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Exclusive Breastfeeding Practices of HIV Positive mothers and its Determinants in Selected Health Institution of West Oromia, Ethiopia

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Abstract

Background: Exclusive breastfeeding (EBF) has been practiced all over the world as the best cost effective way of feeding infants. In Ethiopia, breastfeeding is a norm and essential for child survival. However, the pandemic HIV/AIDS and the recognition that HIV positive mothers can transmit the virus to their babies through breast milk precipitated a terrible public health dilemma in countries like Ethiopia where incidences of HIV is high.

Objective: To assess the EBF practices of HIV positive mothers and its determinants in a selected health institution of West Oromia (Ethiopia).

Methods: Institution based descriptive cross-sectional study was conducted through quantitative and qualitative methods in selected health institutions with ART & PMTCT facilities in west Oromia during January to May 2014. A total of 119 HIV positive mothers with their young infants visiting the health institutions were recruited for the study.

Results: This study show that the practices of EBF, mixed feeding and replacement feeding were at 72%, 24.6%, and 3.4% respectively. Regarding determinant factors only work place was found to be the only predictor of the practices of EBF among HIV positive mothers (AOR=0.348, 95% CI: 0.121 to 0.995).

Conclusion: Of the assumed determinant factors considered in this study, HIV positive mothers who work far from their home were found to be 0.348 times less likely to practice EBF than those mothers who work near their home (AOR=0.348, 95% CI: 0.121 to 0.995).

Keywords: EBF practice; HIV positive mothers; Determinant factors

Introduction

Background

Exclusive breastfeeding (EBF) has been practiced all over the world as the best cost effective way of feeding the infants, particularly in low-income countries [1-3]. According to WHO, breast milk has the complete nutritional requirements that a baby needs for healthy development. It is also safe and contains antibodies that help protect infants and boost immunity. Consequently, breastfeeding contributes to reduced infant morbidity and mortality due to diarrhea, respiratory or ear infections and other infectious diseases [4].

However, the emerging of HIV/AIDS epidemic and the recognition that HIV positive mothers can transmit the virus to their babies through breast milk precipitated a terrible public health dilemma in countries with a high incidences of HIV. This situation is more worry in countries like Ethiopia where breastfeeding is a norm and essential for child survival [5]. Mother to child Transmission (MTCT) of HIV is the primary way that children get infected and without prevention, over 40% of the children born to HIV positive mothers get infected [5]. Of those infected through MTCT, over 66% get infected during pregnancy and deliveries, while 33% get infected through breast-feeding [5]. For children under 2 years of age, this is almost the only way they get infected [6].

Globally, about 300,000 babies become infected with HIV through breast milk each year; while at the same time 1.5 million children die each year if the women opt not to breastfeed [7]. For instance, in resource poor settings where the risks of infant death due to diarrhea diseases and malnutrition outweighs the risks of HIV transmission, EBF has been recognized as the best chance of the infant to receive the nutrients and antibodies needed to survive [8,9].

In most African countries, EBF for 6 months followed by rapid cessation is heavily promoted among HIV positive women. Previous studies carried out in South Africa, Zimbabwe and Zambia clearly demonstrates that most women do not practice EBF for 6 months [10,11]. Family pressure and cultural beliefs surrounding infant feeding has shown to plays a vital role in a woman's ability to successfully practice EBF for 6 months that requires further investigation [10-12].

On the other hand, though HIV transmission through breast feeding is pervasive in Sub-Saharan Africa, mixed feeding is also a predominant form of infant feeding as a result of a combination of traditional, economic conditions and cultural norms [5]. It is also documented that almost all HIV positive women in this region choose EBF but due to little information and lack of practical support, the majority end up with mixed feeding resulting in high rates of postnatal HIV transmission [4,8]. Yet breastfeeding has remained the most common culturally accepted method of feeding the baby in this region as replacement feeding is mostly associated with stigma and discrimination [13].

