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Adherence to Exclusive Breastfeeding and its Associated Factors among HIV-Positive Mothers in Referral Hospitals of Amhara Regional State, Northwest Ethiopia, 2018

Sindu Ayalew Yimer[1], Marta Berta Badi[2], Birhanu Wubale Yirdaw[2*]

1. Department of midwifery, College of Medicine and Health Sciences, Wollo University, Wollo, Ethiopia
2. School of Midwifery, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia

ABSTRACT

Background: Exclusive breastfeeding is defined as feeding only breast milk without any other liquids or solids, except for medicine. For mothers with positive human immunodeficiency virus (HIV), adherence to exclusive breastfeeding added with antiretroviral therapy extremely reduces the risk of transmitting the virus to their exposed neonates. Therefore, the World Health Organization has recommended exclusive breastfeeding for exposed infants within the first 6 months of life. This study was performed to identify factors associated with adherence to exclusive breastfeeding among HIV-positive mothers.

Methods: The required data in this facility based cross-sectional study was collected using a structured questionnaire through a face-to-face interview. Descriptive statistics were used to show the frequency distributions of factors associated with the dependent variable. Logistic regression was applied to identify factors associated with the outcome variable. The odds ratio was used for the measure of association, and statistical tests with p-values of less than 0.05 were considered significant.

Results: The proportion of adherence to exclusive breastfeeding among HIV-positive mothers was found to be 80.8% (95% CI: 77.2-84.6). It was revealed that having good knowledge (adjusted odds ratio [AOR]=7.363, CI=3.37-12.98), receiving exclusive breastfeeding counseling during the postnatal period (AOR=4.88, CI=2.68-8.916), timely initiation of exclusive breastfeeding (AOR=4.429, CI=2.378-8.25), and making 4 or more antenatal care visits (AOR=2.557, CI=1.413-4.629) were identified to be the significant factors.

Conclusion: The proportion of adherence to exclusive breastfeeding among HIV-positive mothers was found to be low. Interventions that seek to increase exclusive breastfeeding should focus on ensuring four antepartum care visits and postpartum counseling.

Keywords: Adherence, Ethiopia, Exclusive breastfeeding, HIV-exposed infants

Introduction

Exclusive breastfeeding (EBF) is defined as the infant receiving only breast milk without any other liquids or solids, even water, except for oral rehydration solution or drops or syrups of vitamins, minerals, or medicines. Exclusive breastfeeding for the infants' first six months with maternal antiretroviral therapy (ART) prevents mother-to-child transmission through breast milk and is the ideal source of nutrition for the newborn (1).

Women living with human immunodeficiency virus (HIV) take ART consistently throughout the breastfeeding period, and adherence to exclusive breastfeeding for the first six months of infant's age extremely reduces the risk of transmitting HIV to their children (2-4).

Exclusive replacement feeding (ERF) carries a zero risk for transmission; however, it is not feasible in developing countries. This is due to limited access to clean water and adequate sanitation and financial inability to purchase formula milk that leads to mixed feeding associated with increased postnatal HIV transmission (5, 6). Mixed feeding has a fourfold higher risk of postnatal transmission of HIV,

* *Corresponding author:* Birhanu Wubale Yirdaw, School of Midwifery, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia. Tel: +251912883507; Email: Birhanuwubale@gmail.com

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compared to exclusive breastfeeding (7, 8).

In circumstances where malnutrition, diarrhea, pneumonia, malaria, and measles are among the most common causes of infant death, adherence to EBF with maternal ART reduces HIV transmission for HIV-exposed infants (9-14). Therefore, this study was conducted to assess the proportion and factors associated with adherence to EBF among HIV-positive women in referral hospitals of Amhara regional state, Northwest Ethiopia, 2018.

Methods

Study Design Period and Area

A facility based cross-sectional study was conducted from October 1 to November 30, 2018, in referral hospitals of Amhara regional state. This region has a total population of 17,221,976 consisting of 8,641,580 and 8,580,396 men and women, respectively (15). There are 67 hospitals (of which 5 hospitals are referrals), 734 health centers, and 2,941 health posts in this region. The referral hospitals in the region include the University of Gondar Comprehensive and Specialized Referral Hospital, Felege Hiwot Referral Hospital (FHRH), Dessie Referral Hospital (DRH), Debre Markos Referral Hospital (DMRH), and Debre Berhan Referral Hospital. All the selected hospitals provided prevention of mother-to-child transmission (PMTCT) service combined with maternal, newborn, and child healthcare services.

