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Prevalence and Determinants of Timely Initiation of Breastfeeding among Lactating Mothers of Urban Dwellers in Western Ethiopia: A Community Based Cross Sectional Study

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ABSTRACT
Background: Timely initiation of breastfeeding is not only the easiest, cost effective and most successful intervention; it also tops the table of life-saving interventions for the health of the newborn. Twenty two percent of neonatal deaths could be prevented, if all infants are put to the breast within the first hour of birth. Thus, the study was designed to assess prevalence of timely initiation of breastfeeding and associated factors among lactating mothers less than twenty four months children in urban dwellers of Western Ethiopia.**Methods:** A community-based cross-sectional study was conducted from January to February, 2014 on 182 mothers who had child less than 24 month. The study participants were randomly selected from mother's identity number registration book of health extension workers of the sub cities. A multivariable logistic regression analysis was fit to identify independent predictors of early initiation of breastfeeding after controlling for confounding variables.**Result:** In this study, the prevalence of timely initiation of breastfeeding was found to be 88.5%. In multivariable analysis, advice given to mother on breast feeding during antenatal care visit **(AOR (95% CI) = 0.094 (0.03-0.35))** and knowing importance of colostrum **(AOR (95% CI) = 0.19 (0.05-0.69))** were positively associated with timely initiation of breastfeeding. Those mothers who had poor child attachment to breast were 3.6 times more likely to initiate breastfeeding after one hour delivery compared to mothers who had good child attachment to breast **(AOR (95% CI) = 3.64 (1.05-12.6)).Conclusion:** The study showed that the prevalence of timely initiation of breastfeeding was good. Advice during antenatal care visit, child attachment to breast and knowing importance of colostrum were important predictors for timely initiation of breastfeeding. Thus, the ongoing antenatal care advising on breast feeding practice should be strengthening and more close attention is needed on breast attachment practice of lactating mothers.
Keywords: Timely initiation, breastfeeding, Western Ethiopia

BACKGROUND

World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend that all mothers should breastfeed their children exclusively for the first 6 months and thereafter they should continue to breastfeed for as long as the mother and child wish, and both appropriate and sufficient weaning food should be added after six months of life [1, 2]. WHO estimates that worldwide only 35% of children between birth and their fifth month are breastfed exclusively and the problem is highly increasing in sub-Saharan countries [1, 3, 4]. Studies indicated that in the developing world 39% of mothers exclusively breastfeed their infants up to 6 months; while in some countries no mother exclusively breastfeeds to 6 months [5,6]. In Ethiopian, Ministry of Health has recognized the undeniable role of early breastfeeding initiation in reducing child mortality, targeted an increase in the proportion of newborn put to breast within the first hour of life to 92 percent by 2015 as one strategy to improve child health [7]. But, the 2011 Ethiopian Demographic and Health Survey (EDHS) showed the proportion of children who were put to breast within the first hour of life as 52% [8] which is even lower (69%) compared to 2005 EDHS [9]. In order to achieve the Millennium Development Goal of reduction of child mortality, infant breastfeeding has been identified as one of the major intervention areas both globally and nationally [10, 11].

The benefits of breastfeeding for the health and well-being of the mother and baby are well documented. The World Health Organization recommends early initiation of breastfeeding (within 1 hour of giving birth) during which period colostrum is secreted with its well-known benefits [12,13]. Establishment of lactation within hours after birth may have important consequences on the biological and emotional health of the newborn [14]. It could reduce neonatal mortality [15] and is associated with longer duration of breastfeeding [16]. The mother also receives positive benefits due to release of oxytocin which causes uterine contraction and reduces maternal blood loss The early initiation of breastfeeding hastens mother–infant interactions and

promotes a strong and healthy relationship between mother and child [17, 18].

Timely initiation of breastfeeding is defined as putting the newborn to the breast within one hour of birth. Timely initiation of breastfeeding is not only the easiest, cost effective and most successful intervention; it also tops the table of life-saving interventions for the health of the newborn [4-6]. Twenty two percent of neonatal deaths could be prevented, if all infants are put to the breast within the first hour of birth [7].

