for EBF and advice for feeding. Age group of the respondents from 15 - 24 were three times more likely to practice exclusive breast feeding than age group 35 - 49 [AOR = 3.2, 95% CI: 1.6, 6]. When educational status of the respondents husband increased, the practice of EBF also increased. Illiterate educational level of the respondents' husband was 66% less likely to practice EBF than secondary and above [AOR = 0.34, 95% CI: 0.12, 0.95]. Age of the infants less than six months was almost three times more likely to utilize EBF as compare to six and above months of age [AOR = 2.7, 95% CI: 1.3, 3.9]. Mothers who didn't feed prelactal were four times more likely to practice EBF than who did to so [AOR = 4, 95% CI: 2.6, 6.5].

Women who early initiated breast feeding had an adjusted odds of 1.9 of practicing EBF compared to those who didn't early initiated (AOR = 1.91, 95% CI = 1.16, 3). Mothers who planned to provide EBF during their last pregnancy had an adjusted odds of 2 of practicing EBF compared to those who did not plan EBF (AOR = 2, 95% CI = 1.4, 3). Finally, mothers who received advice/ counseling on infant feeding had an adjusted odds of 1.85 of practicing EBF than those who had not (AOR = 1.85, 95% CI = 1.2, 2.8) (Table 4).

Variables	EBF Practice		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
	Yes No (%)	No No (%)			
Age Group					
15-24	99 (83.2)	20 (16.8)	2.38 (1.32, 4.23)	3.2 (1.6,6)	0.001
25-34	323 (73.4)	117 (26.6)	1.33 (0.89,2)	1.3 (0.83, 2)	0.247
35-49	100 (67.6)	48 (32.4)	1	1	
Educational level of husband					
Illiterate (kcan't read or write)	11 (57.9)	8 (42.1)	0.4 (0.16, 1)	0.34 (0.12, 0.95)	0.039
Primary	182 (69.5)	80 (30.5)	0.67 (0.47,0.95)	0.73 (0.5, 1)	0.109
Secondary and above	329 (77.2)	97 (22.8)	1	1	
Age of infants					
<6months	146 (63.2)	85 (36.8)	0.46 (0.3, 0.65)	2.7 (1.8, 3.9)	< 0.001
≥6months	376 (79%)	100 (21%)	1		

Prelactal feeding					
Yes k	41 (46.1)	48 (53.9)	1	1	
No	481 (78.3)	137 (21.7)	4 (2.6, 6.5)	4 (2.5, 6.7)	< 0.001
Early initiation of breast feeding					
Yes	432 (75.9)	137 (24.1)	1.7 (1, 2.5)	1.91 (1.16, 3)	0.011
No	90 (65.2)	48 (34.8)	1	1	
Plan for EBF					
Yes	414 (78)	117 (22)	2 (1.5, 3.2)	2 (1.4, 3)	0.001
No	108 (61.4)	68 (38.6)	1	1	
Advice for feeding					
Yes	411 (76.5)	126 (23.5)	1.7 (1.2, 2.5)	1.85 (1.2, 2.8)	0.004
No	111(65.3)	59 (34.7)	1	1	

Table 4: *Predictors in bivariate and multivariate analysis with exclusive breastfeeding among mothers who gave birth in the last 12 months in Hossana Town, 2014.*

Figure 1: *Mothers Preference of health facilities for their delivery service, Hossana town, southern Ethiopia.*

