

## Timely Initiation of Breastfeeding and Its Associated Factors among Mothers in Tiyo Woreda, Arsi Zone, Ethiopia: A Community- Based Cross Sectional Study

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### Abstract

**Background-** Timely initiation of breastfeeding is a recommended practice by the World Health Organization since 1992 which says "initiate breastfeeding within one hour of delivery, though it is not a usual practice in Ethiopia. Untimely initiation of breastfeeding has negative effect on child health, survival, growth and development. Therefore, this study was assessed the timely initiation of breastfeeding and its associated factors among mothers who have child less than one year age in Tiyo Woreda, Arsi zone, Ethiopia .

**Methods-** A community based cross sectional study design was employed in Tiyo District from October to November 2014. The sample size was 386. Households with mothers who had just delivered within the past year were identified through census and sampling frame was developed. Finally study subjects were addressed through simple random sampling. Data were collected using interviewer administered pre-tested and structured questionnaire. The data were cleaned, coded and entered into Epi-Data version 3.1 and then exported SPSS version 21 windows for analyses. Descriptive analysis was done to determine the prevalence and logistic regression analysis was used to identify determinants of timely initiation of breast feeding and P value <0.05 was considered as statistically significant.

**Results-**The prevalence of timely initiation of breastfeeding of this study is 67.3%. Mothers with formal education were more likely to initiate breastfeeding timely (AOR=4.501, CI: 1.08, 18.76). Mothers who gave birth at home were less likely to start breastfeeding timely than mothers who delivered at health institution with (AOR= 0.13, 95% CI: 0.05, 0.35). Advice about timely initiation of breast feeding provided to mothers immediately after delivery was independently associated with timely initiation of breastfeeding(AOR=3.71,95% CI:1.45,9.48). Prevalence of timely initiation of breastfeeding of this study is encouraging.

**Conclusions-**The advice for mothers on timely initiation of breastfeeding immediately after delivery and education had a positive impact, whereas a poor health status (such as mothers transported to hospitals) and home delivery had a negative impact on timely initiation of breastfeeding.

**Keywords:** Timely initiation of breast feeding; Mothers; Less than one year age; Children

### Introduction

Breast milk is the natural first food for babies and timely initiation of breastfeeding is putting the newborn to the breast within one hour of birth as World Health Organization recommended since 1992 [1,2]. Breast milk is widely acknowledged to provide the best and most complete nutrition for infants, with benefits to growth, immunity, development, and health, regulate of body temperature and the blood glucose level [3,4]. Furthermore, breastfeeding immediately after delivery has advantage to the mother through facilitate placental expulsion, uterine contraction, reducing the risk of postpartum hemorrhage, prevent breast engorgement and reduces the likelihood of maternal breast and ovarian cancer later in life [5]. Nearly three million babies die every year in their first month of life; from this, up to one half of all deaths occur within the first 24 hours of life which

almost all are due to preventable causes [6]. Among various reasons for the death, neonatal hypothermia that happen due to delayed initiation of breastfeeding and infection; thought early initiation of breastfeeding (within one hour of birth) protects the newborn from acquiring infections and reduces newborn mortality [7]. Initiation of breastfeeding within first one hour of birth is the first and most vital steps towards reducing infant and less than five child mortality [8] because the neonate who initiated breastfeeding within one hour are less likely to die of neonatal sepsis than those who didn't [9]. The risk of death as a result of infection increased with increasing delay in initiation of breastfeeding from one hour to day seven [10]. Studies in Nepal and Ghana suggest that initiation of breastfeeding within the first hour could prevent 19-22% of neonatal death [8,9]. In developing countries alone early initiation of breastfeeding could save as many as 1.45 million lives each year by reducing deaths mainly due to diarrheal disorders and lower respiratory tract infections in children [11,12]; in contrast many women delay timely initiation of breastfeeding [13]. Recognizing 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 [14]. One strategy of National Nutrition Programme Implementing Sectors Declaration in Ethiopia is to improving nutrition through promoting of breastfeeding initiation within one hour of birth [15]. Though the studies conducted in Ethiopia concerning timely initiation of breast feeding are limited to urban areas and no study so far addressed the timely initiation of breastfeeding in the study area. Therefore, the intention of this study was to assess timely initiation of breastfeeding and its associated factors among mothers of Tiyo Woreda, East Arsi Zone, Ethiopia.