The prevalence of timely initiation of breastfeeding in some developing countries other than Ethiopia was documented as in Ghana (41%), Sudan (54.2%), Zambia; (70%), Jordan (49.5%), North Jordan (86.6%), Nepal (72.2%), Bolivia; (74%). In Ethiopia, one third of babies do not receive breastfeeding within the first hour of birth and national prevalence of breastfeeding initiation was documented to be low with wide regional differences [1, 8-14]. Realizing the importance of timely initiation of breastfeeding, the Ethiopian government had developed infant and young child feeding guidelines giving appropriate emphasis to key messages on timely initiation of breastfeeding in 2004 [15]. Since then, different interventions like breast feeding promotions have been given at health institutions and at the community level by community health extension workers and other health care providers. However, these efforts are not based on systematic evidence on the level of existing practice which might be due to the paucity of data from studies on timely initiation. Thus, the study was designed to assess prevalence of timely initiation of breastfeeding and associated factors among lactating mothers less than twenty four months children in Western Ethiopia.

MATERIALS AND METHODS

Study area

The study was conducted in Nekemte town which is 331 Kilometers distant west of Addis Ababa, capital city of Ethiopia. The Town has 76,817 populations out of which 49% were female. According to city administration data, currently the town has 100,596 populations out of which 49,261 were female. Form these, the females reproductive age constitute are 22,232 (23.4 %) the total town population. The total numbers of surviving infants under one year and two year in the town were 3,189 and 3,060 respectively. The town has 12 sub cities and from these 6 was selected randomly [20].

Study Design

A cross-sectional community based study was employed to determine prevalence of timely initiation of breastfeeding and associated risk factors from January to February 2014 in urban dwellers of Western Ethiopia.

Study Participants

The study participants were mothers who are permanent residents in the study area having infant and young child less than 24 months old and at the time of the study was used as inclusion criteria for this study. However, the mothers who gave birth by caesarian section and mothers and child who were critically ill during data collection period were excluded from the study.

Sample size and sampling procedures

The sample size for this study was determined using single population proportion formula taking prevalence of early breastfeeding initiation in urban dwellers of Bahir Dar, northwest Ethiopia 87% [19], 95% confidence level, 5% margin of error and a non-response rate of 5% which gave a sample size of 182.The calculated sample size was allocated to the six sub cites using probability proportional to size of lactating mothers with index children age. The study participants were randomly selected from mother's identity number registration book of health extension workers of the sub cities. In each cluster census was conducted to identify households with under two children. One's households with under two children were identified the calculated sample size was allocated proportionally for each cluster. Lastly systematic sampling was used to identify households to be included in the study for each cluster. The youngest child from the household in the restricted age group was taken as an index child. Whenever more than one child per household were found, one was selected by lottery method.

Data Collection Procedure

Interview based pretested structured questionnaire was used to obtain quantitative data. The standard structured questionnaires contain data concerning socio-demographics, maternal and child characteristics, knowledge on breastfeeding, child feeding practices and cultural beliefs regarding infant feeding practices. The questionnaire was pre-tested before the actual data collection by 5% of the sample of lactating mothers who had children in the study area. Based on the pretest finding, some modifications were made to the questionnaire skip pattern and terminologies. The data were collected by six trained healthy extension workers under supervision of principal investigator to ensure the completeness of data and monitored the overall quality of the data collection**.**

In this study, breast-feeding practices included optimal child-feeding practices such as initiate breast feeding within 1 hour after delivery, giving colostrum, pre-lacteal feeds, frequent feeding on demand or on cues day and night at least 8-12 times (every 2-3 hours) and continue frequent, on-demand breastfeeding until 2 years of age or beyond.

Data analysis

The collected data were coded, entered and checked for missing values and outliers, and analyzed using SPSS version 20 statistical software. Descriptive statistics was computed to determine the prevalence of early initiation of breastfeeding. To identify associated factors, first a bivariate logistic regression was performed for each independent variable with the outcome of interest (early initiation of breastfeeding). Finally, multivariable logistic regression was done to determine independent predictors of early initiation of breast feeding. All tests were two-sided and $p < 0.05$ was considered statistically significant.

