

## Prevalence and Associated Factors on Timely Initiation of Breastfeeding among Mothers of Children Age Less Than 12 Months in Wolaita Sodo City, Wolaita, Ethiopia

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### Abstract

#### Background

Timely initiation of breastfeeding is defined as placing the neonates to the breast within 1 h after delivery. In Ethiopia, different studies have been conducted to assess the magnitude of early initiation of breast feeding but findings of these studies were characterized by great variability. Therefore, the aim this study was to assess timely initiation of breastfeeding and associated factors among mothers of children less than 12 months old.

#### Materials and Methods

Community based cross-sectional study design was employed from January 1<sup>st</sup> to March 31<sup>st</sup> 2019. Multistage sampling procedure was used and data was collected by interviewer administered questionnaire. Both bivariable and multivariate logistic regression analyses were performed and statistical significance was declared at P- value less than 0.05.

#### Results

The mean age of mothers in this study was 25.97 ( $\pm 5.5$ ), and 93.7% were married. Prevalence of timely initiation of breast feeding was 80.2%. In multiple logistic regression analysis, being male (AOR: 3.39, 95% CI: 3.39(1.49, 7.71), living with nuclear family (AOR: 3.49, 95% CI: 1.09-11.12), spontaneous vaginal delivery (AOR: 4.67, 95% CI: 1.92-11.33), and counseling on timely initiation of breast feeding during ANC (AOR: 4.76, 95% CI: 2.06-10.98) were statistically associated.

#### Conclusion

Timely initiation of breastfeeding in Wolaita Sodo city was lower than nationally recommended level of 92%. Providing breastfeeding counseling during antenatal visits and at community level on timely initiation of breastfeeding and advising mothers to initiate breast milk within 1 hour after caesarian sections were recommended.

**Key Words:** Breastfeeding, Early initiation, Ethiopia Infants.

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## 1- INTRODUCTION

Providing breast milk is a fundamental for child health because it has a straight impact on the development and quality of health (1, 2). Breast milk delivers well-known short-term paybacks in reducing the danger of death and transmittable illnesses (3). Studies have also established the long-term protection breastfeeding offers against non- communicable diseases (1, 4). World Health Organization recommend breastfeeding begin within the first hour of life and be exclusive for the first six months with continuation up to two years (5, 6). Timely initiation of breastfeeding is well-defined as introducing the newborn to the human milk within 1 hour of birth (7), and it is therefore imperative for both the mother and the child. The first breast milk is extremely nutritious and has antibodies that shield the newborn from diseases (8, 9). Early initiation of breastfeeding also boosts attachment between the mother and her newborn, and accelerates the production of consistent breast milk (10, 11). Timely initiation of breastfeeding can also help to avoid neonatal deaths caused by infections such as sepsis, pneumonia, and diarrhea (9, 10, 12). Studies showed breastfeeding within the first hour can prevent around 22% of neonatal deaths (1, 3, 5, 13, 14). Ministry of Health of Ethiopia established the national nutrition program II and the national guideline on adolescent, maternal, infant, and young child nutrition to promote optimal feeding and care practices that follow international recommendations (13, 15). Since then, different interventions like breast feeding promotions have been given at health institutions and community level by community health extension workers and other health care providers but these efforts were not based on systematic evidence at the level of existing practice which might be due to the paucity of data from studies on timely initiation.

So early breastfeeding initiation is not only the simplest, most cost effective and efficacious action but it also tops the table of life-saving interventions for the well-being of the newborns (1, 3, 16). To our knowledge, there were no studies done on early initiation of breastfeeding in the study setting, therefore, this study was aimed to assess timely initiation of breastfeeding and associated factors among mothers with children aged less than 12 months in Wolaita Sodo city, Ethiopia.

## 2- MATERIALS AND METHODS

### 2-1. Study design and setting

Community based cross-sectional study design was used for current study. The study was carried out in Wolaita Sodo City, Ethiopia. The city has a total population of 250,521 (79,871 (52%) males, 73,650 (48%) females). It has three sub cities with 24 kebeles (the smallest administrative structure in Ethiopia), 3 health centers, 1 teaching and referral hospital and 1 general hospital. Wolaita Sodo City is located 327 km from Addis Ababa, the capital of Ethiopia (17).

### 2-2. Source population

All mothers with children less than 12 months of age in Wolaita Sodo City, Ethiopia.

### 2-3. Study population

Selected mothers who have a child less than 12 months of age and who lived in Wolaita Sodo City for at least 6months.

