

Knowledge and associated factors on exclusive breastfeeding among HIV positive mothers who have children age 0-24 months in Central Zone, Tigray, North Ethiopia, 2019

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Research

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Abstract

Background: Although breastfeeding is widely practiced in many African countries, studies have shown that lack of knowledge, pressure, and cultural beliefs play a significant role in the success of exclusive breastfeeding for six months. Therefore, this study was aimed to assess knowledge and determinant factors affecting exclusives breastfeeding among mothers living with HIV/AIDS have children age 0-24 months in central zone Tigray.

Methods: A Facility-based Cross-Sectional study was carried out on April 23 to May 10, 2017. A systemic random sampling method was used to select study participants. Information was collected using a structured, pre-tested questionnaire. The data were entered into Epi info 7 and imported to SPSS version 22. Summary statistics and logistic regression analysis were performed using SPSS version 22. Those variables having a P-value of less than 0.2 in the bivariable analysis were fitted in multivariable analysis. AOR with 95% CI and P-value<0.05 were used during multivariable analysis to identify the factors associated with the knowledge of exclusive breastfeeding.

Result: In this study, the overall knowledge of exclusive breastfeeding was 88.4%. Monthly income (AOR: 5.57, 95% CI: (1.176-26.38)) and age at first birth (AOR: 0.339, 95% CI, (0.133-0.863)) were significantly associated with knowledge of HIV positive mothers towards exclusive breastfeeding.

Conclusion: HIV positive mothers attending health care facilities in the central zone, Tigray region knowledge of the mothers was good but still now needs the effort to achieve the goal of exclusives breastfeeding. HIV positive mothers with risk factor income and Age need strict follow up to increase knowledge on exclusives breastfeeding. **Keywords:** Knowledge, Exclusive breastfeeding, HIV positive Mothers.

Background

In the world, more than 820,000 children under the age of five and 87% under the age of 6 months could save lives by exclusive breastfeeding practice. In addition to this EBF increase healthy brain development, promotes healthy growth, prevent against life –treating problems and increase performance in intelligence test among children and adolescents (1, 2). Exclusive breastfeeding by HIV –positive women is a major means of HIV transmission, but mothers, not exclusive breastfeeding carries significant health risk to infant because breastfeeding is vital to the health of children, reducing the impact of many infectious diseases and preventing some chronic disease and support breastfeeding practice as the best infant feeding choice for all women in general(2).

Globally, more than 10 million children under the age of five die each year and about 40% of under two years of deaths are associated with inappropriate breastfeeding practices, 34% of these deaths occur in South Asia and 41% in sub-Saharan Africa (3). In addition to this, breastfeeding brings about 300,000 HIV infection per year while at the same time, United Nation Children Emergency Fund(UNICEF) in the world estimated that not breastfeeding is responsible for 1.5 million children death per year and largest burden

of this infection and death occur in sub-Saharan Africa (4). About two-thirds of deaths occurring worldwide during the first year of life children are often regarding appropriate feeding practice, especially due to poor exclusive breastfeeding practices (5). In the developing world including Ethiopia, every day 3000–4000 infants die from diarrhea and respiratory infection associated with inadequate breastfeeding practice in combination with a high level of disease(6).

In general in developing, country lack of exclusive breastfeeding attributes 45% of neonatal infectious death,30% diarrheal death and 18 of acute respiratory death. Exclusive breastfeeding can significantly reduce the burden of under-five death in Africa especially SSA(7, 8). In Ethiopia, about 321,000 under-five children die each year by malnutrition from the total of death about 57% of death primarily through the exacerbation of other major causes, such as diarrhea and pneumonia death from which can be significantly prevented by exclusive breastfeeding (9).

About 40% globally,47% in Africa and 58% in Ethiopia according to Ethiopian demographic and health survey (EDHS) 2016 report infant under age 0-6-month-old is practiced exclusively breastfed (10, 11).

A study conducted in southwestern Nigeria and Tanzania results show that about 79% of HIV positive mothers knowledgeable about EBF (13, 14). Across sectional study conducted in west Oromia, ambo hospital, bahiradr town, region, Mekelle and in central zone Tigray shows that HIV positive mothers who had good knowledge were 35.6%, 86.4% and 9.1%, 96.1% and 88.1% towards EBF.(15–17,7).