Ethical consideration

Ethical approval was obtained from Wollega University Ethical Review Committee. Each respondent was informed about the objective of the study. Informed verbal and written consent was obtained from the parents/caregivers. Confidentiality of information collected from each study participant was maintained.

RESULTS

Socio-demographic characteristics of the participants

One hundred seventy four mothers having children less than two years of age participated in the study making the response rate 96%.Out of the total children, 94(54.0%) and 80 (46.0%) of the children were males and female respectively. The mean (±SD) age of the mother and the child were 28(±5) years and 14(±7) months respectively. Out of the total study participants, 68(39.1%) of mothers earn an average monthly income of less than 500birrs.Larger respondent, 71 (40.8%) was house wives by occupation followed by employed103 (59.2%). Concerning the marital status of mothers, 154(88.5%) had married (**Table 1**).

Table 1: Socio-demographic characteristics by Timely initiation of breast feeding (TIBF) among lactating mothers of urban dwellers in Western Ethiopia, 2014

Characteristics		TIBF		Total	COR (95%CI)
		Yes	NO		
Ethnicity	Oromo	126 (90.0%)	14(10.0%)	140(80.5%)	0.33(0.081--1.377)
	Amhara	19 (86.4%)	3 (13.6%)	22(12.6%)	0.474(0.79-2.826)
	Other+*	9(75.0%)	3(25.0%)	12(6.90%)	1.00
Religion	Protestant	86(90.5%)	9(9.47%)	95(54.6%)	0.488(0.118- 2028)
	Orthodox	54(87.1%)	8(12.9%)	62(35.6%)	0.691(0.162-2.951)
	Muslim	14(82.4%)	3(17.6%)	17(9.80%)	1.00
Occupation	Housewife	64(90.1%)	7(9.85%)	71(40.8%)	0.757(0.286-2.004)
	Employed	90 (87.4%)	13 (12.6%)	103(59.2%)	1.00
Monthly income	≤500	65(95.6%)	3(4.41%)	68(39.1%)	0.878(0.310-2.484)
	501-1499	50(84.7%)	9(15.3%)	59(33.9%)	0.225(0.056-0.899)*
	≥1500	39(83.0%)	8(17.0%)	47(27.0%)	1.00
House ownership	Yes	134(87.0%)	20(13.0%)	154(88.5%)	0.277(0.099-0.779)*
	No	13 65.0%)	7(35.0%)	20(11.5%)	1.00
Maternal age	18-24	43(89.6%)	5(10.4%)	48(27.6%)	0.498(0.144- 1.720)
	25-31	81(79.8%)	8(20.2%)	89(51.1%)	0.423(0.141-1.268)
	31+	30(89.2%)	7(10.8%)	37(21.3%)	1.00
Sex of child	Male	70(87.5%)	10(12.5%)	80(46.0%)	1.20 (0.472-3.048)
	Female	84(89.4%)	10(19.1%)	94(54.0%)	1.00
Maternal Education	Illiterate	19 (79.2%)	5(20.8%)	24(13.8%)	3.246(0.894-11.784)
	Primary	61(87.1%)	9(12.9%)	70(40.2%)	1.820(0.614-5.397)
	Secondary+	74(92.5%)	6(7.50%)	80(46.0%)	1.00
Marital status	Married	129(83.8%)	16(10.4%)	154(88.5%)	0.775(0.239-2.514)
	Other**	25(86.2%)	4(13.8%)	29(16.7%)	1.00
Head of the household	Father	125(89.3%)	15 (10.7%)	140 (80.5%)	0.696(0.234-2.070)
	Mother	29(85.3%)	4(11.8%)	34(19.5%)	1.00

Statistical significance at (P-value<0.05), 1.00 =Reference group, *+= Tigray, Gurage, **= divorced, widowed

The study participants were witnessed that majority of the children 165(94.8%) were ever breastfed at some point in the past. From those who were ever breastfed 154(88.5%) of the mothers initiated breastfeeding within one hour of birth. About 147(95.5%) of the mothers were advised (informed) on breast feeding at Anti natal clinic (ANC) visit. Of all mothers, 143(81.6%) had well child attachment in this study area. In bivariate analysis, monthly income, currently use of family planning methods (FPM), ANC visit, advice given to mother on Breast Feeding (BF) at ANC visit, feeding colostrum to child, child attachment were statistically significant at (P<0.005) with timely initiation of breastfeeding in this study (**Table 2**).

