

# Assessment of the prevalence and factors influencing adherence to exclusive breast feeding among HIV positive mothers in selected health institution of Addis Ababa, Ethiopia

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## Abstract

**Background:** Exclusive breastfeeding (EBF) offers an affordable, culturally acceptable and effective means of reducing mother to child transmission of HIV while maintaining the benefits of breastfeeding. Despite its benefits, the practice of EBF among HIV positive mothers is low in Ethiopia.

**Objective:** This study is intended to assess factors influencing adherence to exclusively breast feeding among HIV positive mothers in selected health institutions of Addis Ababa.

**Methods:** A facility based cross-sectional study design supplemented by a qualitative method was conducted among 384 HIV positive mothers drawn from purposively selected 3 hospitals and 10 health centers with ART and PMTCT service in Addis Ababa City from January 1 to February 30, 2012. Data were collected using a pre-tested structured questionnaire and entered into a computer and analyzed using the SPSS software version 16.

**Results:** The prevalence of EBF adherence and non-adherence were (73.0%) and (27.0%) respectively. Among mothers who did not adhere to EBF, the commonest reasons mentioned were family opposition and infant illness in 44.0% and 19.0% of mothers respectively. The major determinants identified were inadequate ANC follow up, negative attitude towards EBF and maternal illnesses. Accordingly mothers who attended more than or equal to four ANC follow-ups were 1.9 times more likely to adhere to EBF than those who attended less (AOR=1.04; 95% CI=1.04-3.4). Likewise, mothers who experienced illnesses were 74% less likely to adhere to EBF than those who had no illnesses (AOR=0.26; 95%CI, 0.13-0.53) and those mothers who had negative attitudes towards EBF were 68% less likely to adhere to EBF than their counterparts (AOR=0.32; 95%CI= 0.16-0.63).

**Conclusions:** Although the majority of mothers adhered to EBF, still more actions that focus on the importance of ANC follow-up and strengthening of the mother support group in each health facility are necessary. Other important actions are to change the negative attitudes of mothers towards EBF through BCC and continuously advising them to get timely treatment whenever they experience illnesses. [*Ethiop. J. Health Dev.* 2012;26(3):169-175]

## Introduction

Exclusive breastfeeding (EBF) carries a significantly lower risk of transmission than mixed feeding and may offer an affordable, feasible, culturally acceptable, sustainable and effective means of reducing mother to child transmission of HIV while maintaining the benefits of breastfeeding (1). High rates of maternal infection coupled with lack of access to PMTCT services as well as prolonged breastfeeding translates into high risk of HIV in children. In developed countries, rates of mother to child transmissions of HIV have markedly fallen because of the introduction of anti-retroviral drugs (2-4).

Some previous studies showed that providing replacement feeding appropriately is unlikely in most developing countries including Ethiopia because feeding babies several times per day for many months is challenging, even in the best of circumstances and mothers choosing replacement feeding need help to succeed (5-6).

According to a study in Kumasi (Ghana) on women's knowledge about MTCT, about 50% of the respondents

said HIV positive women could transmit HIV to their babies before birth but had no idea of any means to prevent it (7). A cross-sectional study conducted in South Africa stated that 95% of women were informed that HIV can be transmitted during delivery and through breast milk (8). Another study conducted in Tanzania stated that mothers were well informed about the risk of MTCT of HIV through breastfeeding and during (9).

Based on the findings of Peter et al in 2005, mixed breastfeeding had a fourfold increase in postnatal HIV transmission and a threefold increase in the risk of both postnatal transmission and death at six months compared to exclusive breastfeeding (10).

Strict adherence to EBF from birth is among the high impact survival strategies which need to be promoted locally as well as internationally, as the addition of non-nutritive feeds like water and tea could increase the odds of developing diarrhea and also HIV transmission (11). Given the fact that EBF practice among HIV positive mothers is low in Ethiopia, understanding the factors influencing adherence to EBF is, therefore, an important

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step in the designing of strategies aimed at improving the practice.