The population of this study was all HIV-positive women with neonates aged 6-24 months who were receiving care at PMTCT/ART clinics in the referral hospitals of Amhara regional state, 2018. Nevertheless, HIV-positive women with neonates aged 6-24 months who were receiving care at PMTCT/ART clinics and were seriously sick were excluded from the research.

Sample Size and Sampling Technique

The sample size for the study was determined by using single population proportion formula by considering 73% of the proportion of adherence to exclusive breastfeeding among HIV-positive mothers (8), 95% confidence level, 10% non-response rate, 5% margin of error, and a design effect of 1.5 was used to obtain a total sample size of 500 cases. A simple random sampling technique was applied to select three out of five referral hospitals. Moreover, a systematic random sampling method was employed to select the study participants. The total sample size was proportionally allocated for the three hospitals (i.e., DRH, FHRH, and DMRH) depending on their load on HIV positive lactating mothers attending PMTCT and ART service.

Data Collection Tools and Procedures

The required data were collected using pretest and semi-structured questionnaires through face-to-face interviews to assess the proportion and factors associated with adherence to EBF among HIV-positive mothers. A questionnaire was developed or adapted after reviewing various relevant pieces of literature. To maintain the quality of data, the questionnaire was prepared in English and translated into local Amharic languages, and back-translated to English for consistency. The data collection was conducted by six trained diploma midwives, who were under the supervision of three BSc midwives. Ethical approval was obtained from the Institutional Review Board Committee of the College of Medicine and Health Sciences, University of Gondar, Ethiopia. After thoroughly discussing the ultimate purpose of the study, the necessary permission was taken from hospital authorities and concerned government officials. Additionally, both verbal and written informed consent was received from each study subject.

Data Processing and Analysis

The completed questionnaires were checked, coded, and entered into Epi Info software (version 7) and exported to SPSS software (version 20). Binary logistic regression was used to identify factors associated with adherence to exclusive breastfeeding. P-values less than 0.20 were fitted into multiple logistic regression models for controlling the possible effect of confounder variables. Finally, the variables which had an independent association with adherence to exclusive breastfeeding were identified based on the odds ratio (OR), with 95% CI and a p-value of less than 0.05.

Operational Definitions

Adherence to Exclusive Breastfeeding: The neonate is only breastfeeding, except for taking vitamins, mineral supplements, or medicines until the age of 6 months.

Mixed Feeding: Feeding liquids or foods with breastmilk for an infant less than 6months of age.

HIV Exposed Neonate: The neonates born from HIV-infected mothers.

Knowledge on Exclusive Breastfeeding: All women who scored the mean value of 5 and above of knowledge related to questions on exclusive breastfeeding were considered as having 'good

knowledge' and those who scored below this mean score were considered as having 'poor knowledge'.

Timely Initiation of Exclusive Breastfeeding: Putting newborns to the breast within the first hour of life.

Results

Socio-Demographic Characteristics of the Respondents

A total of 500 HIV-positive women with neonates aged 6-24 months in Amhara referral hospital were included in the study making a response rate of 100%. The mean age scores of mothers and their children were obtained at 29.3±4.65 years and 12.5±4.9 months, respectively (Table 1).

Table 1. Socio-demographic characteristics of HIV positive women with infants aged 6-24 months, attending ART and PMTCT Clinics in Amhara regional state referral hospitals, North West Ethiopia, 2018 (n=500)

Variables	Frequency	Percent (%)
Maternal Age		
18-24	84	16.8
25-29	174	34.8
30-34	157	31.4
>35	85	17
Children's age group		
6 months	54	10.8
7-11 months	170	34
12-24 months	276	55.2
Marital status		
Single	50	10
Married	450	90
Religion		
Orthodox	322	64.4
Muslim	164	32.8
Protestant	14	2.8
Maternal educational status		
No formal education	184	36.8
Primary education	126	25.2
Secondary education and above	190	38
Maternal occupational status		
Housewife	226	45.2
Government employee, Merchant	165	33
Daily laborer	109	21.8
Occupation of partner (n=450)		
Government employed	199	39.8
Merchant	118	23.6
Daily laborer	133	26.6
Educational status of partner (n=450)		
No formal education	52	10.4
Primary education	96	19.2
Secondary and above	302	60.4
Monthly income		
<500	18	3.6
500-1000	55	11
>1000	427	85.4
Major person supporting the family		
Self	127	25.4
Spouse	351	70.2
Others*	22	4.4