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In Ethiopia over half of children under six months are being exclusively breastfed indicating the immediate need for awareness creation program to improve exclusively breastfeed practice [14]. So this study was conducted with the purpose of assessing the status of exclusive breastfeeding practices of HIV positive mothers and its determinants in selected health institution of Western Oromia (Ethiopia). This helps to develop useful interventions method to promote EBF for 6 months. It also explored factors that enabled success in maintaining EBF for 6 months and drew some recommendations on how exclusive breastfeeding can be promoted both at health institutions and community level.

Significance of the study

The study of exclusive breastfeeding practices is critical at this time that MTCT and subsequent HIV-driven infant mortality is high. The study provides the key to vital body of knowledge that guides the HIV positive mothers to make continued exclusive breastfeeding practices of their children to prevent morbidity and mortality of their infants.

It is known that goal 4 of the Millennium Development Goals is entirely devoted to reducing child mortality by two-thirds between 1990 and 2015; however, the progress in many Africa countries is insufficient in achieving this goal. Poor feeding practices such as sub-optimal breastfeeding is still widespread and often leads to malnutrition which is a major cause of more than half of all child deaths. This study of course will be helpful as it will contribute to a better understanding of how essential health interventions with proven empirical efficacy such as EBF can be promoted.

There were limited studies conducted in this area that focus on exclusive breastfeeding practices and determinants among HIV positive mothers in this region. Moreover, this research with no doubt will serve as a basis for future research.

Statement of the problem

Breastfeeding is the natural and healthy way mothers should feed their infants. In the context of HIV/AIDS epidemic however, great concern has arisen because the HIV virus can get transmitted from the positive mother to her baby through breastfeeding. Following the introduction of the PMTCT, HIV positive mothers are counseled on safe infant feeding options. HIV positive mothers who choose to breastfeed are encouraged to practice exclusive breastfeeding for not more than six month. During this time, no other food, drink or water is given to the baby and thereafter, stop breast feeding and give other foods [10].

Breast milk remains the most appropriate infant feeding method for child growth and survival worldwide [1]. However, given the risk that 15% of children can contract HIV through breast milk, reduction of such HIV transmission at the same time preserving its basic advantages is now a major public health challenge confronting perinatal HIV researchers, health policy makers, health care professional and HIV-positive women in most part of the world especially in resource constraints countries [15].

Transmission of HIV from mother to child is higher among the mixed-fed infants than exclusively breast fed infants. It is estimated that, with Exclusive Breastfeeding (EBF), 13% to 15% deaths of children below 5 years of age could be prevented in low and middle income countries [4,16]. Mixed-feeding is more risky for HIV-transmission than exclusive breast-feeding. Infants are exposed to HIV infection through mixed-feeding. The infant can contract HIV because of the damage to the epithelial integrity of the intestine of infants that may facilitate entry of the virus if using formula feeding [17].

There are number of factors that have been reported to determine EBF, these include socio-cultural and norms, family and social pressures to mixed feed, customs that require giving water to newborn since every stranger entering the house is to be given water, the belief that exhaustion and thirst that the infant gets after birth necessitate giving it water and giving infants concoction just after delivery for protection [18].

It is known that feeding breast milk exclusively helps the mothers to reduce the transmission of HIV virus to the infant. Therefore, this study attempted to investigate exclusive breastfeeding practices and determinants among HIV positive mothers attending ART and PMTCT in selected health institution of West Oromia.

Materials and Methods

Description of study area

The study was conducted in selected health institution of West Oromia (Ethiopia), where most of the health service delivery is largely based on curative, preventive and promotive health care and rehabilitative services. From this region West Shoa, East Wollega and West Wollega were purposively selected.

The health institutions with high number HIV positive mothers attending ART and PMTCT were selected purposefully as most of health institutions may have few data. Depending on the past registry the health institutions selected were 3 hospitals and 3 health centers, namely: Ghimbi hospital, Nekemte hospital, Ambo hospital, Ghimbi health center, Nekemte health center and Ambo health centre. The hospitals and health centers selected are found in west wollega (Gimbi woreda), east wollega (Guto Gida woreda) and west shewa (Ambo zuria woreda) zones.

