

Prevalence and Predictors of Exclusive Breastfeeding among Women: A cross Sectional Study in Hetosa District, Arsi Zone, Ethiopia, 2016

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Abstract

Background- Exclusive breastfeeding is a very essential, long lasting and cost effective intervention to reduce the morbidity and mortality of infants. However, the prevalence of exclusive breast feeding in Ethiopia has been expected at 52% which is far less than World Health Organization recommendations. The Ethiopian national HSDP IV also planned to increase in the proportion of exclusively breastfeeding infants under the age of six months to 70% by the end of 2015. Consequently, this study aimed to assess the prevalence of exclusive breastfeeding practices and its associated factors in Hetosa District, Arsi zone, Ethiopia.

Methods: A total of 384 mothers with infant less than 2 years old were involved in this study between January and June 2016. Trained interviewers collected data from the mothers of the infants. Multivariable logistic regression analysis was conducted.

Results: Prevalence of exclusive breastfeeding was 55.2 %. Mothers who delivered at healthcare facility (OR =2.52; 95% CI: 1.55, 4.06), who had antenatal care (OR=2.01; 95% CI: 1.34, 3.03) and who initiated breastfeeding within the first one hour (OR =3.54; 95% CI: 2.23, 5.58) were more likely to practice exclusive breastfeeding than their counterparts.

Conclusion and recommendation: A large proportion of children are not exclusively breastfed during the first 6 months, although what is recommended in infant and young child feeding guidelines. Maternal factors (age, education, occupation, antenatal care, initiation of

breastfeeding, prelacteal and colostrum feeding), information access and delivery place were independent predictors of exclusive breastfeeding. Improving the mother's knowledge, nutritional counselling, information access, quality of antenatal care service, place of delivery and avoiding prelacteal feeding practices are very crucial to improve exclusive breastfeeding.

Keywords: Exclusive breastfeeding, Hitosa, Mothers, Infants

Introduction

Exclusive breastfeeding (EBF) provides all infants nutritional and fluid needs in the first six months and is a perfect combination of proteins, fats, carbohydrates and fluids (UNICEF, 2009). EBF is recommended during the first six months of infants' life because it confers many nutritional and health benefits to the child (UNICEF & WHO, 2008). Exclusively breastfed children are at a much lower risk of infections (EFMoH, 2004) and it is the best and cost effective intervention to reduce infant morbidities and mortalities (UNICEF, 2009). It has been estimated that EBF coverage of 90% will help to improve child survival (Jones et al., 2003). Non-exclusive breastfeeding also has long term impact including poor school performance, reduced productivity, and impaired intellectual and social development. It can also increase the risk of dying due to diarrhea and pneumonia among 0–5 month old infants by more than twofold (WHO, 2003; WHO,2009).

Exclusive breastfeeding from birth to six months has the potential to prevent 13% of child mortality (Indian Academy of Pediatrics, 2010). However, no more than 35% of infants worldwide are exclusively breastfeeding during the first four months of life (UNICEF, 2015). Only 38% of children less than six months of age are exclusively breastfed in the developing countries (EFMoH, 2015) and 21% in WCA (UNICEF, 2015).Global risk assessment of suboptimal breastfeeding indicates that 96% of all infant deaths in developing countries are attributable to inappropriate feeding occurring during the first six months of life (Lauer et al., 2006).

In Ethiopia suboptimal breastfeeding practices are the major cause to an estimated 70,000 infant deaths per year, 24% of the total infant death annually and which can be significantly prevented by nutrition interventions such as exclusive breastfeeding (EFMoH, 2015) but only 52% of children less than six months old are exclusively breastfed (CSA, 2011).Monitoring such

problems, the Ethiopian national HSDP IV planned to increase in the proportion of exclusively breastfeeding infants under the age of six months to 70% by the end of 2015 (EFMoH,2010). Appropriate breastfeeding and good nutrition for children are also recognized as crucial for achieving the Sustainable Development Goals, principally the goals connecting with reducing child mortality. Therefore, assessing the prevalence of exclusive breastfeeding practices and its associated factors is vital to decrease the rates and burden of infant morbidity and mortality.