Table 2: Obstetrics, health service and child feeding patterns by Timely initiation of breast feeding (TIBF) among lactating mothers of urban dwellers in Western Ethiopia, 2014

Characteristics		TIBF		Total	COR(95%CI)
		Yes	NO		
Parity	1st time	86(92.5%)	7(7.53%)	93(53.4%)	0.079(0.097-0.097)
	2and above	68(83.6%)	13(16.0%)	81(46.6%)	1
FP ever used	Yes	140(89.2%)	17(10.8%)	157(90.2%)	0.567(0.148-2.174)
	No	14(82.4%)	3(17.6%)	17(9.8%)	1
Currently use of FPM	Yes	128(93.4%)	9(6.57%)	137(78.7%)	0.17(0.063-0.441)*
	No	26(70.3%)	11(29.7%)	37(21.3%)	1
ANC visit	Yes	151 (90.1 %)	15(9.04%)	166(95.4%)	0.60(0.013-0.274)*
	No	3(37.5%)	5(62.5%)	8(4.6%)	1
Advice given on BF at ANC	Yes	147 (95.5%)	12(7.79%)	154(85.5%)	0.071(0.22- 0.231)*
	No	7 (46.7%)	8 (53.3%)	15 (8.62%)	1
Place of current delivery	Home	9(75.0%)	3(25.0%)	12(6.9%)	0.367(0.853-15.761)
	Health center	35(83.3%)	7(16.7%)	42(24.1%)	2.20 (0.779-6.212)
	Hospital	110(91.7%)	10(8.33%)	120(69.0%)	1
Mode of delivery	Normal	132(88.6%)	17(11.4%)	149(85.6%)	0.94(0.255-3.49)
	C-section	22(88.0%)	3(12.0%)	25(14.4%)	1
Birth attended by	non health professional	6(75.0%)	3(33.3%)	9(5.17%)	4.353(0.99-19.008)
	Health professional	148(89.7%)	17(10.3%)	165(94.8%)	1
Birth order of child	1st	54(93.1%)	4(6.89%)	58(33.3%)	0.681(0.173-2.688)
	2nd	54(83.1%)	11(16.9%)	65(37.4%)	1.874(0.607-5.789)
	3rd and above	46(90.2%)	5(9.80%)	51(29.3%)	1
Birth intervals	1 year	28(87.5%)	4(12.5%)	32(18.4%)	2.00(0.339-11.817)
	2-3 years	73(90.1%)	8(9.88%)	81(46.6%)	1.534(0.307-7.672)
	> 3 years	25(80.6%)	6(19.4%)	31(17.8%)	3.360(0.621-18.186)
	1st time delivery	28(93.3%)	2(6.67%)	30(17.2%)	1
Feeding colostrum	Yes	144(89.4%)	17(10.6%)	161(92.5%)	0.19(0.005-0.075)*
	No	10(76.9%)	3(23.1%)	13(7.5%)	1
Breastfeeding initiation	≤1 hour	135(96.4%)	5(3.57%)	140(80.5%)	0.234 (0.113-0.968)
	>1 hour	14(73.7%)	5(26.3%)	19(10.9%)	0.179(0.41-0.786)*
	Not sure	5(33.3%)	10(66.7%)	15(8.6%)	1
Child attachment	Poorly	11(68.8%)	5(31.3%)	16(9.2%)	4.33(1.327-14.151)*
	Well	143(81.6%)	15(18.4%)	158(90.8%)	1
Child positioning	Poorly	23(85.2%)	4(14.8%)	27(15.5%)	1.424(0.437-4.643)
	Well	131(89.1%)	16(10.9%)	147(84.5%)	1

*Statistical significance (P<0.05), 1 =Reference group, COR= Crude odd ratio, 95%CI=95% confidence interval, FPM (Family Planning Methods)

The attitude and practice assessments revealed that (85.5%) mothers were agreed as BF frustration, 131(83.3%) were agreed on baby is getting enough milk from BF (90.7%) were agreed that colostrum is important to child, a few mother (80.6%) were believed that colostrum cause illness to child. In bivariate analysis, feeding colostrum to child, BF is frustrating and baby is getting enough milk from BF were statistically significant (p<0.005) with timely initiation of breastfeeding in this study (**Table 3**).