Design of the study

An institution based cross-sectional study was conducted through both quantitative and qualitative methods to assess exclusive breast feeding practices of HIV positive mothers and its determinants in selected health institution of west Oromia. The study was conducted during January to May, 2014.

Source population

All HIV positive mothers who attended ART and PMTCT clinics of the selected health institutions of West Oromia during the study period.

Study population

All HIV positive mothers having children aged 0-6 months who visited selected health institution of west Oromia for ART and PMTCT during data collection period.

Inclusion criteria

All HIV positive mothers having children aged 0-6 months and visited ART and PMTCT clinics of the selected health institution of west Oromia during the study period.

Exclusion criteria

HIV positive mothers who were critically ill and had hearing impairment in the study area.

Sample size determination

Quantitative method: Depending on the past registry of the

selected health institution, the total amount of HIV positive mothers who have children less than six month was about 150 in numbers. So the sample size was determined by the assumption that 50% of HIV positive mothers not practice EBF with 5% marginal error and 95%CI and a none response rate of 10%. Based on this, the actual sample size for the study was determined using the formula for single population proportion [19].

This was determined by using the formula:

$$n = \frac{Z^2.p.q.N}{eZ(N-1) + Z2.p.q} = 108$$

Where,

n = the required minimum sample size

p= estimated prevalence of HIV positive mothers who breastfeed exclusively up to 6 Months of children age is 50% since there is no research conducted around the area.

e = margin of error on p (set at 5)

z= standard normal deviate corresponding to 95% confidence level (=1.96)

N= Target population (N = 150)

NB: 10% was added to cater for non-respondent individuals. Adjusting for non-response, a total sample **119** was used for this study.

Sampling techniques

For the quantitative data collection method, the calculated sample size was proportionally allocated to the selected health institutions of West Oromia based on the average number of client prior to the study period in the respective ART and PMTCT centers. Then to select study subjects from each ART and PMTCT unit, systematic sampling method was employed by referring client's registration book during data collection. The first sample was randomly selected and then every four samples were taken consecutively leaving every fifth sample. This action was repeated until the desired level of sample size was attained.

Data collection procedures

A structured questionnaire first prepared in English were translated in to Afan Oromo and then translated back to English to check for consistency was used to collect information from respondents. Main points included in the questionnaire were socio- demographic characteristics (mother age, sex, income, marital/relationship status, education, religion, occupation, ethnicity), and knowledge and practices of HIV positive mothers about exclusive breast feeding.

Pre-testing the questionnaire

The structured questionnaires were pre-tested in the selected health institution's ART and PMTCT clinic. The pre-test were done on 5% of the total sample size. The questionnaire is then assessed for its clarity, length and completeness. Some skip patterns were then corrected; questions difficult to ask were rephrased.

Data collection

Quantitative data: For administering the structured questionnaire, the principal researcher was responsible for data collection, analysis and interpretation. Six professionals those who hold diploma in nursing were recruited to assist the interview. Trainings were given for two days (including half day of pretest) on the objective, relevance of the study, confidentiality of information, respondent's right, informed consent and techniques of interview. Moreover class room practical demonstration of the interview was carried out. The principal investigator supervised the data collection while also collecting the data himself. He closely followed the data collection process throughout the data collection period. All questionnaires were reviewed each night and morning sessions were conducted every morning with assistant data collectors and errors were corrected.

Qualitative data: To complement the quantitative study, two focus group discussions were carried out purposively by selecting HIV positive mothers that didn't participate in the quantitative study. The principal investigator carried out the discussion; field notes were taken and analyzed manually.