Methods

A community based cross-sectional study was conducted in Hitosa District, Arsi Zone Ethiopia, from January - June 2016. Hitosa District is located 164 km to the Southeast of Addis Ababa, the capital city of Ethiopia. It has 26 kebeles (local administrations). Based on the EDHS 2011, the District has an estimated population of 131,708 of which 94.3% are resides in rural setting of this district (CSA, 2011).

Ethical consideration

Ethical clearance was obtained from Arsi University. Supportive letters also obtained from Arsi Zone Health Bureau & Hetosa District Health office. Informed verbal consent was held from study participants after explaining the purpose and objective of the study, and the possibility of withdrawing from the study at any time. The participants were also guaranteed about the confidentiality of the data.

Sample Size and Sampling Procedure

The sample size was determined by using assumptions for single population proportion formula;

$$n = \frac{(Z\alpha/2)^2 p(1 - p)}{d^2}$$

Where

Z = Standard normal variable at 95% confidence level (1.96)

d = Margin of error (0.05)

P = Expected prevalence of non-exclusive breastfeeding (52%) (EDHS, 2011).

Therefore, the total calculated sample size for this study was 403 mothers having with infant less than 2 years old.

Eight kebeles (*Gonde, Boneya Edo, Anola, Hata, Shaki Sherera, Deya Debeso, Saro Ankato, Oda Jila*) randomly selected from 26 kebeles of the district. The sample distributed to randomly selected kebeles by population proportion to size of study participant in each kebele. Therefore, using list of family with infant less than 2 year which is registered by health extension worker at the health posts of each kebele, individual mothers having child less than 2 year of age were selected by using simple random sampling technique.

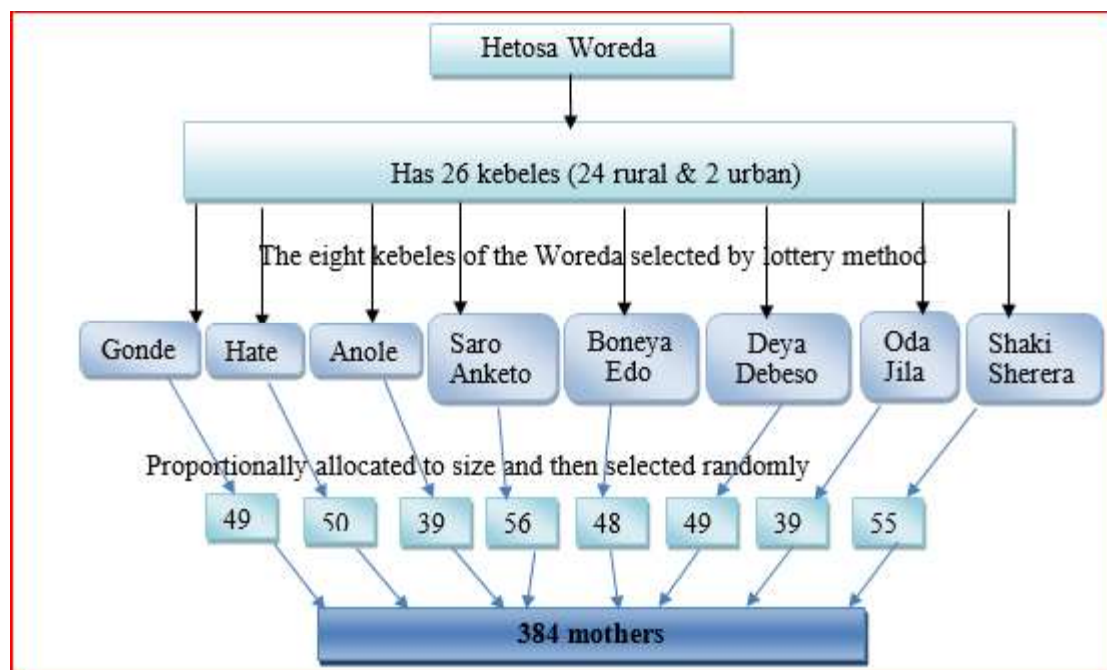


Figure 1: Schematic frame work of the sampling procedure

Data Collection

Data were collected by face-to-face interview of the selected mother by home visits, using structured questionnaire. The questionnaire was first prepared in English to Afan Oromo (local language) and back to English to check its consistency. During the time of data collection when the selected mother was absent from the home at the time of data collection, a revisit was done and mothers who absent at second visit considered as non-respondent. Data on breastfeeding practices, socio-demographic factors, obstetric factors such as antenatal care visits and health service related practices including pre/postnatal counseling collected by