### Methods

A facility-based cross-sectional quantitative study, supplemented by qualitative methods was conducted from January 1 to February 30, 2012 in purposively selected 13 government health institutions (3 hospitals and 10 health centers) with ART and mother support groups (MSG) services in Addis Ababa. At the time of the study, the City had 38 hospitals of which 5 are owned by the Regional Government, 5 by the Federal Ministry of Health, 2 by NGOs, 3 by the Ministry of the Defense and the Police Force and 23 by private owners. There were 30 health centers of which 27 were owned by the City Administration, 2 by NGO's and 1 by the public. There were also 442 clinics of which 6 were run by the City Administration, 28 by NGOs and 56 by other government organizations, 46 by factories and 312 by private owners (12).

Prior to the study, the available facilities were grouped by ownership as government and private. Of these, only government facilities were included in this study because most of the private hospitals had very few ART clients. In addition, mothers attending private facilities usually tend to opt for replacement feeding (personal communication). Three government hospitals and 10 government health centers (one from each sub-city) that provided ART and that had MSG services were purposively selected based on the size of their client flow.

The sample size was determined on the assumption of a prevalence rate 31% for EBF (13) with 95% confidence level, 4% precision and a non-response rate of 10%. A total of 384 positive mothers with their exposed young infants were recruited in order of arrival. Based on the client flows of the respective facilities, the distribution of the sampled participants were distributed as follows: A total of 120 subjects were from three hospitals (St Paul (n=50); Yekatit 12 (n=40) and Gandhi Memorial (n=30)), while the rest 264 were drawn from health centers (HC): *Addis Ketema* (n=40); *Saris* (n=30), *Nifasilk* (n=30), *Kasanchis* (n=30), *Bole* (n=20), *Gulele* (n=25), *Shiromeda* (n=30), *Yeka* (n=20), *Teklehaimanot* (n=19) and *Kolfe* (n=20).

A pre-tested structured questionnaire was prepared by reviewing prior studies and other materials on the topics with some modification. (7, 14-15). The questionnaire was prepared in English translated into Amharic and back-translated again to English to prevent possible misunderstandings and misinterpretations. The questionnaire contained mainly close ended and few open ended questions.

The data were collected by 10 health officers and three nurses from the respective selected hospitals and health

centers that were trained for two days on the objective, type of the questionnaire, eligibility of the women and on confidentiality and other ethical issues. Each questionnaire filled was checked for completeness of the information by the principal investigator.

To supplement the quantitative findings, 10 in-depth interviews (IDIs) were conducted using semi-structured questions in all facilities with HIV positive mothers who had ART follow-up and also showed active participation during the quantitative interviews.

A total of four closed ended questions were applied to assess the knowledge of mothers about MTCT and its prevention method. Based on these questions, respondents were considered as having sufficient knowledge if they mentioned two and above modes of transmission and two and above methods of prevention. To measure the attitude of respondents towards exclusive breastfeeding, three closed ended questions using the Likert's scale were applied (ranging from strongly agreed to strongly disagree) and the sum scores were calculated. When the attitudes towards EBF score was 12 and above, respondents were considered as having positive attitude towards exclusive breastfeeding.

The quantitative data were cleaned manually and then entered into the computer and analyzed using SPSS version 16 software. Descriptive statistics was used to show the prevalence of various characteristics. Odds ratio with 95% confidence interval was computed to assess the presence and degree of association among variables. Logistics regression model was applied to identify the important determinants for EBF adherence. A p-value of <0.05 denoted significance in differences. The responses to the in-depth interviews were analyzed manually using the method of thematic content analysis and the results were used to triangulate the information from the quantitative results.

### Ethical Issues:

Ethical clearance was obtained from the Research Ethics Committee of the School of Public Health, Addis Ababa University. An official letter of co-operation was written to health facilities and to Addis Ababa Regional Health Bureau. Informed and written consent was obtained from each study subject after the nature of the study was explained to them in their local language. Other than the codes, no names of the participants were recorded in the questionnaires. The right of each study participant to withdraw from the study at any time was communicated and respected. All the interviews were conducted in privacy and with high degree of confidentiality.