Variables

Dependent variables

- Practices

Independent variables

- Socio-demographic characteristics
- Antenatal care
- Delivery assistants
- Delivery mode
- Delivery place
- Breast health problems
- Work place

Data quality assurance

Quality issues were addressed through the following measures to ensure that the data generated was complete, reliable, and above all reproducible using the same methods. To ensure the quality of data, training of data collectors and supervisors were undertaken and administration of pre-test among 5% of the total sample size to assessed its clarity, length, completeness. The questionnaires were also translated in to local language to facilitate understanding of the respondents. Filed Questionnaires were checked daily for completeness and errors were corrected. Meetings were held to address problems and clarify issues that could hamper collection of good data with assistants found to have problems. In addition to written documentation of responses from study participants, were done after obtaining verbal consent to ensure that all feedback are captured for analysis.

Data processing and analysis

Data were edited for readability, consistence and completeness; thereafter it was coded and entered into a computer using software SPSS (version 20.0). First, univariate analysis was done to determine various proportions including: the proportions of the study participants, who practice exclusive breastfeeding, mixed feeding, replacement feeding. Then bivariate analysis was done to measure association between the dependent variable and the independent variables. Their odds ratios (OR) with 95% confidence intervals (CI) and p-values was obtained. The findings at this stage helped us to identify important associations.

Finally, multivariate analysis was performed using the logistic regression model. Factors that are significantly associated ($p<0.05$) with practices of HIV positive mothers on EBF at bivariate analysis were further analyzed in multivariate analysis to identify factors that were truly associated with practices of HIV positive mothers on EBF.

Ethical considerations

Ethical clearance and permission were obtained from Wollega University Ethical Review Committee and permission was secured from the health institutions. Due to the extreme sensitivity of the research topic ethical issues were strictly considered. Participants were asked to participate voluntarily and were also free to withdraw from the study at any time. Participants were assured of anonymity and confidentiality throughout the study. The informed consent was sought from study participants prior to their participation in the study and the aim of the study was well explained to them. In order to ensure confidentiality and anonymity, no participant name was recorded; instead each participant was identified by a number during the interview. Confidentiality of individual client information was ensured for study participants and limiting access to the principle investigator and research assistants of study information by storing the completed questionnaires and all documents with participant information in a lockable cabinet.

Results

Descriptive statistics of mothers-

Out of the 119 sampled HIV positive mothers included in this study, 118 responded to the questionnaires making a response rate of 99.2%. A variety of questions were asked to assess practices of HIV positive mothers on BF and determinant factors in the study area. Table 1 below shows the distribution of sampled mothers by age, religion, marital status, ethnicity, family income, family size, educational level and occupation. Most of the study participants were married and received at least basic primary education. About 45.8% of the study participants were in the age range of 25-34 years. Moreover, the ethnic composition and religion of the study participants showed that nearly about three quarter (72.0%) of them was Oromo and the majority (45.8%) of the study participants' religion was Orthodox.

Similarly as presented in Table1, highest proportion (49.2%) of study participant were house wives, while the remaining 23.7%, 18.6% & 8.5% were merchants, civil servants & farmers respectively. Furthermore, the Table also showed a wide variation among study participants with regards to average monthly family income. For instance, about 63.6% of the family earns nearly below 1500 Ethiopian Birr per month, while 25.4% of them earned 1500-2500 birr per month. Yet, insignificant proportion (11.0%) of the respondents had monthly income greater than 2500birr. Furthermore, this study also revealed that, most of the study participants (44.9%) had a family size ranging between 1and 3.

Characteristics (n=118)	n (%)		n (%)
Age (years)		**Marital status**	
15-24	50 (42.4)	Married	101 (85.6)
25-34	54 (45.8)	Single	3 (2.5)
35-44	14 (11.9)	Divorced	10 (8.5)
>44	0	Widowed	4 (3.4)
Ethnicity		**Religion**	
Oromo	85 (72.0)	Orthodox	54 (45.8)
Amhara	29 (24.6)	Protestant	45 (38.1)
Gurage	4 (3.4)	Muslim	19 (16.1)
Educational level		**Occupation**	
Illiterate	24 (20.3)	Employed	22 (18.6)
Primary school	51 (43.2)	Farmer	10 (8.5)
Secondary school	30 (25.4)	Merchant	28 (23.7)
College and above	13 (11.0)	House Wife	58 (49.2)
Monthly Family Income (ETB)		**Family size**	
<600	35 (29.7)	1-3	53 (44.9)
600-1500	40 (33.9)	4-5	43 (36.4)
1500-2500	30 (25.4)	6-7	19 (16.1)
>2500	13 (11.0	>8	3 (16.7)