interviewing the mothers of index children. Age of the child was calculated from the date of birth to the date of the survey. For those with written confirmation, the date of birth was obtained from vaccination cards. When a mother had no written documents, their child's age was established on the date given by mother/caregiver.

Data collectors and supervisors were trained on data collection tool and its procedures for two days. The data collected by health extension workers and college students who are fluent in the local language (Afan Oromo). Data quality was assured through pretesting and cross-checking the questionnaires daily by supervisors for completeness and consistency.

Statistical analysis

The collected data checked manually for completeness and consistencies, and then it coded and entered in EPI Info version 3.5.3 and exported to SPSS version 16 for analysis. Descriptive statistics used to summarize the socio-demographic characteristics' of the study participants and the prevalence of exclusive breastfeeding. To identify factors associated with exclusive breastfeeding practice, binary logistic regression analysis was carried out at two levels, first bivariate logistic regression was performed to each independent variable with the outcome variable and those variables with a p value < 0.05 were included in the final model (multivariate analysis). The strength of association was measured using odds ratio, and 95% confidence intervals. Statistical significance was declared at a p value < 0.05.

Results

Socio-demographic Characteristics

From the total of 403 mother-infant pairs, 384 responded to the questionnaire (response rate of 95.29%). The age range of mothers included in the study was 15–40 years. Of the total participants 43 (11.2%) were young mothers aged 15–19 years and 36 (9.4%) were aged 35 and above. The mean (\pm SD) age of mothers was 26.5 (\pm 5.5) years. Two hundred seven (53.9%) of respondents were Muslims by religion. The largest ethnic group was Oromo (83.9%) followed by Amhara (14.3 %). Pertaining to the educational status , more than two third 276 (71.9%) of the respondent mothers had attended formal education of which 249 (90.2 %) completed primary school (grade 1 to 8) while 27(9.8%) of mothers attended secondary school and above. The majorities 360(93.8%) of mothers were married and (66.4%) were

unemployed by occupation. Regarding the sex of infants, 198 (51.6 %) were male, whereas the rest 186 (49.4%) were female (Table1).

Table 1: Socio demographic characteristics of study participants in Hetosa district, 2016

Variable	Frequency	Percent
Age of the mother		
15-19	43	11.2
20-24	98	25.5
25-29	114	29.7
30-34	93	24.2
35+	36	9.4
Religion		
Christian	169	44
Muslim	207	53.9
Other*	8	2.1
Ethnicity		
Oromo	322	83.9
Amahara	55	14.3
Other**	7	1.8
Educational status		
No education & informal	108	28.1
Primary(1-8)	249	64.8
Secondary & above	27	7
Marital status		
Married	360	93.8
Currently single	24	6.2
Occupational status		
Unemployed	255	66.4
Employed	129	33.6
Sex of child		
Male	198	51.6
Female	186	49.4

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Obstetric care, prenatal and postnatal care and access to information

More than two third 261 (68%) of infants were above 6 month. A majority (63.5%) of the mothers had an antenatal visit during their pregnancy and 140 (57.4%) were counseled concerning breastfeeding. Among the mothers who received postnatal care 172 (73.8%) were told about exclusive breastfeeding up to six months of age.

Among mothers who ever breastfed, 68.8 % of mothers initiated breastfeeding within first hour of delivery and 58.1 % of mothers gave colostrum to their infants. Out of the mothers who did not give colostrum 60.2 % of them considered that colostrum is bad for their infant's health (it causes abdominal illness) while 39.8% of them said that is not adapted culturally. With regards to the mode of delivery, 283 (73.7%) of the mothers delivered normally/by vagina, and 101 (26.3%) delivered by caesarean section.