### 2-4. Inclusion and exclusion criteria

Mothers who have a child less 12 months of age, resided in the study area for at least six months and provided informed consent were included in the study and mothers who were seriously ill and who did not volunteer to participate in the study were excluded.

### 2-5. Sample size determination

Sample size was calculated by using single population proportion statistical formulas with assumption of prevalence of timely initiation of breast feeding 62.6 %, Debre Birhan (18) at 95% confidence level (CI) with 5 % margin of error.

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

$$n = \frac{(1.96)^2 \times 0.626 (1-0.626)}{(0.05)^2}$$

$$= \frac{3.8416 \times 0.626 \times 0.374}{0.0025}$$

n=360, 10 % for non-response rate was added, making the final sample size 396.

### 2-6. Sampling procedure

Multi stage sampling technique was used to select 396 eligible mothers. First, 9 kebeles were selected from a total of 24 kebeles based on systematic random sampling. Proportional allocation was employed to obtain sample size from 9 kebeles. The systematic sampling method (K=12) was used to interview households. The youngest child was selected in the households with more than one youngster less than 12 months.

### 2-7. Data collection procedure and tools

Structured, pre-tested and interviewer administered questionnaires were used to collect data. The tools were from the World Health Organization (WHO) indicators for assessing infant and young child feeding practices and adapted to the Ethiopian context (15). Five professional nurses and five health officers collected data.

### 2-8. Data quality management

Before data collection, the questionnaire was first prepared in English and translated into Amharic and back to English to keep the consistency of questionnaire. Two days training was given to data collectors and supervisors by the principal investigator before data collection. A pretest was conducted in Areka town on 5% of total sample size. Questionnaires were revised

and edited after pretest. Daily check-up of data for completeness and consistency was done during data collection by the principal investigator and supervisors.

### 2-9. Operational definitions

Based on the WHO standard (18), poor initiation of breast feeding: if 0-29 % of mothers initiated breast feeding within one hour of delivery, fair initiation of breast feeding: if 30-49 % of mothers began breast feeding within one hour of delivery, good initiation of breast feeding: if 50-89% of mothers experienced breast feeding within one hour of delivery, very good initiation of breast feeding: if 90-100 % of mothers practiced breast feeding within one hour of delivery.

### 2-10. Data analysis procedures

The data were coded, entered, cleaned and edited by EPI-data version 3.1, and exported to SPSS software version 25.0 for analysis. Bivariable analysis was computed to test the statistical association between the outcome and each independent variable. Variables with p-value of less than 0.2 were taken as candidate for multiple logistic regression analysis. Multiple logistic regression analysis was done and variables with P-values  $\leq 0.05$  were considered as associated factor for timely initiation of breastfeeding. Adjusted Odds Ratio (AOR with 95% CI) was used to declare the strength of statistical significance.

### 2-11. Ethical issues

Ethical clearance and approval letter to conduct study was obtained from Wolaita Sodo University Institutional Review Board and written consent was obtained from the study participants after explaining the study objectives and procedures and their right to refuse to participate in the study at any time was assured. For this purpose, a one page consent letter was attached to the cover page of each questionnaire stating the general objective

of the study and issues of confidentiality which were discussed by the data collectors before proceeding with the interview. Confidentiality of the information was ensured by coding. The interview was undertaken privately in a separate area. Only authorized person had access to the raw data collected from the field.

### 3- RESULTS

#### 3-1. Socio demographic and economic characteristics of the respondents

In this study, 383 mothers having infants less than 12 months participated in this study making the response rate 97.7 %. The mean age of mothers that participated in this study was 25.97 with the standard deviation of ( $\pm 0.970$ ). A large

majority 329 (85.7 %) of respondents were Wolaita in their ethnic group. About 262(68.4) of respondents were Protestant Christians in their religious affiliation. About 147(38.4%) of mothers completed primary school and 290(75.7%) of them were housewives. Around 197(51.4%), and 186(48.6%) of them were females and males respectively. From 383 mothers, 348(90.9%) were living with their nuclear family. The large majority of families 235(61.4%) have one under-five child. About 350(91.4%) of the study participants had exposure to mass media and the majority of respondents, 133(34.7%), had one thousand (33.3 USD) as monthly income of the family and almost all 381(99.5%) of the families have under-five children from one to three (**Table.1**).

**Table-1:** Socio-demographic and economic characteristics of the respondents (mothers) among mothers of infants less than 12 months of age in Wolaita Sodo City, Wolaita, Ethiopia 2019.