Table 1: Socio-demographic characteristics of study participants among HIV positive mothers in selected health institution of West Oromia, Ethiopia, May 2014.

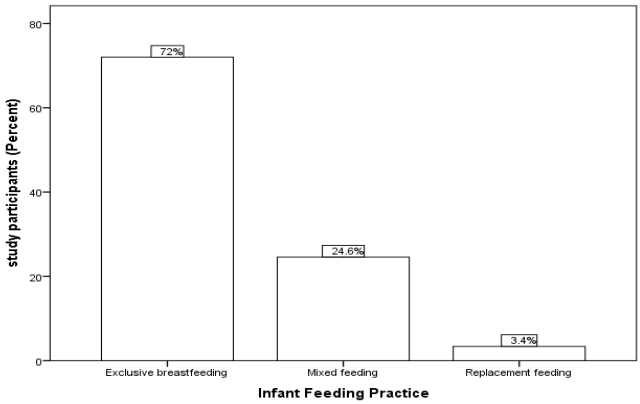

Figure 1: Child feeding practice among HIV positive mothers in selected health institution of West Oromia, Ethiopia May 2014

Practice	frequency(n)	percent
Initiation of BF	**n=114**	
Within one hour	79	66.9
Between two to three hours	34	28.8
Days	1	0.8
Didn't initiate BF	4	3.4
Reasons for late initiation	**n=35**	
Caesarian section	18	51.4
Sickness of mother	2	5.7
Sickness of baby	5	14.3
Delayed milk secretion	10	28.6
Frequency of BF per day	**n=114**	
Up to 7 times per day	6	5.3
>7 times/day	25	21.9
On demand	83	72.8

Table 2: Breastfeeding practice HIV positive mothers in selected health institutions of West Oromia, Ethiopia, May 2014.

Practice of HIV positive mothers on EBF

Figure 1 portrays child feeding practices among HIV positive mothers in the study area. Out of 118 study participants responded to the questions assessing EBF practices, the majority (72%) of respondents practiced exclusive breastfeeding, whereas only 24.6% and 3.4% of the respondents had been using mixed feeding and replacement feeding respectively.

On the other hand, Table 2 portrays the time of initiation and how often (frequency) breastfeeding was practiced among the study participants. Accordingly, about 70% of the study participants initiated breastfeeding within one hour after delivery, while 28.8% of respondents initiated in between 2-3 hours. Although, this may be difficult to believe, about 3.4% of the respondents did not initiate breast feeding at all.

This particular study also identified the possible reasons for delayed and/or no initiation of breastfeeding. About 51.4% delivery by caesarian section, 5.7% baby was sick, 14.3% mother was sick and 28.6% delayed milk secretion were claimed as possible reason for late or untimely initiation of breast milk. Moreover, the majority (72.8%) of the respondents practice breastfeeding on Childs demand, while approximately about 27.2% of the respondents breastfeed their infants for a minimum of seven times per day.

Table 3 presented mothers who practiced mixed feeding. From those who practiced mixed feeding (Table 3), about 17.2% of the study participants gave their infant water in addition to breast milk, while 41.4% of them fed thin porridge and cows' milk each. The reasons for introducing such foods were majorly reduction of milk secretion (62.1%) followed by sickness of the mother (20.7%) and illness of child (17.2%). In a nutshell, most of the respondents (65.5%) had given extra food to their infant at the age range between 3-6 months.