Concerning to pre-lacteal feeding, 273 (71.1%) of mothers did not gave pre-lacteal food while 111(28.9%) gave. Out of which ,35.1 % of pre-lacteal foods was butter , 30.6% was rue (*tana adaam*) which are in relation with the belief of protecting children against illness while the rest 34.3% were other foods like plain water and milk.

Table 2: Maternal & child health/child feeding & related characteristics of study participants in Hetosa district, 2016

Variable	Frequency	Percentage
Age of child		
<6 month	123	32
>6 month	261	68
ANC received		
Yes	244	63.5
No	140	36.5
Breastfeed counseling during ANC		
Yes	140	57.4
No	104	42.6
Postnatal counseling		
Yes	233	60.7

No	151	39.3
Breastfeed counseling during PNC		
Yes	172	73.8
No	61	26.2
Initiation of BF in the 1 hr		
Yes	264	68.8
No	120	31.2
Colostrum feeding		
Yes	223	58.1
No	161	41.9
Place of delivery		
Health facility	288	75
Home	96	25
Type of delivery		
Vaginal	283	73.7
C/section	101	26.3
Pre-lacteal Feeding		
No	273	71.1
Yes	111	28.9
Type of prelacteal foods		
Butter	39	35.1
Rue	34	30.6
Others*	38	34.3

* plan water ,milk and water with sugar

Factors associated with EBF

Mothers who are 15-19 years old were less likely to exclusively breastfed than mothers aged 35 and above years (OR= 0.62; 95% CI: 0.56, 0.61). Concerning to occupation, unemployed mothers were two times more likely to practice EBF than employed mothers (OR=2.16; 95% CI: 1.02, 4.90). Married mothers were two times more likely to exclusive breast feed compared to single (OR = 2.16; 95% CI: 1.02,4.90). Mothers who were counseled regarding to

breastfeeding during antenatal care were above three times more likely to practice exclusive breastfeeding than mothers who were not counseled (OR=3.37; 95% CI:1.48, 7.64).

Mothers who delivered at healthcare facility and those who had antenatal care exclusively breastfed their infants more than mothers who delivered at home and those who did not have antenatal care (OR=2.52; 95% CI:1.55,4.06) and (OR=2.01; 95% CI:1.34,3.03), respectively. On the other hand, infants from mothers who did not practice prelacteal feeding were almost three times more likely to be EBF than mothers who practiced (OR =2.86; 95% CI:1.82,4.8).

The multivariable logistic regression analysis showed that age of infant was a predictor of exclusive breastfeeding practice. Regarding initiation of breastfeeding within the first one hour, mothers who initiated breastfeeding within the first hour were 3.54 times more likely to practice exclusively breastfeed than mothers who initiated after one hour (OR =3.54; 95% CI: 2.23, 5.58); Mothers who fed colostrum to their infant were 2.61 times higher to practice EBF than those who didn't feed colostrum (OR=2.6; 95% CI: 1.72, 3.97).

The in-depth interviews identified that the main barrier of exclusive breastfeeding were mothers instability to live in Ethiopia. For instance, supervisors expressed that mothers do not consider breast milk as sufficient and vital:

“...although health extension workers endeavor, many mothers do not practice exclusive breastfeeding up to six month. Mothers provide infants with some food other than breast milk the others totally detach from breastfeeding. Going to abroad and making money was pointed out as a principal reason” [Supervisor, Oda Jila kebele].

Table3: Odds ratios and 95% confidence intervals from bivariate and multivariable logistic regression model predicting exclusive breastfeeding practice in Hetosa district, 2016.