Factors associated with knowledge of EBF among HIV positive mothers in west Oromia were, educational level, occupation, mode of delivery had statistically significant with knowledge of HIV positive mothers on EBF ($p < 0.05$). HIV positive mothers whose educational level were about 11.5 times more likely had knowledge about EBF than the other educational level, mothers whose occupation merchant was less likely had knowledge about EBF than mothers with another type of occupation (15). Therefore, this study was aimed at assessing knowledge and determinant factors affecting exclusives breastfeeding among mothers living with HIV/AIDS have children age 0–24 months in central zone Tigray.

Methods

Study setting

A facility-based cross-sectional study was conducted from March to April 2019, at Central zone Tigray regional state of Ethiopia. The central zone is located 1024km north of the Ethiopian capital city of Addis Ababa, 241 Km east of the Tigray capital city Mekelle. The central zone is divided into 12 weredas and the total population was 1,245,223 from those 631,972 were females and 613, 251 were males. The total people living with HIV were 4841, The reproductive-age women who are HIV positive were 2028 and HIV positive mothers who have an infant less than or equal to 24 months were 485. There were 72 health centers (20 of them have ART service), 6 primary hospitals, 3general hospitals, and 1 referral hospital.

Participants

All HIV positive mothers having infants less than or equal 24 months visit in the selected public health facility central zone were taken as the study population. All HIV positive mothers who gave birth within 24 months before the study period are included, while mothers who unable to communicate, who were not mentally competent or who had any psychiatric disorders and critically ill during data collection were excluded.

Sample Size Determination

By taking into consideration 88.1% of knowledge exclusive breastfeeding among HIV positive mothers (12). 95% confidence level, 5% tolerable margin of error, possible non-response rate of 5%, a total sample of 239 was taken. To check for the adequacy of the sample size, Epi info was used by considering factors associated with knowledge exclusive breastfeeding. By comparing sample size based on a single population proportion formula and Epi-info, the sample size determined by the single population proportion was greater than that of the Epi-info. Therefore the largest sample size of 239 was taken.

Sampling Procedure

All public health facilities in the central zone Tigray region was considered then the sample size was allocated to each health facility proportionally based on their expected number of HIV positive mothers having infants less than or equal 24 months visited all public health facilities during the preceding month before data collection. The study participant was selected by a systematic random sampling method every 2nd HIV positive mothers having infants ageless or equal to 24month.

Study Variables

Dependent Variables

Knowledge Exclusive Brest feeding

Independent Variables

Socio-demographic and Reproductive characteristics, Institutional and source of information related factor

Operational Definition

Good knowledge – mothers answer (Score>60%) on the overall knowledge question(18).

Participants' knowledge was assessed by 13 questions in which each question had a group of 1-3 options. Those participants who answered more than 8 questions correctly categorized as "Good knowledge" and those who scored less were categorized as "Poor knowledge" (18).

Data collection tools and techniques

Data was collected by using an interviewer-administered and structured questionnaire adapted from different similar research (15,18,19) with modification according to the context of the study area. To establish face validity and translation quality the questionnaire was tested on 12 women in exclusive breastfeeding outside the study area by data collectors and supervisors during training. A few questions, language clarity and information were revised and the questionnaire was finalized for the study. The questionnaire includes socio-demographic, Reproductive history, Institutional, and source of information related factors.

Data quality assurance and control

Five health professional data collectors and two supervisors were recruited from the Health Center and they were given training for one day. The supervisors followed the process of data collection daily, checked the data completeness consistency and communicate with principal investigators daily.