### Results

From the total of 384 recruited study participants, only 371 responded adequately, making the response rate 96.6%. The majority (72.8%) of the participants were in the age group of 25 to 34 years with mean and median ages of 29.1 and 29.0 years, respectively. Over three-

quarters (81.4%) were married and over half (60.4%) were housewives, with less than half (45.8%) of them having attended primary school. Over three-quarters (78.2%) were Orthodox Christians and the Amhara ethnic group constituted slightly greater than half (56.9%). The proportion of spouses who completed secondary schooling and those engaged in private jobs were 41.6% and 55.0%, respectively. A monthly household income of between ETB 501-1000 per month was reported by 150 (42.3%) the respondents (Table 1).

Table 2 shows the obstetrical history of the respondents and type of feeding advices obtained from health workers. The majority (87.1%) of the mothers had antenatal care (ANC) follow up during their recent pregnancies and the proportion of respondents who had ANC during the first trimester, second trimester and third trimester period were 109 (30.2%), 229 (63.4%) and 23 (6.4%), respectively. Nearly three quarter (72.3%) of them had antenatal follow up more than four times with mean frequency of 4.1 times. The vast majority (94.3%) delivered at health institutions and their mode of delivery was spontaneous vaginal delivery in 313 (84.4%) cases, and instrumental deliveries and cesarean sections in 16 (4.3%) and 42 (11.3%) cases, respectively. The majority (87.1%) had postnatal care (PNC) follow up and the proportion of mothers who had less than six follow-ups and, obtained feeding advices were 88.2% and 98.7%, respectively.

Respondents' knowledge about MTCT, PMTCT, and attitude towards EBF are shown in Figure 1. The proportion of respondents who had sufficient knowledge about MTCT and PMTCT (who mentioned two and above modes of transmissions and two and above methods of preventions) were 254 (80.6%) and 241 (76.5%), respectively, while respondents who had positive attitudes towards EBF were 309 (83.3%).

Of the 371 respondents, only 271 (73.0%) practiced exclusive breast feeding. The proportion of respondents who initiated EBF within the first hours of delivery was 350 (94.3%) while very few (1.1%) initialed after eight hours. Among mothers who did not adhere to exclusive breastfeeding (n=100), the major reasons mentioned were family opposition (n=44), mother's illness (n=19) and infant illness (n=17) (Table 3).

**Table 1: Socio-demographic characteristics of respondents and their spouses, Addis Ababa, 2012 (n=371)**

Variable	Frequency	Percent
<b>Age in years</b>		
15-24	46	12.4
25-34	270	72.8
35-49	55	14.8
<b>Marital status</b>		
Single	20	5.4
Married	302	81.4
Divorced	40	10.8
Widowed	9	2.4
<b>Education</b>		
Illiterate	80	21.6
1-8	170	45.8
9-12	105	28.3
College/ university	16	4.3
<b>Religion</b>		
Orthodox	290	78.2
Muslim	44	11.9
Protestant	35	9.4
Catholic	2	0.5
<b>Ethnicity</b>		
Amara	211	56.9
Oromo	76	20.5
Gurage	60	16.2
Tigre	16	4.3
Other	8	2.2
<b>Occupation</b>		
House wife	224	60.4
Private employee	83	22.4
Government employee	15	4.0
Merchant	23	6.2
Other (daily labor...)	26	7.0
<b>Occupation of spouse</b>		
Private employee	193	55.0
Government employee	68	19.0
Merchant	56	16.0
Other (daily labor...)	34	9.7
<b>Education of spouse</b>		
Illiterate	55	15.7
1-8	98	27.9
9-12	146	41.6
College/ university	52	14.8
<b>Monthly hose hold income(n=355)</b>		
<=500	120	33.8
500-1000	150	42.3
>=1001	85	23.9

Table 2: Respondent's obstetric history and type of feeding advice obtained from health workers, Addis Ababa, 2012 (n=371)

Variable	Frequency	Percent
<b>Antenatal follow up</b>		
Yes	361	97.3
No	10	2.7
<b>Time of first ANC follow up</b>		
First trimester	109	30.2
Second trimester	226	62.6
Third trimester	26	7.2
<b>No of ANC follow up</b>		
Less than four	100	27.7
Four and above	261	72.3
<b>Place of delivery</b>		
Health institutions	350	94.3
Home	21	5.7
<b>Type of delivery</b>		
SVD	311	83.3
Instrumental delivery	18	4.9
Caesarean section	42	11.3
<b>Postnatal follow up</b>		
Yes	323	87.1
No	48	12.9
<b>No of PNC follow up</b>		
Less than six	285	88.2
Six and above	38	11.8
<b>Feeding advices obtained from HW</b>		
No advice	5	1.3
Only BF	359	96.8
Others	7	1.9