## Methods

### Study setting and participants

Community based cross sectional study was conducted among mothers who have children Less Than One Year Age in Tiyo District, Arsi Zone, Ethiopia from October to November 2014. Tiyo District is located at 175 km from Addis Ababa to the south east of Ethiopia. There are 4 health centers, 18 health posts and 7 private clinics in the Woreda. Tiyo woreda is administratively structured into: Rural and urban kebeles, with 18 rural and 3 urban kebeles. Households with less than one year children were identified through census and sampling frame was developed. Finally the study subjects were addressed through simple random sampling. The sample size was determined using single population proportion formula with an assumption of level of confidence 95%, sampling error tolerated 5%, proportion 52% [16] and 10% non-response rate. Based on number of mothers who have less than 12 month's old children, the final sample size 386 was distributed for each kebele by using the probability proportion to size sampling technique.

### Instruments and Data collection methods

Structured questionnaires, which address the objectives of the study, were adapted from pertinent literatures [13,14,16-18]. Questionnaire was translated to Afan Oromo (local language) and then back to English by health professional with support of language expert to check its consistency. Pre-testing was done on 5% of the sample before the actual data collection on non-selected kebele and slight amendment on

tool was made accordingly. House to house data collection was done through interviewer administered questionnaire by grade 12th complete students who took training for two days on the questionnaire and on general approaches to data collection.

### Data Processing and Analysis

The data were cleaned, coded and entered into Epi Data version 3.1 and exported to SPSS version 21 for an analysis. Descriptive analysis was done to determine the prevalence. Variables that showed significant association with timely initiation of breastfeeding in the bivariate logistic regression were entered in a multivariable logistic regression. Multivariable analyses were used to identify determinate factors of timely initiation of breastfeeding. A corresponding p-value of <0.05 was considered to be statistically significant. The results were presented in the form of tables, figures and text.

### Ethical Considerations

Ethical clearance and approval was obtained from the Ethical review Committee of the Nursing and Midwifery, College of Health Science, Addis Ababa University. Then letter of co-operation was secured from Zonal Health bureau & Woreda Health Office. After oral informed consent and confidentiality were ensured, data were collected from participants. Participants were informed that their participation was on voluntary base. All the information given by the respondents was used for research purposes only.

### Results

Out of 386 sampled mothers, 373 were included in the analysis making the response rate 96.6%. The mean age of the respondent was 27.03 (SD ± 5.62) years. One hundred eighty three (49.1%) of the mothers were Orthodox Christians, followed by Muslims, 164 (44.0%). The largest ethnic group was Oromo 284(76.1%), followed by Amhara, 89 (23.9%). Concerning educational background, more than two-third 253 (67.8%) of the mothers and 301 (80.7%) of their husbands attended formal education. Relating to marital status, great majority 361 (96.8%) of mothers were married and the current occupation 359 (96.2%) of the mothers were housewife (Table 1).

Variables	Alternatives	Frequency	Percent (%)
Residence of the mothers	Urban	32	8.6
	Rural	341	91.4
Age category mothers	15-19	28	7.5
	20-24	94	25.2
	25-29	128	34.3
	30-34	64	17.2
	35+	59	15.8
Religion of mothers	Orthodox	183	49.1
	Muslim	164	44.0
	Protestant	26	7.0
Ethnicity of the mothers	Oromo	284	76.1
	Amhara	89	23.9