Data Processing and Analysis

Data were coded, cleaned, recorded and entered Epi info 7 and finally export to SPSS version 22.00 for analysis. Simple descriptive summary statistics were done. Tables, statements, charts, and graphs were used to present the result of the analyzed data. Associations between independent and dependent variables were analyzed first using bivariate logistic regression analysis. Variables that had $p < 0.2$ on bivariate analysis were entered multivariable logistic regression analysis. After checking using chi-square test variables with small cell size were merged into related categories. Appropriate model diagnostics and goodness of fit tests were done. Multicollinearity was checked to test correlation among predictor variables and Hosmer and Lemeshow test P-value (> 0.2) were conducted to see model fitness. The statistical association between the different independent variables about dependent was measured using OR, AOR, 95% CI and P-values < 0.05 was considered statistically significant.

Results

Socio-demographic characteristics of mothers

A total of 239 HIV positive mothers participated in a response rate of 100%. Out of the total participated mothers, 175(73.5%) were with an age range of 25–35 years. The majority of the participants 177(73.8%) were married (Table 1).

Table 1
Socio-demographic characteristics of HIV positive mothers on EBF in a public health
facility central zone, Tigray, Ethiopia, 2019.

Variables	Response	Frequency	percent
Maternal age	From 15–24 year	6	2.5
	From 25–35 year	175	73.5
	Above 35 year	58	24.2
	Total	239	100
Ethnicity	Tigray	230	96.2
	Amhara	8	3.3
	Oromo	1	0.4
Religion	Orthodox	217	90.8
	Protestant	2	0.8
	Muslim	20	8.4
Residence	urban	205	85.5
	rural	34	14.2
Education states of mothers	Illiterate	95	39.7
	Literate	144	60.3
	Total	239	100
mothers occupation	Nonemployee	119	49.8
	Employed	120	50.2
	Total	239	100
marital status	Married	177	73.8
	never married	21	8.8
	Divorced	34	14.2
	Widowed	8	3.3
husband's educational level	Illiterate	72	30.1
	Literate	116	48.5
	Total	188	78.7
husband's occupation	Nonemployee	80	33.5
	Employed	108	45.2
	Total	188	78.7
average monthly income of your family	Lessthan1000birr	39	16.3
	From 1000–1500	54	22.6
	Above1500	146	61.1

Health institutions related factors and source of information

Three fourth of the respondents (75.8%) reported that they had to get information about EBF from health professionals. Among them, 97.9% of these respondents had availability of health care facilities in your area. (Table 2).

Table 2

Health Institutions related factors and source of information on EBF among HIV positive mothers in public health facility central zone, Tigray, Ethiopia 2019.

Variables	Response	Frequency	percent
heard of any those EBF	Yes	194	81.2
	No	45	18.2
Sources of information about EBF?	Health professionals	182	75.8
	Media	28	11.7
	Reading books	2	0.8
	Family/ Friend	3	1.3
	Magazines	1	0.4
type of media use	Television	156	65
	Radio	50	20.8
	Newspaper	2	0.8
	Magazine	10	4.2
Availability of health care facility in your area	Yes	234	97.9
	No	5	2.1
Type of health facilities in your area	Health post	19	7.9
	health center	105	43.8
	hospital	116	48.3
	private clinic		
The distance of health facilities from your home on foot.	Less than 30 minute	129	53.8
	30 minute to one hour	93	38.8
	One hour to two hour	14	5.8
	More than two hour	4	1.7
Cost of care influence your services	yes	31	13
	no	208	87
Healthcare staffs have a good approach for you where you have utilized healthcare services	Yes	226	94.6
	No	13	5.4

Reproductive characteristics of mothers

The majority of the respondent's 74.4% mother's age at marriage was 18–24 years. Among them, 54.2% of mothers their child age from 6 months up to 12 months. From total respondents, about 95.8% attended ANC follow and about 76.6% were from 3–4 ANC follow up (Table 3).

Table 3
Reproductive characteristics of HIV positive mothers on EBF in public health facility
central zone, Tigray, Ethiopia 2019.