Table 4 showed mothers who practiced replacement feeding. From those who practiced replacement feeding, about 50% of the study participants feed their infant cow milk and the rest (25%) each feed lactogen and NAN. The reason for them to replace other food was fear of HIV transmission.

Factors affecting EBF practices

In bivariate analysis, mother age have significant association with breastfeeding practices ($p<0.05$), whereas ethnicity, religion, marital status, educational level had no significant association with practice of HIV positive mothers on EBF ($p>0.05$). Moreover, occupation, family size and family income had also no association with practice of HIV positive mothers on EBF ($p>0.05$). However, work place and antenatal care of the respondent have significant association with practice of HIV positive mothers on exclusive breastfeeding ($p<0.05$). More over in bivariate analysis, delivery assistant and delivery place had statistical association with practice of HIV positive mothers on EBF ($p<0.01$) whereas, mode of delivery, breast health problems, had no association with practice of HIV positive mothers on EBF ($p>0.05$).

In multivariate analysis, all socio demographic characteristics of the respondents did not show any association with the practices of exclusive breastfeeding. But, the finding of the study identified that only work place have significant positive relationship with practice of HIV positive mothers on EBF ($p<0.05$). HIV positive mothers who work far from their home were 0.348 times less likely to practice EBF than those mothers who work near their home (AOR=0.348, 95%CI: 0.121-0.995) as shown in Table 5.

Practice	frequency(n)	Percent
Introduction of foods in addition to BF	n=118	
Yes	29	24.6
No	85	72
Food only	4	3.4
Foods introduced	n=29	
Water	5	17.2
Thin porridge	12	41.4
Milk	12	41.4
The reasons for introduction of foods	n=29	
Milk was not coming out	18	62.1
Illness of mother	6	20.8
Illness of child	5	17.2
Time of introduction of extra foods	n=29	
In between 1-3 month	10	34.5
In between 3-6 month	19	65.5

Table 3: Mixed feeding practice of HIV positive mothers in selected health institutions of West Oromia, Ethiopia, May 2014.

Practice	frequency(n)	Percent
Replacement feeding practice	n=118	
Yes	4	3.4
No	114	96.6
Foods replaced	n=4	
Animal milk	2	50
Lactogen	1	25
NAN 1	25	
Reasons for replacement	n=4	
Insufficient breast milk	0	0
Fear of HIV transmission	4	100

Table 4: Replacement feeding practice of study participants of HIV positive mothers in selected health institutions of West Oromia, Ethiopia, May 2014.

Discussion

Practice of HIV positive mothers on EBF

According to this study, high proportion (72%) of HIV mothers' had practiced EBF for the first 6 months their baby's life. This finding is of course lower than the study conducted in Gondar [15], where 83.8% of the study participants had practiced EBF. On the other hand, this particular result is almost in agreement with study result conducted in Lusaka district (16), where 74% of mothers practiced EBF.

On contrary, this finding was comparatively higher than the study reported from several countries, for instance 68.3 % from Nigeria, 24% from Uganda, 44% from India and 35.6% from the South Africa [20-23]. This comparative large proportion of EBF practices in this study might have been due to the good cultural feeding habit of the mothers and financial constraints to use replacement feeding. Moreover, the Ethiopian Ministry of Health guideline on infant feeding recommendations of HIV exposed infants which recommend EBF for the first 6 months of infants' age also might have created good awareness among HIV positive mothers [24].

Most of the respondents said that "we are breastfeeding our child without the addition of foods until today. We didn't give them even water." But one mother said that "I gave my child medication at his two months and she asked me as it may result in a problem to her baby".

The proportion of mothers who had poor practice such as mixed feeding practices during the early life of infant were found to be 24.6%. This result is slightly higher than the study conducted at Addis Ababa and Gondar which showed 15.3% and 10.5% respectively (22, 15). Similarly, another study from Cameroon showed far lower (4.3%), while from South Africa reported as 12.4% [23,25]. On contrary, this result was lower than the study conducted in India in which 29% of the study participants practiced poor infant feeding (mixed feeding) [22]. Such discrepancy may reflect the difference in socio-economic background and educational level of study participants at different regions.