Variables	Category(n=383)	Frequency (%)
Age of the mother	<19	26(6.8)
	20-24	181(47.3)
	25-29	109(28.5)
	30-34	46(12)
	35 and above	21(5.5)
Ethnicity	Wolaita	329(85.7)
	Amhara	22(5.7)
	Gurage	19(5)
	Others	13(3.4)
Marital status of mother	Married	359(93.7)
	Divorced	16(4.2)
	Widowed	8(2.1)
Religious affiliation	Protestant	262(68.4)
	Orthodox	95(24.8)
	Muslim	21(5.5)
	Others	5(1.3)
Maternal educational level	Illiterate	19(5)
	Completed primary	147(38.4)
	Completed secondary	132(34.5)
	College and above	85(22.2)
Occupational status of mother	House wife	290(75.7)
	Employed	33(24.3)
Husbands educational status	Illiterate	17(4.4)
	Primary level	92(20)
	High school	130(33.9)
	College and above	120 (31.3)
	Others(divorced and widowed)	24(6.3)
Occupational status of	Employed	207(54)

husband	Unemployed	152(39.7)
	Others(divorced and widowed)	24(6.3)
Sex of infant	Male	186(48.6)
	Female	197(51.4)
Age of infant	Birth to 6 months	187(48.8)
	7 to 11 months	196(51.2)
Family type	Nuclear	348(90.9)
	Extended	35(9.1)
Number of under-five children	Less than 3	381(99.5%)
	4 and above	2(0.5%)
Exposure to mass media	Exposed	350(91.4)
	Not exposed	33(8.6)
Monthly income	Less than 1500	133(34.7)
	1501 to 3000	94(24.5)
	3001 to 4500	92(24)
	4501 and above	64(16.7)

### 3-2. Obstetric, maternal health care service utilization and breastfeeding practices among mothers with infants from birth to 12 months of age in Wolaita Sodo City

The highest majority, 367(95.7) of respondents had received antenatal care (ANC). About 333 (86.9 %) of participants started their antenatal care before fifth month of gestation. Majority, 179 (46.7%) had four antenatal visits and 164 (42.8%) of them had one to three ANC. 249 (65%) of the study participants had gotten counseling on breast feeding. 215(56.1%) were receiving counseling on timely initiation of breastfeeding. 307 (80.2 %) respondents delivered at health institutions and 340 (88.8 %) of them were assisted by

health professionals. 333 (86.9%) of the mothers had spontaneous vaginal delivery. About 176 (46%) of infants were first in their birth order. From 383 mothers who participated, 307 (80.2%) initiated feeding within one hour of delivery. About 329 (85.9 %) of respondents heard about early initiation of breast feeding, 317 (82.8) thought that giving breast milk within 1 hour of birth is important. 333 (86.9%) were giving breast milk based on the demand of the child (**Table.2**).

### 3-3. Reasons why mothers did not give breast milk within 1 hour after delivery

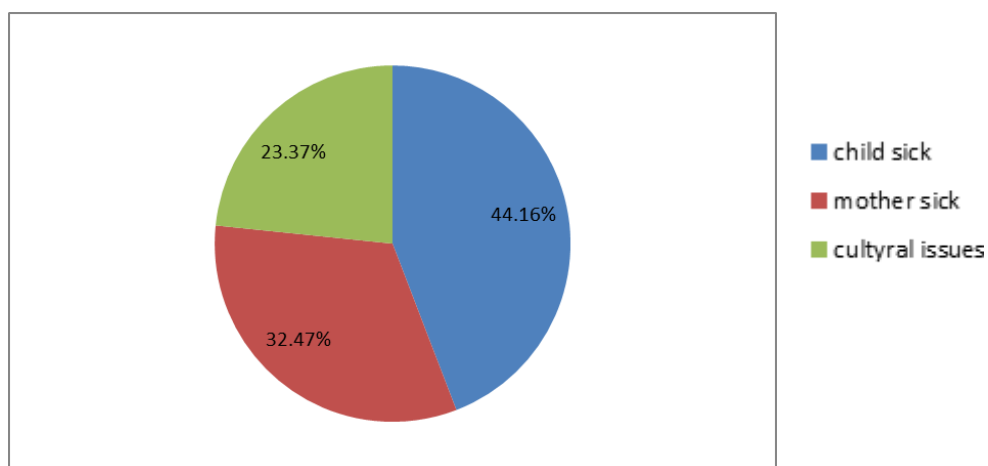
About 34 (8.9%) out of 76 mothers did not give breast milk within 1 hour after delivery to their infants because of maternal illness (**Figure.1**).