Variables	Response	Frequency	percent
age at marriage	From 18-24 years	221	92.5
	Greater than 24 year	18	7.5
age at first birth	From 18-24 years	191	79.9
	Greater than 24 year	48	20.1
Age of the child in the month	Less than 6 month	38	15.8
	6–12 month	130	54.2
	Greater than 12 month	72	30
Sex of the child	male	127	52.9
	female	113	47.1
Gravidity	Primi gravida	141	59
	multigravida	77	32.2
	grand multigravida	21	8.8
Parity	Primi Para	188	78.7
	multi Para	42	17.6
	grand multi Para	9	3.8
ANC service pregnancy	Yes	229	95.8
	No	10	4.2
Numbers of ANC follow up	1–2	32	13.4
	3–4	184	76.6
	Above 4	23	10
given HE on BF during the ANC	Yes	214	89.2
	No	25	10.2
Place of birth to this child	HC	58	24.2
	Hospital	179	74.6
	Home	3	1.3
PNC service	Yes	192	80.4
	No	47	19.6
Numbers of PNC	One visit	204	85.4
	2–3 visit	28	11.4
	> 3 visit	7	2.9
HE on BF during PNC	HC	53	22.1
	Hospital	142	59.2
	Home	1	0.4

Knowledge of EBF among HIV positive mothers

In our study majority respondents, 93.7% heard about exclusive breastfeeding, among this 92.4% knew the importance of exclusive breastfeeding for child health. About knowledge on EBF HIV positive mother,

88.2% of the respondents know HIV seropositive mother can breastfeed, 90.8% know foods or fluids recommended to under 6-month child is only breast milk and about 35.6% know times baby breastfeeding per day were from 8–10 times (Table 4).

Table 4

Knowledge of HIV positive mothers on EBF in public health facility central zone, Tigray, Ethiopia 2019

Variables	Response	Frequency	percent
Ever heard the term EBF	Yes no	224 15	93.7 6.3
infant feeding per day	As needed From 8–10 Above10 Less than 8	103 85 11 40	42.9 35.6 4.8 16.9
The right time to give breast milk to the child after birth	After giving some better Within one hour After one hour After 24 hours	8 205 23 3	3.3 85.6 9.8 1.3
breastfeeding important for child health	Yes No	221 18	92.4 7.6
Importance of breastfeeding	Prevent diarrhea Minimize cost Sterile Growth and development Increases bonding	96 18 14 89 4	40 7.5 5.8 37.1 1.7
Duration of newborns be fed breast milk only	Less than 6 month 6–12 month Above 12 month	169 49 18	70.4 20.4 7.5
Age of complementary feeding be initiated	At 6month Less than 6 month 6–12 month Above 12 month	137 34 95 7	57.3 14.2 39.6 2.9
Duration of breastfeeding be continued	Less than 6 month 6–12 month Above 12 month	15 45 179	6.3 18.5 75.2
Foods or fluids recommended to under 6-month child	Only breast milk Breast milk and /or water or sugar formula Others	217 11 10 1	90.5 4.7 4.3 0.5
pre-lacteal feeding needed for an infant before starting breast milk	Yes No I do not know	14 189 36	5.8 78.8 15.4
Is BM alone is enough for an infant < 6 month of life	Yes No I do not know	216 11 12	90.1 4.6 5.3

Variables	Response	Frequency	percent
EBF for the first 6 months used to prevent diarrhea and Respiratory disease for the infant	Yes	199	82.9
	No	7	2.9
	I do not know	33	14.2
HIV seropositive mother breastfeed	Yes	211	88.2
	No	28	11.8
HIV positive mother knowledge of EBF	Good Knowledge	211	88.4
	Poor Knowledge	28	11.6

Factors associated with knowledge of EBF among HIV + mothers

In bivariate analysis, Residence, Maternal educational level, maternal occupation, types of health care facility available, age at first birth, monthly income and number of the postnatal visit had a significant association with exclusive breastfeeding knowledge among HIV positive mothers. In multivariate analysis, monthly income and age at first birth were had significantly associated with knowledge of HIV positive mothers on EBF. Respondents' monthly income from 1000–1500 birr were 5.5 times more likely to have good knowledge than participants' monthly income from greater than 1500birr (AOR: 5.57, 95% CI: 1.176–26.38). HIV positive mothers whose age at first birth 24 and above were 0.339 times less likely knew HIV positive mothers whose age at first birth were 18–24 years (AOR:.339,95%CI, .133-.863). (Table 5)

Table 5

Factors associated knowledge of HIV positive mothers on EBF in a public health facility in the central zone, Tigray, Ethiopia 2019.