Discussion

Exclusive breastfeeding for the first six months is recognized as the best interventions to reduce infant morbidity and mortality. Exclusively breastfed children have a much lower risk of infectious diseases than infants who receive other foods [1-3,23]. However, it has not yet been universally practiced and the reduction in the rate of EBF is taken as a serious problem, particularly in developing countries [16]. In this study, the prevalence of EBF was found to be (74%). This was similar to study done in Goba district south east Ethiopia (71.3%), in Cambodia (75%) and it was interestingly achieved the HSDP IV target an increase in the proportion of exclusively breastfed infants under age 6 months to 70 percent by 2015 [7,15,24]. On the other hand, it was greater compared to EDHS 2011 report (52%), study conducted in Bahir Dar town (50.3%), Malaysia (43.1%), Nigeria (16.4%) and Bangladesh (36%) [7,8,13,14,25]. This might be due to the fact that variation in culture and socio-economical level. But it was less than the study done in the community assessment finding by Essential Service for Health in Ethiopia (ESHE) in Amhara (87%) and Oromiya (79%) [9-11]. When respondents were asked retrospectively, women with infants aged six months or above reported that 79% had received EBF for six months. This result was higher than the studies done in Bahir Dar, one of the regional cities in Ethiopia (45.3%), Cambodia (51.3%), Iran (56.4%), Tanzania (58%), and India (61.5%) [8,15-

21,26]. The possible reason might be vigorously advice/counseling on EBF by health team especially urban extensions health workers as indicated in predictor factor or variation in a method of computing EBF. In this study, it was computed by asking the respondents to recall whether they offered only breast milk for their infants or not until six months of age and in many other studies it was determined by 24 hours recall method preceding the interview.

After handling other confounding factors age of the respondent, educational level of husband, age of the infant, prelacteal feeding, plan for EBF and receiving counseling/advice on infant feeding were found to be significantly and independently associated with the EBF practice in multiple logistic regression analysis.

In this study, age group of the respondents from 15 - 24 were three times more likely to practice exclusive breast feeding than age group 35 - 49. The possible reason for this, younger mothers might be eager and willing to apply information that they got from different sources about EBF. Another explanation might be younger mothers may love more their children than the elders/who have more children. Fathers' educational level was significantly associated with EBF. In the current study, when fathers' educational status increased, utilization of EBF was also increased. This study revealed that the age of child was significantly associated with EBF practice. Age of the infants less than six months was almost three times more likely to utilize EBF as compare to six and above months of age. This finding was in agreement with the analysis of demographic health survey of Nigeria and Ethiopia, and Uganda [14,22,27]. The possible explanations for this might be due to the fact that during this period there was a short maternity leave for government employers which restrict the mothers to stay them with their child and as the age of the child increased, the rate of EBF decreased significantly. Prelactal feeding was also a predictor of exclusive breastfeeding practice. Mothers who didn't feed prelactal were four times more likely to practice EBF than who did to so. The reason for this could be mothers who practiced prelactal feeding might be less knowledgeable about the time frame of initiating breast feeding and period of EBF and also they might be delivered at their home by traditional birth attendants. Women who early initiated breast feeding had adjusted odds of 1.9 of practicing EBF compared to those who didn't early initiate. The possible explanation for this might be due to the fact that mothers had good awareness about early initiation and also they had good awareness about EBF. On other hand, early initiation of breastfeeding is more common among children whose mothers were assisted at delivery by a health professional than among children delivered at home and thereby, they might get professional advices.

Mothers who planned to provide EBF during their last pregnancy had adjusted odds of 2 of practicing EBF compared to those who did not plan EBF. This finding was consistence with studies from Bahr Dar and Cambodia demographic and health survey [8,15]. This might be optimal follow up of ANC and proper preparedness during pregnancy. Finally, getting advices/ counseling from different sources about infant feeding were important factor for EBF. Mothers who received advices/ counseling on infants feeding had an adjusted odds of 1.85 of practiced EBF than those who had not. This result was in agreement with the studies conducted in Bahr Dar and India [8,26].

Conclusion

Prevalence of exclusive breastfeeding was good in the study area. It was interestingly achieved the HSDP IV target an increase in the proportion of exclusively breastfed infants under age 6 months to 70 percent by 2015.

Out of several variables age of the respondent, educational level of husband, age of the infant, prelacteal feeding, plan for EBF and receiving counseling/advice on infant feeding were found to be significantly and independently associated with the EBF practice in multiple logistic regression analysis.

Competing Interests

The authors declare that they have no competing interests.

Authors' Contributions

AE, WA and ND designed the study, analyzed the data drafted the manuscript and critically reviewed the article. All authors read and approved the final manuscript.

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