HW=health workers

Table 3: EBF adherence among HIV positive mothers, Addis Ababa, 2012 (n=371)

Variable	Frequency	Percent
<b>EBF adherence</b>		
Yes	271	73.0
No	100	27.0
<b>EBF adherence by infant age (n=271)</b>		
0-3 month	49	18.1
4-6 month	72	26.6
7-11 month	150	55.4
<b>Time of first initiation of BF</b>		
Within 1 <sup>st</sup> hr	350	94.3
2-8 hrs	17	4.6
After 8 hrs	4	1.1
<b>Reasons for not adhering to EBF (n=100)</b>		
Family opposition	44	44.0
Infant illness	19	19.0
Mother illness	17	17.0
Both mother and infant illnesses	5	5.0
Insufficient milk	7	7.0
Others (work related)	8	8.0

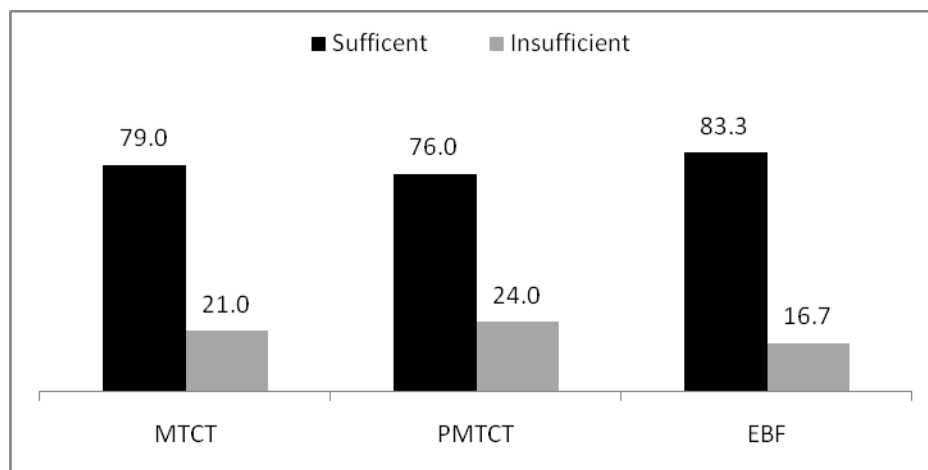


Figure 1: Respondents knowledge on MTCT, PMTCT and their attitude towards EBF adherence, Addis Ababa, 2012 (n=371)

Figure 2 displays the proportion of respondents who ceased breastfeeding. As shown, from a total of 371 mothers, 152 (41.0%) of had stopped breastfeeding. The proportion of respondents who stopped breastfeeding at the age of less than three months, three to six months and after six months were 14 (9.2%), 91 (59.9%) and 47

(30.9%) respectively. The commonest reasons for stopping breastfeeding mentioned were: fear of transmission 121 (79.6%), and advice of health professional 31 (20.4%), to encourage the child to eat other food items 18 (79.6%).