Respondent Formal education	Yes	253	67.8
	No	120	32.2
Educational level of mothers	Uneducated	120	32.1
	Primary education	186	49.9
	Secondary and above	67	18.0
Marital status of mothers	Married	361	96.8
	Other*	12	3.2
Occupation of mothers	House wife	359	96.2
	Other**	14	3.8
Husband formal education	Yes	302	81.0
	No	71	19.0
Husband Educational level	Uneducated	71	19.0
	Primary education	177	47.5
	Secondary and above	125	33.5
Sex of child	Male	213	57.1
	Female	160	42.9

\*Single, widow and divorced \*\*students, merchants and house maid

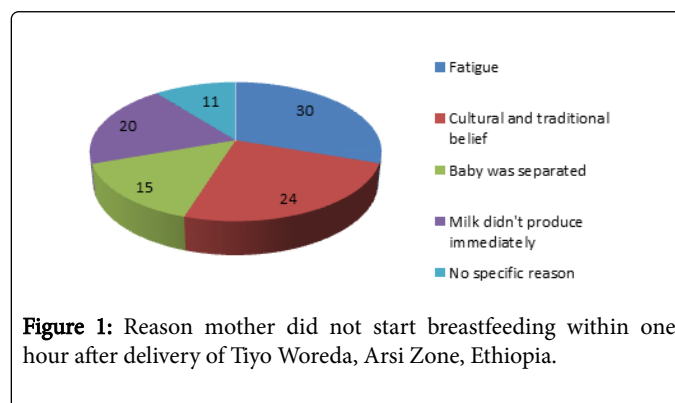
**Table 1:** Distribution of socio demographic characteristics of the study participants of, Tiyo Woreda, Arsi Zone, Ethiopia (n=373).

Almost, all mother had been breastfeeding at least once in their life time to their youngest child among which, 251(67.3%) of them started breastfeeding within the first delivery hour. Out of the mothers who delay initiate breastfeeding 30% report reason due to fatigue (Figure 1). From all respondents, 32(8.6%) of the mothers squeezed out and discarded colostrum and out of these 15 (46.9%) believed that colostrum caused abdominal cramp to their infant.

Fifty five (14.7%) of the mothers were giving prelacteal feeding to their newborns other than breast milk ; 24 (43.6%), 30.9 and 25.5 of them did this for the reason that their breast milk was insufficient for the newborns, to soften the stomach of the newborn and colostrum causes abdominal cramp respectively. Out of the total mother who practiced prelacteal feeding cow's milk , butter , plain water and sugar 40%, 29% 18% and 13% used respectively.

### Factors associated with Timely Initiation of Breastfeeding

In Bivariate analysis, age of the mothers, educational status, religion, husbands' educational status, child sex, parity, mode of delivery, history of Antenatal care (ANC) visit, place of delivery, having information/advice on timely initiation of breast feeding during ANC visits and having information/advice on timely initiation of breast feeding (TIBF) immediately after delivery had shown association ( $P < 0.05$ ). But, in multivariate analysis mothers attended formal education, mother's hospital admission history, place of delivery and mothers who have information/ advice about timely initiation of breastfeeding after delivery had independent significant association with timely initiation of breastfeeding ( $P < 0.05$ ).



**Figure 1:** Reason mother did not start breastfeeding within one hour after delivery of Tiyo Woreda, Arsi Zone, Ethiopia.

Mothers who attended formal education were more likely to initiate breastfeeding timely than mothers who didn't attend formal education (AOR=4.509, 95% CL: 1.084, 18.762). Mothers who admitted to hospital immediately after delivery were less likely to initiate breastfeeding timely as compared to those who did not admit to hospital immediately after delivery (AOR=0.0340, 95% CI: 0.007, 0.159).

Mothers who gave birth at home were less likely to start breastfeeding timely than mothers who delivered at health institution with (AOR=0.131, 95% CI: 0.049, 0.352). Mothers who were advised about timely initiation of breast feeding immediately after delivery were 3.7 times more likely to initiate breast feeding timely than those who didn't get advice/information about timely initiation of breastfeeding immediately after delivery (AOR=3.71, 95% CI: 1.45, 9.48) (Table 2).