Variable	EBF practice		COR[95%CI]	AOR[95%CI]
	Yes (%)	No (%)		
Age of the mother				
15-19	20 (46.5)	23(53.5)	0.62 [0.56,0.61]	0.46 [0.41,0.82]
20-24	52 (53.1)	46 (46.9)	0.80 [0.33,1.69]	0.74 [0.23,1.46]
25-29	65 (55.1)	53 (44.9)	0.88 [0.41,1.82]	0.79 [0.54,1.87]

30-34	54 (58.1)	39 (41.9)	0.94 [0.44,2.06]	0.82 [0.35,2.25]
35+	21(58.3)	15 (41.7)	1	1
Educational status				
No informal education	68 (63)	40 (37)	1	1
Primary(1-8)	129 (51.8)	120 (48.2)	0.63 [0.39,1.01]	0.98 [0.65,2.5]
Secondary & above	15 (55.6)	12 (44.4)	0.74 [0.31,1.75]	0.96 [0.84,1.6]
Occupational status				
Unemployed	159 (62.4)	96 (37.6)	2.38 [1.54,3.71]	2.13 [1.54,4.7]
Employed	53 (41.1)	76 (58.9)	1	1
Marital status				
Married	203 (56.4)	157 (43.6)	2.16 [1.02,4.90]	2.09 [1.32,5.9]
Currently Single	9 (37.5)	15 (62.5)	1	1
Type of delivery				
Vaginal	173 (61.1)	110 (39.9)	1.47 [1.21,2.34]	1.37 [0.97,1.84]
C/section	39 (38.6)	62 (60.4)	1	1
Place of delivery				
Health facility	177 (61.5)	111 (38.5)	2.52 [1.55,4.06]	2.54 [1.75,3.85]
Home	35 (36.5)	61 (63.5)	1	1
ANC received				
Yes	151 (61.9)	93 (38.1)	2.01[1.34,3.03]	1.72 [1.24,2.93]
No	61 (43.6)	79 (56.4)	1	1
BF counseling during ANC				
Yes	104 (74.3)	36 (25.7)	3.37 [1.48,7.64]	3.24 [1.56,6.87]
No	48(46.2)	56(55.8)	1	1
Pre lacteal feeding				
No	171(62.6)	102 (37.4)	2.86 [1.82,4.82]	2.43 [1.97,5.05]
Yes	41(36)	70 (64)	1	1
Initiated BF within 1hr				
Yes	171 (64.8)	93 (35.2)	3.54 [2.23,5.58]	3.36 [2.0 3,6.78]
No	41 (34.2)	79 (65.8)	1	1
Colostrum feeding				

Yes	145 (65)	78 (35)	2.61[1.72,3.97]	2.23 [1.67,3.89]
No	67 (41.6)	94 (58.4)	1	1

Discussions

On multivariable logistic regression analysis, age of mother, educational status ,marital status, occupation status, timely initiation of breastfeeding ,type of delivery , colostrum feeding ,prelacteal feeding, place of delivery, antenatal care and breastfeeding counseling during antenatal care were the independent predictors of exclusive breastfeeding.

Despite what is known about the advantage of exclusive breastfeeding; the practice is not promising in the study area. More than half, 55.2 % of mothers reported they were exclusively breastfeeding their infant, which is much lower than Ethiopian HSDP IV target level of 70% by the end of 2015(EFMoH, 2010) and with the finding from Goba district, south east Ethiopia (Setegn et al., 2012) which was 71.3%. This finding is higher than the EDHS 2011 52% (CSA, 2011) and with other similar studies done in; Injibara, Awi zone 44% (Taddele et al., 2014), Ambo 42.3% (Lense et al., 2009), Axum 40.9% (Alemayehu et al.,2014), Bahir Dar, Ethiopia 49.1% (Shafei et al., 2014) , Debre Markos, Ethiopia 60.8% (Mekuria, & Endris, 2015), Mecha district, North West, Ethiopia 47.13% (Woldie et al., 2014). This result is higher than worldwide prevalence ; Kumasi Metropolis, Ghana 48% (Danso, J. 2014) and Dare Salaam, Tanzania 46% (Saka, 2012) , Malaysia 44.3% (Hafizan et al., 2014), Bangladeshi 36% (Joshi et al., 2014), Nairobi, Kenya 34% (Muchina et al.,2010) , Egypt 29.9% (Shafei et al., 2014), Sudan 29.5% (Haroun et al., 2008) , Kigoma, Tanzania 58% (Nkala & Msuya, 2011) , and Nigeria 20% (Ajibadde et al., 2013). The possible reason might be due to methodological variations between studies and differences in socio cultural, health and health service utilization characteristics between respondents of the referenced areas and the study place.