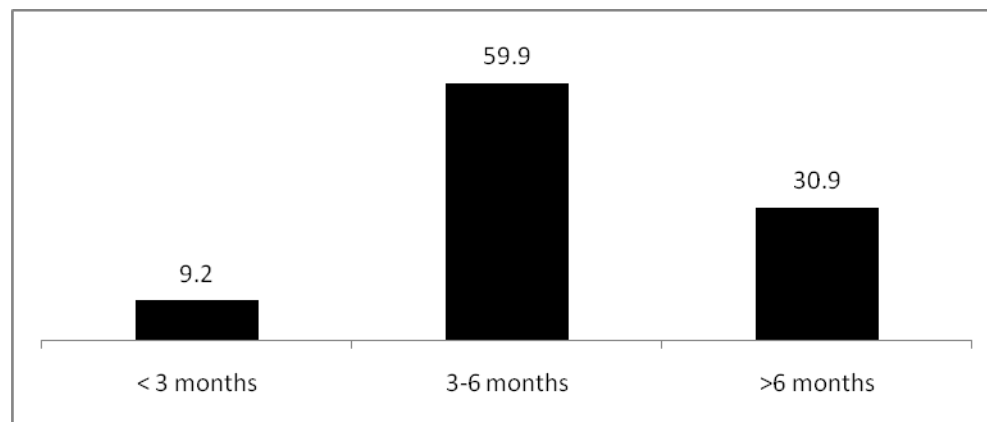


Figure 2: Age of the infant during cessation of breastfeeding, Addis Ababa, 2012.

As shown in Table 4, the effects of socio-demographic variables, obstetrics history, feeding advice, disclosure of HIV status to spouse, maternal and child illnesses were tested for their associations with adherence to exclusive breastfeeding. Mothers' having formal education (COR=2.2; 95%CI=1.3-3.7), having  $\geq 4$  ANC follow up (COR=2.2; 95 CI=1.3-3.7), delivering by caesarean section (COR=0.41; 95%CI=0.21-0.79), having negative attitude towards EBF (COR=0.34; 95 CI=0.2-0.6), having disclosed HIV status to spouse (COR=2.23; 95% CI(1.29-3.85), having financial support from spouse (COR=2.02; 95%CI=(2.20-3.37), mother's illness (COR=0.29; 95%CI=0.16-0.52) and infant's illness

(COR=0.52; 95%CI=0.29-0.91) were significantly associated with EBF adherence. Nevertheless, only three of the above variables remained significant during multivariate regression. Mothers who attended more than or equal to four ANC follow-ups were 1.9 times more likely to adhere to EBF than those who attended less than four times (AOR=1.04;95CI=1.04-3.4). Likewise, mothers who experienced illness were 74% less likely to adhere to EBF than who had no illness (AOR=0.26; 95%CI, 0.13-0.53). In addition, mothers who had negative attitudes towards EBF were 68% less likely to adhere to EBF than those who had positive attitudes. (AOR=0.32; 95%CI= 0.16-0.63).

Table 4: Determinant of EBF adherence among HIV positive mothers in Addis Ababa, 2012 (n=371)

Variable	COR (95% CI)	AOR (95% CI)
<b>Mother's education</b>		
Informal education	1	1
Formal education	2.18 (1.29-3.69)*	1.15 (0.59-2.23)
<b>ANC follow up frequency</b>		
Less than four	1	1
Four and above	2.24 (1.36-3.70)*	1.89 (1.5-3.43)*
<b>Type of delivery</b>		
SVD	1	1
Instrumental delivery	0.91 (0.32-2.61)	13(0.30-3.47)
C/S	0.39 (0.20-0.76)*	0.51 (0.23-2.15)
<b>Attitude towards EBF</b>		
Negative	0.39 (0.19-0.59)*	0.32 (0.16-0.63)*
Positive	1	1
<b>Disclosed HIV status to spouse</b>		
No	1	1
Yes	2.23 (1.29-3.85)*	1.62 (0.82-3.18)
<b>Initiated breast feeding</b>		
Within 1 <sup>st</sup> hr	2.63 (1.7-6.39)*	1.81 (0.62-5.25)
After 8 hrs	1	1
<b>Source of financial support to EBF</b>		
No support	1	1
Husband	2.02 (2.20-3.37)*	1.82 (0.97-3.43)
Others	1.65 (0.63-4.33)	2.23 (0.57-8.73)
<b>Mother illness</b>		
No	1	1
Yes	0.29 (0.16-0.52)*	1.27 (0.14-0.53)*
<b>Infant illness</b>		
No	1	1
Yes	0.52 (0.29-0.91)*	0.53 (0.27-1.2)

According to the in-depth interviews, the vast majority knew about the importance of exclusive breastfeeding and reiterated that mixed feeding is bad. A 36 years old HIV positive mother said that:

*“The advice of health professionals is important and helped us to adhere to EBF. In my case, for instance, I was advised about EBF at a health facility as well as at mother support group (MSG) services during the weekly coffee ceremony. I was advised to exclusively breastfeed for the first six months.”*

This shows that that most mothers adhered to EBF because of the advice of health professionals and the support from their spouses and family. On the other hand, few non-adherent mothers mentioned illness, external pressure from husbands, family, neighbors and dryness of their breast.