*Families and friends

Obstetrics Characteristics of the Respondents

It was revealed that 286 (57.2%) of the respondents were multiparous. All of the respondents (100%) had antenatal care (ANC) during their last pregnancies. A total of 284 (56.8%) of the mothers reported attending at least 4 recommended antenatal visits, while the rest of them attended less than 4 antenatal visits during pregnancy. Furthermore, 284 (59.4%) of the cases reported that they were diagnosed with HIV before pregnancy; however, the rest of them were diagnosed during pregnancy. Based on the results, only 3.4% of the women delivered at home, while 96.6% of them delivered at health centers. Additionally, 87% of the mothers had spontaneous vertex delivery were, while only 13% of them delivered by cesarean section. From the total of participants included in this study, 246 (49.2%) cases were found to have good knowledge on exclusive breastfeeding as a mothed of PMTCT.

Proportion and Adherence to Exclusive Breastfeeding among the Respondents

From a total of 500 HIV-positive women, 404 (80.8%) of women (95% CI**:** 77.2-84.6) adhered to exclusive breastfeeding for the first 6 months of infants age. It was also revealed that 259 (51.8%) of the respondents had initiated breastfeeding within the first hours of birth. The major reason mentioned by 30 (6%) of the respondents who did not adhere to exclusive breastfeeding was 'the breast milk is not enough' (Table 2).

Factors Associated with Adherence to Exclusive Breastfeeding

After controlling the effect of other variables, knowledge about EBF adjusted odds ratio (AOR) (AOR=7.363, CI=3.371-12.975), number of ANC visits in the last pregnancy (AOR=2.557, CI=1.413-4.629), timely initiation of exclusive breastfeeding (AOR=4.429, CI=2.378-8.25), and breastfeeding counseling during postnatal period (AOR=4.89, CI=2.681-8.916) were significant factors for adherence to exclusive breastfeeding.

Accordingly, mothers who had good knowledge about EBF were 7.4 times more likely adherent to EBF than mothers who had poor knowledge (AOR=7.363, CI=3.371-12.975). Similarly, mothers who initiated EBF before 1 h were 4.4 times higher adherent than late initiated (AOR=4.429, CI=2.378-8.25). In addition, the odds of adherence to EBF were 2.5 times higher among mothers who had complete ANC visits than those who made less than 4 ANC visits (AOR=2.557, CI=1.413-4.629).

Based on the findings, the mothers who were subjected to counseling on neonatal feeding during the postnatal period of the last childbirth had odds 4.89 times higher to adhere EBF than those who were not counseled (AOR=4.89, CI=2.681-8.916) (Table 3).

Table 2. Adherence to exclusive breastfeeding among HIV positive mothers with an infant aged 6-24 months old attending ART/PMTCT clinics in Amhara regional state referral hospitals, Northwest Ethiopia, 2018 (n=500)

Variables	Frequency	Percent (%)
Current breastfeeding		
Yes	332	66.4
No	168	33.6
Initiation of EBF		
Within 1 hour	259	51.8
Greater than 1 hour	241	48.2
Adherence of EBF		
Yes	404	80.8
No	96	19.2
Reasons for not adhering (n=96)		
Workload	27	5.4
On education	3	0.6
Illness of the mother	17	3.4
Insufficient breast milk	30	6
Fear of infecting the neonate	19	3.8
Pre-lacteal feeding		
Yes	9	1.8
No	491	98.2
Mixed feeding		
Yes	87	17.4
No	413	82.6
Breastfeeding counseling during pregnancy		
Yes	313	62.6
No	187	37.4
Breastfeeding counseling during postnatal period		
Yes	333	66.6
No	167	33.4
Number of postnatal EBF counseling sessions attended		
Less than six	373	74.6
Six and above	127	25.4
Disclosing of HIV status		
Yes	482	96.4
No	18	3.6
For whom HIV status disclosed (n=482)		
Spouse	290	58
Family	160	32
Friend	24	4.8
Others*	8	1.6
Breastfeeding support received		
Yes	405	81
No	95	19
Source of breastfeeding support (n=405)		
Spouse	51	10.2
Family	57	11.4
Friend	15	3
Healthcare provider	260	52
Others**	22	4.4
Breastfeeding problem		
Yes	56	11.2
No	444	88.8
What was the problem (n=56)		
Abscess	10	2
Mastitis	21	4.2
Sore (cracked) nipples	25	5
How solved the problem (n=56)		
Went to a health facility	55	11
Rubbed local herbs on it	1	0.2