**Table 2:** Obstetric, health care service utilization and breast feeding practices among mothers with infants from birth to 12 months of age in Wolaita Sodo City, Wolaita, Ethiopia 2019.

Variables	Categories or responses	Frequency (%)
Antenatal visits	Yes	367(95.8)
	No	16(4.2)
Gestational age of first antenatal visits(n=367)	Before 5 <sup>th</sup> month	333(86.9)
	After 5 <sup>th</sup> month	34(8.9)
Number of antenatal visits(367)	1	19(5.2)
	2-3	145(37.8)
	4 and above	203(53.00)
Counseling on breast feeding during antenatal care(n=367)	Yes	249(65)
	No	118(30.8)
Counseling on timely initiation of breastfeeding during antenatal care(n=367)	Yes	215(56.1)
	No	35(9.1)



Place of delivery(n=383)	Health institution Home	307(80.2) 76(19.8)
Birth attendants(n=383)	Health care workers Family Traditional attendants	339(88.5) 27(7.0) 17(4)
Mode of delivery(n=383)	Spontaneous vaginal delivery Caesarean section	333(86.9) 50(13.1)
Infants birth order	First Second Third and above	176(46) 118(30.8) 89(23.2)
Breastfed within 1 hour of delivery	Yes No	307 (80.2) 76 (19.8)
Heard about timely initiation of breast feeding	Yes No	329 (85.9) 54 (14.1)
Think early initiation of breast feeding is important	Yes No	317 (82.8) 66 (17.2)
Fed other than breast milk within 1 hour of birth	Yes No	78 (20.4) 305 (79.6)
Feeding based on demand of infant	Yes No	333 (86.9) 50 (13.1)



**Fig.1:** Reasons why mothers did not give breast milk within 1 hour after delivery.

### 3-4. Factors associated with timely initiation of breast feeding after birth

The Bivariate logistic regression analysis yielded that sex of the child, place of delivery for the current child, mode of delivery, exposure to media, counseling given for prenatal mothers on timely initiation of breast feeding and family type were statistically associated at  $p \leq 0.20$ . In multivariable logistic regression analysis model, male infant was 3.39 times (AOR: 3.39, 95% CI: 1.49, 7.71) more likely to be initiated to breast feeding within an hour than those who were female. Children who

live with nuclear family were 3.49 times (AOR: 3.49, 95% CI: 1.09-11.12) more likely to be initiated to breast feeding in an hour than their counterparts. Mothers who delivered vaginally were 4.67 times more likely (AOR: 4.67, 95% CI: 1.92-11.33) to induce breast feeding within an hour than those who delivered by cesarean section. Mothers who were counseled on timely initiation of breast feeding during ANC were 4.76 times (AOR: 4.76, 95% C: 2.06-10.98) more likely to start breast feeding within an hour than those who were not counseled (**Table.3**).

**Table-3:** Factors affecting timely in initiation of breast-feeding among mothers with children age less than 12 months, 2019.

Variables	Breastfeed child within an hour		Odds ratio (95% CI)		P-value
	Yes	No	COR (95%CI)	AOR (95%CI)	
Sex of the child					
Male	136(45.3%)	50(60.2%)	1.83(1.11-3.00)	3.39(1.49-7.71)	0.004*
Female	164(54.7%)	33(39.8%)	1.00	1.00	
Family Type					
Nuclear	283(94.3%)	65(78.3%)	4.6(2.25-9.43)	3.49(1.09-11.12)	0.03*
Extended	17(5.7%)	18(21.7%)	1.00	1.00	
Exposure to mass media					
Yes	227(75.7%)	73(24.3%)	0.71(0.41-1.20)	1.49(0.58-4.0)	0.41
No	57(68.7%)	26(31.3%)	1.00	1.00	
Mode of delivery					
SVD	271(90.3%)	54(65.1%)	5.02(2.78-9.07)	4.67(1.92-11.33)	0.001*
CS	29(9.7%)	29(34.9%)	1.00	1.00	
Counseled on timely initiation during ANC					
Yes	182(87.9%)	28(63.6%)	4.16(1.98-8.75)	4.76(2.06-10.98)	0.0001*
No	25(12.1%)	16(36.4%)	1.00	1.00	
Place of last birth					
Home	49(17%)	27(13.3%)	2.47(1.42-4.29)	1.73(0.64-4.65)	0.28
Health institution	251(83%)	59(86.7%)	1.00	1.00	

\*: P-values less than 0.05, CI: confidence level, SVD: spontaneous vaginal delivery, CS: Caesarean, COR: crude odds ratio, AOR: adjusted odds ratio, ANC: antenatal care.