The multivariable logistic regression analysis showed that maternal employment status was significant predictors of exclusive breastfeeding. Unemployed mothers practiced exclusive breast feeding better than employed. This result is similar to studies from: Debre Markos, Ethiopia (Mekuria & Endris, 2015) ,Awi Zone, Ethiopia (Lense et al., 2009), Malaysia (Hafizan et al., 2014;Tan, KL.2011), the Netherlands (Gijsbers et al.,2008), Cameroon (Pascale et al.,

2007), and Timor-Leste (Khanal et al., 2014). Justification to this could be that less maternity leave, which makes employed mothers have less opportunity to be together at home, negotiating exclusive breastfeeding. Such outcomes call for policy arguments to initiate breastfeeding-friendly work environments, as well as the extension of maternity leave up to 6 months to cheer mothers to exclusively breastfeed their babies to improve child health outcomes (Gielen et al., 1991).

This study also revealed that early initiation of breastfeeding within the first one hour was positively associated with exclusive breastfeeding. This result goes in line with the studies conducted in Mecha District, North Western Ethiopia and rural Egypt (Woldie et al., 2014). Logical justification might be that community awareness (63.5 % attended antenatal care service and 75 % delivered at the healthcare facility).

Married mothers were nearly two times more likely to breastfeed exclusively than single. This finding is in line with another study done in Ethiopia (Tewodros et al., 2009). This might be explained by the fact that single mothers lack support given by their husbands and other family members on infant exclusive feeding practices.

In this study, mothers who fed colostrum were more likely to exclusively breastfeed their children than those who discarded. The finding was in line with the results from Axum (Alemayehu et al., 2014). Colostrum feeding assists exclusive breastfeeding because it encourages the early initiation of breastfeeding which also increases child survival, growth and development. Thus the possible reason could be the increased knowledge and attitudinal changes due to the information provided by the antenatal care clinics on infant feeding and the importance of colostrum. Similarly, mothers who did not practice prelacteal feeding were more likely to EBF than the respective groups. This might be due to the fact that prelacteal feeding discourages the infants to take an adequate amount of breast milk with the appropriate frequency. This will result in poor EBF. Infants who are never received any complements are most likely to be exclusively fed on breast milk (Declercq et al., 2009; El-Gilany et al., 2011; Al Ghwass and Ahmed D. 2011). Additionally when mothers initiate other food to the newborn before breastfeeding, it diminishes the infants suckling activity and which in turn influence or decreases maternal milk secretion.

Conclusions and recommendations

A large proportion of infants are not exclusively breastfed during the first 6 months, despite what is recommended in the national and global infant and young child feeding (IYCF) guidelines. Age of mother, marital status, occupation of mother, place of delivery, antenatal care, breastfeeding counseling during antenatal care, timely initiation of breastfeeding, colostrum feeding and prelacteal feeding were the predictors for exclusive breastfeeding practice.

Every stakeholder must work strictly on promoting exclusive breastfeeding practices. At the community level, health extension workers must continue educating appropriate practices related with exclusive breastfeeding, when visiting mothers at home and at diverse contact points. The employer organizations also should promote exclusive breastfeeding through creating an enabling, breastfeeding-friendly working environment for employed mothers. Besides, efforts targeting the allowance of maternity leave up to the first six months after delivery should be applied to prevent sub-optimal exclusive breastfeeding and associated health problems among children.

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Acronyms

AOR: Adjusted odds ratio; BF: Breastfeeding; CI: Confidence interval; COR: Crude odds ratio; EBF: Exclusive breastfeeding; EDHS: Ethiopian demographic health survey; HSDP/HSTP: health sector development/transformation program/plan; SPSS: Statistical package for social science; WHO: World Health Organization

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