Variables	Alternatives	Timely initiation of breastfeeding		COR (95% CI)	AOR (95% CI)
		Yes n (%)	No n (%)		
Age category of mothers	15-19	21 (5.6)	7 (1.9)	2.710 (1.000,7.339) 1.750(0.899, 3.405) 2.710 (1.416, 5.185)* 1.610 (0.782 , 3.316) 1	0.703 (0.099 , 4.984) 0.645 (0.172 , 2.424) 2.975 (0.801, 11.047) 0.697 (0.155, 3.146) 1
	20-24	62 (16.6)	32 (8.6)		
	25-29	96 (25.7)	32 (8.6)		
	30-34	41 (11.0)	23 (6.2)		
	35+	31 (8.3)	28 (7.5)		
Formal education of mothers	Yes	188 (50.4)	65 (17.4)	2.763 (1.750, 4.362)* 1	4.509 (1.084, 18.762)* 1
	No	63 (16.9)	57 (15.3)		
Husband formal education	Yes	219 (58.7)	83 (22.3)	3.216 (1.890, 5.471) 1	1.489 (0.425, 5.213) 1
	No	32 (8.6)	39 (10.5)		
Educational level of mothers	Uneducated	63 (16.9)	57(15.3)	1 2.411(1.491, 3.897)* 4.288(2.087, 8.807)*	1 0.286 (0.070, 1.166) 0.330 (0.084, 1.290)
	Primary education	133 (35.7)	53(14.2)		
	Secondary and above	55 (14.7)	12(3.2)		
Husband Educational level	Uneducated	32 (8.6)	39 (10.5)	1 2.633 (1.497, 4.632)* 4.424 (2.350, 8.326)*	1 1.133 (0.497, 2.423) 2.434 (0.050, 3.426)
	Primary education	121(32.4)	56 (15.0)		
	Secondary and above	98 (26.3)	27 (7.2)		
Sex of child	Male	153 (41.0)	60 (16.1)	1.613 (1.043, 2.495)* 1	1.850 (0.712, 4.809) 1
	Female	98 (26.3)	62 (16.6)		
Parity	1	88 (23.6)	43 (11.5)	2.210 (1.148, 4.255) 2.866(1.526, 5.385) 1	3.133 (0.494, 19.880) 2.393 (0.573, 10.002) 1
	2-4	138 (37.0)	52 (13.9)		
	5+	25 (6.7)	27 (7.2)		
Mode of delivery	Spontaneous Vaginal	245 (65.7)	110 (29.5)	4.455 (1.630, 12.175) 1	3.656 (0.522 , 25.596) 1
	Cesarean-section	6 (1.6)	12 (3.2)		
Mother Hospital admission	Yes	8 (2.1)	20 (5.4)	0.168(0.072 , 0.394) 1	0.034 (0.007, 0.159)* 1
	No	243 (65.1)	102(27.3)		
Antenatal care follow-up	Yes	194 (52.0)	41 (11.0)	7.470(4.605, 12.117) 1	0.232 (0.004, 13.653) 1
	No	57 (15.3)	81 (21.7)		
Number of ANC visit/s	1	7 (3.0)	6 (2.6)	0.291(0.130, 0.649) 0.975(0.523, 1.815) 1	2.828 (0.466 , 17.185) 1.470 (0.528, 4.089) 1
	2-3	57 (24.3)	20 (8.5)		
	4+	130 (55.3)	15 (6.4)		
Advised on TIBF during ANC	Yes	60 (25.5)	5 (2.1)	2.687 (1.078, 6.699) 1	1.643 (0.422 , 6.395) 1
	No	134 (57.0)	36 (15.3)		
Place of birth	Home	49 (13.1)	103 (27.6)	0.045 (0.025, 0.080) 1	0.131 (0.049, 0.352)* 1
	Health institution	202 (54.2)	19 (5.1)		
Advised TIBF after delivery	Yes	197 (52.8)	24 (6.4)	14.897 (8.695, 25.522) 1	3.710 (1.451, 9.481)* 1
	No	54 (14.5)	98 (26.3)		

\* P value<0.05; COR=Crude Odd ratio; CI= Confidence Interval; AOR=Adjusted Odd Ratio

**Table 2:** Multivariate Analysis of factors associated with timely initiation of breastfeeding among mothers of Tiyo Woreda, Arsi Zone, Ethiopia.