#### 4- DISCUSSION

The aim of this study was to assess timely initiation of breastfeeding and associated factors among mothers of children less than 12 months old. Timely initiation of breastfeeding is fundamental for survival of neonates. Despite its importance, the practice of timely initiation of breastfeeding is not adequate in the study area. 80.2 % of mothers practiced early initiation of breast feeding, which is below the level planned to be achieved by Ethiopian Health Sector Development (HSDPIV) by 2015 to the target of 92 % (19). The finding from the current study is generally good but lower than WHO recommendation on young infant and child feeding rate on early initiation of breastfeeding to be very good (90–100% ) (7). The result of the recent study is comparable with a study done in Dembecha district which reported 73.1% (20), in Bahir Dar city 75.4 % (5), in Debre Tabor Town 76.8 % (21), in Motta

Town 78.8 % (6), in Nambia 74.9 % (22) and in Zimbabwe (23) 78 %. But the finding of this study is higher than the study conducted in Debre Brehan Town 62.6 % (24), in North West Ethiopia 53.3 % (25), in South Sudan 48 % (26), Middle East 34.3 % (4), and lower than the study done in Kassala, Eastern Sudan 87.2 % (27). The variance between the present study and others may be because of maternal socio-demographic and economic features like, access to information, socio-economic status, infrastructure, educational status, cross cultural changes in breastfeeding practice, and health service utilization individualities. The finding of the current study showed that children living with nuclear family were 3.49 times more likely to be timely initiated to breast feeding than those children living with extended family. This finding is consistent with a study conducted in Debre Birhan town, Northwest Ethiopia, which showed that

having extended family is negatively associated with timely initiation of breast feeding (24). This could be due to the high support for the mother to initiate breast feeding in her child soon after delivery. Modes of delivery were significantly associated with timely initiation of breastfeeding. A mother who gave birth via vaginal delivery was 6.67 times more likely to initiate breastfeeding within one hour than those gave birth via cesarean section. This finding is in line with studies done in Bahiradr (5), and Motta (6). This may be due to recovery of the mother after cesarean which makes it difficult to initiate breastfeeding early. Our study showed that mothers who were counseled during antenatal visits were 4.67 times more likely to initiate timely breastfeeding than those who were not counseled. This finding is consistent with studies done in Ethiopia; Bahiradr and Motta respectively (5, 6). This may be due to mothers who had antenatal visits received enough information about the importance of early initiation of breastfeeding and had adequate knowledge about breastfeeding. This study revealed that being male child is 3.39 more likely to be initiated breast-feeding within an hour than being female child. This finding is consistent with other studies conducted in Goba, Ethiopia which showed that a male child was 1.85 times more likely to begin timely initiation of breast-feeding than a female child (16). This study revealed that place of delivery was not significantly associated with timely initiation of breastfeeding practices. This finding is inconsistent with studies conducted in Bahiradr (5), Motta (6), and Debre Birhan (24).

#### 4-1. Study Limitations

Recall bias from the mothers may be a limitation.

#### 5- CONCLUSION

Prevalence of timely initiation of breast feeding experienced by mothers was

80.2% which was below the WHO and Ethiopian standard that is greater than 92%. Being male infant, living with nuclear family, spontaneous vaginal delivery and counseling on timely initiation of breast feeding during ANC were factors associated with early initiation of breastfeeding. We suggest researchers to conduct qualitative studies on both rural and urban settings.

#### 6- ABBREVIATIONS

P-value: Probability value, AOR: Adjusted Odds Ratio, 95% CI: 95% Confidence interval, ANC: Antenatal care, SPSS: Statistical packages for social sciences, Epi-data: epidemiological data, WHO: World health organizations, HDSP IV: Health sector development program four.

#### 7- AUTHORS CONTRIBUTION

**DB:** conceived data and designed the study, supervised the data collection, performed the analysis, interpretation of data, drafted and finalized the manuscript. **KT:** assisted in designing the study, data interpretation and critically reviewed the manuscript. **TL:** assisted in data analysis, interpretation and revised the manuscript critically. All authors read and approved the final manuscript.

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**9- CONFLICT OF INTEREST:** None.

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