Variables	Knowledge	COR (95%CI)		AOR(95%CI)	
		Good	Poor		
Residence	Rural Urban	27(12.9) 183(87.1)	7(25) 21(75)	1 2.259(.877-5.819)	1 2.96(.948 - 9.29)
Maternal educational level	illiterate literate	80(38.1) 130(61.9)	15(51.7) 14(48.7)	1 1.74 (0.736-3.586)	1 1.37(.564 - 3.34)
Monthly income	> 1500birr 1000-1500birr <1000bir	126(60) 51(24.3) 33(15.7)	19(67.9) 3(10.7) 6(21.4)	1 2.56(.72-9.041) 0.829(.307-2.242)	1 5.57(1.176-26.38)* 1.48(.439 - 4.48)
Age at first birth	18-24 24 and above	172(81.9) 38(18.1)	18(64.3) 10(35.7)	1 .398(.170-.930)	1 .339(.133-.863)*
Numbers of postnatal visit	1 visit 2-3 visit Above 3 visit	180(85.2) 26(12.4) 5(2.4)	25(89.3) 1(3.6) 2(7.1)	1 3.63(.472 - 27.9) .349(.064-1.89)	1 5.2(.559 - 49.4) .312(.046-2.11)
Types of health care facility available	Health post Health center Hospital	14(6.7) 93(44.3) 104(49)	5(17.9) 10(35.7) 13(46.4)	1 3.32 (.98-11.15) 2.8(0.87-9.14)	1 2.77(.712 - 10.7) 1.84(.485 - 6.9)

Discussions

This study has documented the status of knowledge and its associated factor of EBF among HIV positive mothers attending PMTCT and ART service in selected health intuitions of the central zone, Tigray, Ethiopia.

From this study, two hundred eleven (88.4%) of HIV positive mothers had good knowledge of EBF practice. This finding is higher than another study conducted in southwestern Nigeria and Tanzania in which 79% the study participant knew EBF(13,14) and from the study conducted in west Oromia and ambo hospital knowledge level of HIV positive mothers on exclusive breastfeeding shows that about 35.6% and 86.4% of the respondents(15,20). This might be due to differences in the socio-demographic characteristics of the respondent. According to this finding 170(70.8%) of respondents know the duration of newborn fed breast milk only and 128(53.3%) HIV positive mothers know starting age for complementary feeding is at six months. This study finding shows that almost similar to a study

conducted in Addis Ababa, Ethiopia and Gondar Town (21,22). In this study monthly income and age at first, the birth was the major determinant factor affecting knowledge of the mothers towards EBF. This may indicate that those mothers who had a monthly income from 1000–15000 birr were 55% more likely to have good knowledge than participants' monthly income from greater than 1500birr towards EBF. This might be due to mothers who had middle income better information on the risk and benefit of exclusive breastfeeding. HIV positive mothers whose age at first birth 24 years and above were 33% times less likely knew HIV positive mothers whose age at first birth were 18–24 years. This might be due to mothers whose age at birth from 18-24 were most of them had at school age secondary and higher education there is a share of information.

Conclusion

HIV positive mothers attending health care facilities in a central zone, Tigray region knowledge of the mothers was good but still now needs the effort to achieve the goal on EBF. HIV positive mothers with risk factor income and Age need strict follow up to increase knowledge on EBF.

Declarations

Ethics approval and consent to participant

Ethical clearance was obtained from the Institutional Review Committee (IRC), College of Medicine and Health Sciences, University of Aksum. Permission letter was received from those administrative bodies of the Central Tigray Health Department and each health facility's verbal and written consent was obtained from all participants after they informed on the purpose of the study.

Consent for publication

Not applicable

Availability of data and materials

All relevant data are within the manuscript and its Supporting Information files.

Computing interest

The authors declare that they have no competing interests.

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Authors' contributions

HM and TG designed the study, performed the statistical analysis, drafted the paper, data analysis and read and approved the final paper.

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