Table 3: Attitude and Practice towards breast feeding by Timely initiation of breast feeding (TIBF) among lactating mothers of urban dwellers in Western Ethiopia, 2014

Characteristics		TIBF		Total	COR(95%CI)
		Yes	No		
Enjoy with breastfeeding	Agree	150(89.8%)	17(10.2%)	167(96.0%)	0.340(0.033-3.453)
	Neutral	1(33.3%)	2(66.7%)	3(1.72%)	6.00(0.221-162.5)
	Disagree	3(75.0%)	1(25.0%)	4(2.3%)	1
BF is frustrating	Agree	59(85.5%)	10(14.5%)	69(39.7%)	0.203(0.758-6.405)*
	Neutral	17(81.0%)	4(19.0%)	21(12.1%)	0.059(0.778-12.033)
	Disagree	78 (92.9%)	6(7.14%)	84(48.3%)	1
Baby is getting enough milk from BF	Agree	131(83.3%)	13(16.7%)	144(82.8%)	0.298(0.93-0.951)*
	Neutral	8(80.0%)	2(20.0%)	10(5.7%)	0.750(0.118-4.773)
	Disagree	15(75.0%)	5(25.0%)	20(11.5%)	1
Colostrum is important to child	Yes	146(90.7%)	15(9.32%)	161(92.5%)	0.164(0.048-0.567)*
	No	8(61.5%)	5(38.5%)	13(7.5%)	1
Small breast can produce enoughMilk	Agree	124(91.9%)	11(8.15%)	135(77.6%)	0.444(0.111-1.77)
	Neutral	15(71.4%)	6(28.6%)	21(12.1%)	2.00(0.420-9.52)
	Disagree	15(83.3%)	3(16.7%)	18(10.3%)	1
Believe that colostrums can cause illness to child	Yes	29(80.6%)	7(19.4%)	36(20.7%)	2.321(0.51-6.33)
	No	125 (90.6%)	13 (9.42%)	138 (79.3%)	1

*Statistical significance (P<0.05), 1 =Reference group, COR= Crude odd ratio, 95%CI=95% confidence interval

In multivariable analysis, advice given to mother on BF during ANC visit was important predictor of timely initiation of breastfeeding **(P<0.05).** Those respondents who had advised on BF during ANC were 0.09 times less likely to initiate breastfeeding after one hour compared to their counter parts **(AOR (95% CI) = 0.094 (0.03-0.35)).** Whereas importance of colostrum to child were 0.2 times less likely to initiated breastfeeding after one hour as compared to those who initiated within one hour **(AOR (95% CI) = 0.19 (0.05-0.69)).** Those mothers who had poor child attachment to breast were 3.6 times more likely to initiate breastfeeding after one hour delivery compared to mothers who had good child attachment to breast **(AOR (95% CI) = 3.64 (1.05-12.6))** (**Table 4**).

Table 4: Multivariable logistic regression analysis showing factors associated with timely initiation of breastfeeding among mothers of urban dwellers in Western Ethiopia, 2014