Almost all mothers said that government should support them and get involved in giving food, allow more time for maternal leave, enable women to have their own income source. A 36 years old mother stated that

*“Government should be involved in several ways. To mention a few, mothers should get extra food of good nutritional value to produce enough breast milk, and women need to have their own income source. To do so government can help the mothers by providing them with jobs or finance through a microcredit schemes so that women can earn income to support themselves and their babies.”*

## Discussion

The present study has tried to assess the prevalence and factors influencing adherence to exclusive breastfeeding among HIV positive mothers. The majority (73%) of the mothers were practicing EBF which is relatively better than some previous reports (8, 13, 16). One possible explanation for this high result might be the fact that the current study was conducted two years after the initiation of the MSG program (which advocates EBF) and the majority of the mother did not afford the cost of formula milk as witnessed during the in-depth interviews. Nonetheless, the present finding should be interpreted cautiously because the study dealt with only those mothers who had ever breastfed and has excluded mothers who already opted for replacement feeding.

Another important finding of the present study is the favorable role of maternal formal education in promoting attitude towards EBF adherence. Similar finding was reported by Yitayish et al (13). The present study also revealed that the majority of the respondents had sufficient knowledge about PMTCT and MTCT and the findings in this regard are higher than those of studies done in Jimma and Addis Ababa (14, 15). This may be probably because of the recent frequent media coverage promoting EBF by different organizations and the

availability and utilization of MTCT and PMTCT services provided at health facilities.

Mothers who had four or more ANC check-ups adhered to EBF more than those who had less frequent ANC follow-ups. This is consistent with the findings of a similar study done in Uganda that confirmed frequent ANC visit as a favorable factor for EBF adherence (16). This finding was also substantiated from the qualitative findings where the majority of mothers reported that the reason for opting and adhering to EBF was because of the frequent ANC follow-up they had. The other importance of ANC follow-up noted in this study was the fact that mothers met the MSG and health workers that gave them advice on various options of feeding as well as on other health related issues. Therefore, it is advisable for mothers to attend ANC regularly since it is an opportunity for them to be counseled on safe delivery, disclosure of their HIV status, the importance of EBF and the advantages of timely treatment and care during illness events. More importantly, mothers should be advised to exclusively breastfeed since it is cheap and more practical option compared to replacement feeding in the context of developing countries.

In the present study mothers who experienced breast related and other illnesses were less likely to adhere to EBF. This is in line with the findings of the study done in other parts of Africa (17, 18). The qualitative findings also have shown mothers reporting their illnesses as being reasons for not adhering to EBF, even after having decided to practice EBF.

The importance of attitudinal change reflected in this study is another area that requires intervention to augment EBF adherence because mothers who had negative attitude towards breast feeding exclusively were less likely to adhere to EBF than those who had positive attitudes. This finding coincides with the results of studies done in Uganda and Tanzania (19, 20).

The importance of spouses' financial support to adhere to EBF is another important lesson observed in the present study. This assertion was also supported by the qualitative findings where mothers pointed out the need for empowerment and for getting opportunities for income generation.

Although the present study has used triangulation to uncover some of the major determinants EBF adherence, it has limitations in that there may be a possibility of recall bias among the respondents. Nevertheless, on the basis of the current findings, the following recommendations are forwarded to improve and promote the adherence for EBF in the country:

- The ongoing advocacy work on media about the importance of EBF should continue since EBF is a relatively less costly and more practical option in the context of resource constrained countries;

- The involvement of spouses during health education sessions that focus on EBF will help mothers to be more adherent to EBF;
- The current mother support group practice observed in the health facilities needs to be strengthened as peer group discussion is a powerful means to bring behavioral changes;
- More efforts should be made by the government to enable women to have more maternal leaves and for creating income generating opportunities so that mothers could decide and adhere to EBF at least for the first six months and continue breastfeeding with an appropriate complementary feed until 12 months.

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