One of the study participants said that "When my child was 4 months old I started giving cow milk because of sickness of breast nipple. I stopped giving breast milk by my own. And then after heal from the sickness, I started providing breast milk."

Variables	EBF Practice		95%CI		
	Yes	No	COR	AOR	p-value
Antenatal care					
Yes	80(74.8)	27 (25.2)	1	1	
No	5(45.5)	6 (54.5)	3.556(1.004-12.591)*	1.462 (0.268-7.987)	0.661
Delivery place					
Health institution	78 (91.8)	22 (66.7)	1	1	
Home	7 (8.2)	11 (33.3)	0.179(0.062-0.518) **	0.093 (0.004-2.068)	0.133
Delivery assistant					
Health workers	78 (78.0)	22 (22.0)	1	1	
TBA	7 (38.9)	11 (61.1)	0.179(0.062-0.518) **	1.768(0.076-41.042)	0.723
Mother Age					
15-24	36 (28.0)	114 (72.0)	1	1	
25-34	43 (79.6)	11(20.4)	1.520 (0.615-3.759)*	1.644 (0.615-4.397)	0.322
35-44	6 (42.9)	8 (57.1)	0.292 (0.086-0.993)	0.362 (0.091-1.443)	0.15
Work place					
Near	72 (77.4)	21 (22.6)	1	1	
Far	13 (52.0)	12 (48.0)	0.316(0.126-0.795)*	0.348(0.121-0.995)*	0.049

**=P<0.01(statistical association), *=P<0.05 (Statistically significant), COR=Crude odds ratio, AOR=Adjusted odds ratio

Table 5: Factors associated with EBF practice among study participants in selected health institution of West Oromia, Ethiopia May 2014.

The increase use of infant formula and substitutes too early in a baby's life contributes to the high degree of under development and malnutrition in our children [19]. And babies given cow's milk and formula early in their lives has over 60% more risk of being malnourished. Although exclusive breast feeding for 4 to 6 month is very important and it is sufficient for every child, there are common causes of decline in exclusive breast feeding including mother perception about insufficient breast milk.

According to this study, of those who had trends of mixed feeding practices, about 17.2% introduced water, while 41.4% of them introduced thin porridge and cow milk. The main reasons for such poor practice were found to be about 62.1% believe of poor breast milk secretion, 20.7% claimed for sick mother, while the rest of 17.2% of study participant reasoned due to sick child. This figure is different from a research conducted at Addis Ababa in which neighbor's advice, insufficient breast milk, husband imposition, mother's illness, and both mother's & infant's illness were reported to be 26%, 14%, 8% and 6.0% respectively [26].

Although, literature indicated that mixed feeding damages the intestinal lining of the gut in infants, leading to an increased risk of HIV transmission through breast milk [27], the majority of mothers (65.5%) had started providing such foods at age range between 3-6 months, while 34.5% started in age range between 1-3 months. This result matched with the study conducted at Dares Salaam which showed exclusive breast feeding rates among HIV positive mothers was high among infants from birth, and this go decreasing rapidly until six months of age [28,29].

The proportion of HIV positive mothers practicing RF during this study was as low as 3.4%. However, this is absolutely much lower than the already done reported elsewhere; for instance, 46.8% from Addis Ababa, 5.7% from Gondar, 50% South Africa, 44% from India and 31.7% from Nigeria [30,20,22,23,26]

As far as the type of replacement feeding is concerned, out of those mothers who practiced replacement feeding 50.0% of mothers fed their child cow's milk, whereas 25% of them feed lactogen and NAN each. According to this study, all mothers who practiced replacement feeding started because of fear of HIV transmission. This finding was in agreement with a research conducted by Coovadia in which the knowledge that breast milk contains HIV and that the infant can contract HIV through breastfeeding has made many women to perceive replacement feeding as the safest method to prevent HIV transmission as opposed to breastfeeding [31].