Characteristics		TIBF		Total	COR(95%CI)	AOR (95%CI)
		Yes	No			
Advice on BF at ANC	Yes	147 (95.5%)	12(7.79%)	154(85.5%)	0.071(0 .22-0.231)*	0.094 (0.025-0.35)*
	No	7 (46.7%)	8 (53.3%)	15 (8.62%)	1.00	1.00
Child attachment to breast	Poorly	11(68.8%)	5(31.3%)	16(9.2%)	4.33(1.327-14.151)*	3.64(1.05-12.62)*
	Well	143(81.6%)	15(18.4%)	158(90.8%)	1.00	1.00
Child is getting enough milk from BF	Agree	131(83.3%)	13(16.7%)	144(82.8%)	0.298(0.93-0.951)*	1.433(0.188-10.912)
	Neutral	8(80.0%)	2(20.0%)	10(5.7%)	0.750(0.118-4.773)	17.65(0.486-640.91)
	Disagree	15(75.0%)	5(25.0%)	20(11.5%)	1.00	1.00
Importance of colostrum	Yes	146(90.7%)	15(9.32%)	161(92.5%)	0.164(0.048-0.567)*	0.19(0.05-0.69)*
	No	8(61.5%)	5(38.5%)	13(7.5%)	1.00	1.00

*Statistical significance (P<0.05), 1.00 =Reference group, COR= Crude odd ratio, AOR=adjusted odd ratio, 95%CI=95% confidence interval **DISCUSSION**

In the present study, the overall prevalence of timely initiation breast feeding of mothers whose children aged 24 months and less were 154 (88.5%). This was in line with the recommendation of WHO and UNICEF(within one hour of birth). The finding was similar to finding from Goba Woreda, South East Ethiopia [4]. The finding was much higher than previous other similar studies done in Sudan (54.2%), Jordan (49.5%), Amhara region (60%) and Southern Nations Nationalities and Peoples (SNNP) region (50%). Also, the figure we obtained is slightly higher than those observed in other studies from North Jordan (86.6%), Nepal (72.2%),

Zambia; (70%), Bolivia (74%), Bahir Dar city (87%), Ethiopia (national level) (69%), Oromia region (77%) [1, 8-11, 14, 16-19]. Timely initiation of breastfeeding is important for both the mother and the child. Early suckling stimulates the release of prolactin, which helps in the production of milk, and oxytocin, which is responsible for the ejection of milk and stimulates the contraction of the uterus after childbirth. Thus, comprehensive information should be given for all women in the reproductive age group on importance of early initiation of breastfeeding (7).

In this study, importance of colostrum to child was statistically significant difference with timely initiation of breast feeding ($p<0.05$) in which 91.2% of mothers had fed colostrum their infants. The finding was similar with previous study conducted in Ethiopia [21]. Health extension workers deployed in urban areas might be responsible for wide practice of colostrum feeding in the study area. Early initiation of breastfeeding prevents neonatal and infant deaths largely by reducing the risk of infectious diseases. This risk is reduced because: Colostrum, the first breast-milk contains a large number of protective factors that provide passive and active protection to a wide variety of known pathogens [13].

In this study, advice given to mother on breast feeding at ANC visit was also statistically significant difference with timely initiation of breast feeding ($p<0.05$). The finding was disagrees with similar study conducted in Goba Woreda, South East Ethiopia [4]. The might be due to the difference of training given by health extension workers, lack of awareness, study area and culture on timely initiation of breast feeding [20].

Regarding attachment to breast, in present study, those mothers who had poor child attachment on breastfeeding were 3.6 times more likely to initiate breastfeeding after one hour delivery compared to mothers who had good child attachment. 90.8% of babies were well attached (adhering to all the four important attributes, i.e. chin touching the breast, mouth wide open, lower lip turned outward, and most of the nipple and areola in the mouth with only upper areola visible above the mouth), while 9.2% of babies were not well attached to breast (lacking any one or more of the four attributes). This finding was higher than other similar studies conducted in Bangladesh and India which reported good attachment 72.3% and 41.2% respectively [23, 24]. This might be due to awareness difference and study area.

CONCLUSION

The study showed that the prevalence of timely initiation of breastfeeding was good. Advice during ANC visit, child attachment to breast and knowing importance of colostrum were important predictors for timely initiation of breastfeeding. Thus, the ongoing antenatal care advising on breast feeding practice should be strengthening and more close attention is needed on breast attachment practice of lactating mothers.

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AUTHORS' CONTRIBUTIONS

TW designed the study and created the survey instrument. TW, TB and EE participated in the design of the study and helped to write the manuscript. TW, TB and EE also contributed to statistical analysis and data interpretation. All authors read and approved the final manuscript.

COMPETING INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

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