## Discussion

WHO was classified the percentages of breastfeeding initiation in the first hour of delivery as poor (0-29%), fair (30-49%), good

(50-89%) and very good (90-100%) [17]. In this study, the percentage of breastfeeding initiation within the first hour of delivery was 67.3 % which was good. This prevalence was congruent to study from Bahir Dar city which was 68.5% [18]. It was higher when compared to the

study conducted in Sudan 54.2% [19], Tanzania 46.1% [20] and Nigeria 59.2% [21]. This might be due to cross-cultural difference. Similarly, this finding was higher when compared to Ethiopia demographic Health survey (EDHS) 2011 Oromia region 52.4% [22] and Bale Goba 52.4 % [16]. This might be due to higher proportion of mothers who had history of institutional and spontaneous vaginal delivery, and got information/advice immediately after delivery which could be the important services delivery point to establish timely initiation of breastfeeding. In contrast, the result of this study was lower than study done in Nekemte town 88.5% [23]. This might be due to the respondent's residents' difference.

In this study, four factors were identified as predictors for breastfeeding within the first hour of life for new-born: mother attended formal education, mother hospital admission immediately after delivery, place of delivery and advice for mothers on timely initiation of breastfeeding immediately after delivery. Those mothers who attended formal education were more than four times more likely to start breastfeeding timely as compared to those mothers who didn't attend formal education. This result was in agreement with studies conducted in Bale Goba, Ethiopia [18], Tanzania [20] and India [19]. Those mothers who delivered current child at home were less likely to initiate breastfeeding early than those mothers who delivered at health institution. This finding was consistent with those of other studies conducted in Tanzania [20], Nigeria [21] and Bale Goba; Ethiopia [18]. This might be due to the fact that health institution delivery is the best source of information for early initiation of breastfeeding. However, result obtained from Mekelle, Ethiopia inconsistent with this result that mothers who delivered at home were 3.7 times more likely to initiate breastfeeding within one hour of delivery as compared to those who delivered at the health institution [22]. Another determinant factor for delay of timely initiation of breastfeeding identified in this study was maternal hospital admission immediately after delivery which agrees with studies conducted in India [19] and Turkey [23] that confirm maternal hospital admission immediately after delivery had association with delay initiation of breastfeeding. One of the possible explanations for this is that hospital admitted mothers were unwilling to initiate breastfeeding due to their poor health status. There is positive association between mothers who had information immediately after delivery regarding timely initiation breastfeeding. Mother who had information about timely initiation of breastfeeding immediately after delivery were 3.775 times more likely to start timely initiation breastfeeding than those mother who did not receive information/ advice (AOR=3.775, 95% CI: 1.527, 9.334). This result is in agreement with the study conducted in Bale Goba, Ethiopia [18] and Brazil [24-26]. This might be related to the fact that mothers received to breastfeeding information/counselling immediately after delivery which is the most appropriate time for delivering key messages about breastfeeding.

## Conclusions and Recommendations

This study revealed that the prevalence of timely initiation of breastfeeding is encouraging, but it still lower than Ethiopian Health Sector Development Programme IV target. The instruction procedure and education had a positive impact, whereas a poor health status (such as mothers transported to hospitals) and home delivery had a negative impact. Encouraging health institutional delivery, advising/counselling mother about timely initiation of breastfeeding during antenatal care visits and immediately after delivery, and empowering women through education were recommended.

## Authors contributions

BW conceived and designed the study, analyzed the data and prepared the manuscript. YK assisted with the design conception and critically reviewed the manuscript. Both authors have read and approved this manuscript.

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