Moreover, 70.0% of study participants initiated breastfeeding within one hour after delivery, whereas 28.8% of them initiated breastfeeding delayed to 2 to 3 hours and 0.8% of them were delayed to days and the rest (3.4%) didn't initiate breast feeding at all. The possible reasons that made them delay to initiate breastfeeding was 51.4% delivery by caesarian section, 5.7% sickness of mothers, 14.3% sickness of baby and 28.6% delayed milk secretion. This figure is very high when compared to the study conducted in Goba woreda of Ethiopia in which 52.4% of them initiated breastfeeding within one hour after delivery, 31.7% initiated breastfeeding within the period of 1 hour to 1 day and the rest 11% of the mothers initiated breastfeeding after three days [32]. However, it is lower than a study conducted in Gondar among HIV positive mothers in which 82.3% of the study participants had initiated breastfeeding within an hour of delivery and 17.7% of the study participants had not initiated breast feeding within one hour of delivery [30].

As said by almost all of the mothers "we initiated breastfeeding immediately after birth and we are breastfeeding our child when the child needs to feed."

Additionally, this study pointed out that the practices of the respondents about frequency per day the baby should breastfed. The majority (72.9%) of the respondents practice breastfeeding on demand, while 21.9% of the study participant breastfeed their infants greater than seven times per day and the remaining 5.8% did practiced seven times per day. This figure is much higher than the study conducted in Kishangaj, Bihar that the frequency of breast feeding per day in their study were 6-9 times among 38.8% of the mothers, 1-5 times in 31.0%, 10-12 times in 26.4% and more than 12 times in 3.9% of the mothers [31].

In general, 72% of the study participants were practiced EBF depending up on questions offered to them to assess practice of HIV positive mothers. This figure is higher than the study conducted in Addis Ababa, Ethiopia in which 30.6% of the HIV positive mothers practice exclusive breastfeeding [26]. This study further revealed that 24.6% and 3.4% of practiced mixed feeding and replacement feeding EBF respectively. This figure is different from the study conducted in Addis Ababa in which 15.3% and 46.8% practiced mixed feeding and replacement feeding respectively [26].

Factors affecting practices of EBF among HIV positive mothers

This study provides the level and socio-cultural factors influencing infant feeding practices of HIV positive women attending ART and PMTCT in selected institution of West Oromia, Ethiopia. The results of this study therefore may not be generalized to represent the whole of Oromia, because of the limited coverage.

In multivariate analysis age, marital status, educational level, family income, occupation, and antenatal care were not associated with practices of EBF in the study area. The finding of the study is in agreement with findings from Addis Ababa, Ethiopia [26]. On contrary, unlike that of a research conducted in Gondar, occupational status were not found to be independently associated (p-value<0.05) with EBF practice [30].

Place of delivery among HIV positive mothers and traditional birth attendants were also not associated with the practice of EBF. Findings from the study were not similar with findings in Ghana that delivery at home, or with Traditional Birth Attendant (TBA) or spiritual leaders poses a risk for not practicing exclusively breastfeeding within the first six months of life as opposed to delivering in government health facilities [32]. However, this study is in line with a research conducted in Addis Ababa and Gondar in which place of delivery were not associated with practices of EBF [26,30].

This study identified that only work place have significant positive relationship with practice of HIV positive mothers on EBF (p<0.05). HIV positive mothers who work far from their home were 0.348 times less likely to practice EBF than those mothers who work near their home (AOR=0.348, 95%CI: 0.121-0.995). This study is in agreement with a research conducted in Guatemala on determinants of optimal breastfeeding and it has been reported that mothers who worked outside the home are less likely to breastfeed exclusively compared to mother who do not work away from home [15].

Results from focus group discussion also supported the above finding. One mother whose work was a merchant and work far from her resident place said that "It is difficult for me to feed my infant breast milk only until six months. Unless I do it is difficult for us to survive. I do not have husband who support me. This makes me not to practice EBF [32-38]."

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