*others for HIV disclosure (e.g., mother in the law and community) **others for breastfeeding support (e.g., mother support group and servant)
EBF: Exclusive breastfeeding

Table 3. Multiple logistic regression analysis of factors associated with Adherence to EBF Among HIV Positive women with infants aged 6-24 months attended ART and PMTCT Clinics in Amhara regional state referral hospitals, North West Ethiopia, 2018 (n=500).

Variables	Adherence to EBF		Crude odds ratios (95%)	Adjusted odds ratio (95%)	P-Value
	YES	**NO**			
Knowledge On EBF					
Poor	232	14	1.00	1.00	0.000
Good	172	82	7.9 (4.335, 14.397)	6.614 (3.371, 12.975)**	
Number of ANC Visits					
<4	252	32	1.00	2.55 (1.458, 4.460)**	0.001
≥4	152	64	3.316 (2.073, 5.303)		
Initiation of EBF					
≤ 1 hour	234	25	3.909 (2.379, 6.424)	3.797 (2.129, 6.770)**	0.000
>1 hour	170	71	1.00	1.00	
Infant Feeding counseling during ANC					
YES	280	33	4.311 (2.691, 6.906)*	0.783 (0.354, 1.734)	0.547
NO	124	63	1.00		
Breastfeeding support					
YES	340	65	2.534 (1.530, 4.195)*	1.070 (0.556, 2.061)	0.839
NO	64	31	1.00		
Infant Feeding Counseling during PNC					
YES	306	27	7.980 (4.841, 13.152)	5.508 (2.461, 12.328)**	0.000
NO	98	69	1.00	1.00	

*Not significant in backward stepwise logistic regression **P-value ≤ 0.002
EBF: Exclusive breastfeeding, ANC: Antenatal care, PNC: Postnatal care

Discussion

The proportion of adherence to exclusive breastfeeding in the first 6 months of infant's age was found to be 80.8% (95% CI: 77.2-84.6%), which was consistent with the results of a study conducted in Gondar town (83.7%) (16). However, this value was lower than those reported in the studies performed in Northern Ethiopia (88.8%) (17) and Oromia, Ethiopia, (85.5) (18). The possible explanation for this might be related to the differences in the study population and socio-demographic characteristics.

On the other hand, this finding was higher than those of the studies carried out in Addis Abeba (30.6%) (16), southern Ethiopia (48.2%) (19), Nigeria (61%) (20), South Africa (35.6%) (21), Tanzania (55.5%) (4), and Kenya (69.1%) (6). This discrepancy can be attributed to the differences in the study period and methods used for measuring EBF. Those mothers who had good knowledge of EBF were 7.36 times more likely adherent to exclusive breastfeeding than those who had poor knowledge. This result was in line with the findings of studies performed in Adama, Ethiopia (22), the central zone of Tigray (14), and Uganda (23).

According to the results of this study, mothers who were counseled on EBF at the postnatal period of the last childbirth had odds 4.89 times higher adhered to EBF than those who were not counseled. This finding was in line with the studies conducted in Uganda (23) and Northwest Ethiopia (24). The odds of adherence to EBF were 2.5 times higher in mothers who had greater or equal to 4 ANC visits during their last pregnancy than in cases who had fewer visits than those mentioned. This result is consistent with that of a similar study performed in Addis Abeba, Ethiopia (8). Mothers who initiated EBF within 1hour were 4.4 times higher adherent to EBF than those who late initiated. This result is supported by the findings reported in a study carried out in Uganda (23). There was a possibility of recall bias since infant feeding information was provided by mothers self-reportedly.

Conclusion

The results of this study showed that the proportion of adherence to EBF was low. Consequently, the government should focus on strengthening the information that shares the benefits of EBF and a method of PMTCT during the postnatal period. Moreover, it is recommended to encourage pregnant women to make 4 and more ANC visits as a fundamental element to enhance adherence to EBF of HIV-exposed neonates.

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Conflicts of interest

The authors declare that there is no conflict of interest.

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