



Infant Feeding Options among HIV Positive Mothers Attending Selected General Hospitals in Lagos

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Background: Mother-to-child transmission of HIV is the primary cause of pediatric HIV infections. The global burden of HIV lies in sub-Saharan Africa, including Nigeria. This study is an assessment of the feeding options among HIV positive mothers attending selected general hospitals in Lagos. **Methods:** Quantitative study that utilized a multistage sampling method to select 214 respondents from two General Hospitals in Lagos. The reliability $r = 0.75$. Descriptive and inferential statistics were presented at a 5% level of significance. **Results:** Revealed that 94% of the respondents were married, 77.2% were working, 88.1% have good knowledge on mother-to-child transmission of HIV and 96.0% have good practice of breastfeeding. The Association between knowledge of breastfeeding and practice was significant $X^2 = 5.22$; $p < 0.05$ (0.02). Association between exclusive breastfeeding practice and factors affecting exclusive breastfeeding $X^2 = 14.19$; $p < 0.05$ (0.00); $X^2 = 9.89$; $p < 0.05$ (0.000) while some factors have no significant association with $X^2 = 0.10$ $p > 0.05$ (0.77); $X^2 = 1.28$; $p > 0.05$ (0.27); $X^2 = 0.00$; $p > 0.05$ (0.99). **Conclusion:** The use of expressed breast milk for infant's feeding was still very low among the respondents. There is a need to educate HIV mothers on feeding options for their infants during antenatal clinics.

Keywords: *Infant Feeding Options; HIV Positive Mothers*

Introduction

In the absence of any intervention, the transmission of the human immunodeficiency virus (HIV) from an HIV-positive parent to her child during pregnancy, labour, delivery or breastfeeding have transmission rates ranging from 15% to 45% (WHO, 2018). This rate of transmission can be reduced to below 5% with effective interventions during the periods of pregnancy, labour, delivery and breastfeeding. This process is called the prevention of parent to child transmission (PPTCT) of HIV. These interventions are mainly antiretroviral treatment for the mother and a short course of antiretroviral drugs for the baby. Also these include measures to prevent HIV acquisition in the pregnant

woman and appropriate breastfeeding practices (WHO, 2018).

Although a notable achievement has been made globally and new HIV infections among children have declined by 50% since 2010 (UNAIDS, 2016). HIV remains the major cause of child morbidity and mortality in low resource countries. Among the estimated 36.7 million people living with HIV worldwide in 2015, 1.8 million were children under 15 years of age, and among the estimated 1.1 million people who died of AIDS-related illnesses in the same year, 110 000 were children under 15 years of age (UNAIDS, 2016). Sub-Saharan Africa is the most affected region, with an estimated 25.6

million people living with HIV in 2015. Among the estimated, 2.1 million (150 000 children under 15 years of age) new HIV infections globally in 2015, about 66% occurred in sub-Saharan Africa (US Department of Health and Human Services, 2016).

Among the 180,000 HIV infected cases recorded among children in 2017, breastfeeding was the major medium of transmission. It has been observed that it poses a greater challenge in preventing parent to child HIV transmission during breastfeeding in a known HIV positive mother than reducing the transmission while the woman is pregnant. As a result, in some countries, more infant infections are occurring during the postnatal period rather than pregnancy or labour (WHO, 2015). Over 90% of new HIV infections among children might contribute to HIV epidemics and it is related to poor awareness and knowledge of PPTCT (WHO 2015).

In resource-limited settings, such as some parts of Africa, the World Health Organization (WHO) recommends that HIV-infected mothers breastfeed exclusively for the first 6 months of life and continue breastfeeding for at least 12 months, with the addition of complementary foods. These mothers should be given significant antiretroviral medication (ART) to reduce the risk of transmission through breastfeeding (Center for disease control and prevention, 2020). Parent to child transmission is the most common route of pediatric HIV infection. Poor awareness and knowledge of the people about PPTCT and preventing mother to child transmission (PMTCT) are the major problems in PMTCT of HIV. Health providers have therefore been faced with the dilemma of what alternative infant feeding option is appropriate for seropositive mothers in developing countries, without compromising their health. The impact of the global human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) epidemic is most severe in sub-Saharan

African countries already affected by undernutrition and food insecurity, which Lagos, Nigeria is one of the regions. There is a relationship between HIV and undernutrition and food insecurity, which is mainly synergistic and operating at different levels. However, the major causes of infant deaths are malnutrition and infectious diseases, which can be prevented through breastfeeding which might not be available from an HIV positive mother (Smith, *et al* 2017).

World Health Organization Recommendations published in 2020; Mothers known to be HIV-infected should be provided with lifelong antiretroviral therapy or antiretroviral prophylaxis interventions to reduce HIV transmission through breastfeeding. National or sub-national health authorities should decide whether health services will principally counsel mothers known to be HIV-infected to either breastfeed and take antiretrovirals, or, avoid all breastfeeding (WHO, 2020). Thus the researchers tend to investigate the infant feeding options among HIV positive mothers attending selected general hospitals in Lagos.

Methods

This is a non-experimental descriptive study that utilized a multi-stage sampling technique in selecting 214 respondents; Simple random sampling was used to select two administrative divisions, out of five administrative divisions in Lagos this allows for equal opportunity for all the divisions. The purposive sampling method was used in selecting one general hospital each from the two administrative divisions because they have HIV positive centres for mothers; Total enumeration method was used in selecting the respondents for the study. The researcher developed an interview administered-structured questionnaire after literature review, made up of four sections; socio-demographic variables, knowledge on parent-to-child transmission of HIV, breastfeeding practices, and factors affecting exclusive breastfeeding was used for data collection. Test re-test of the instrument was carried out on 20 HIV positive mothers in another general hospital

with $r = 0.75$. Two research assistance and the researcher collected data from the respondents during their postnatal visits at the clinic, under privacy. The questionnaire was collected back from the respondent the same day after they have filled it. Ethical approval was obtained from the Health Research and Ethics committee of Lagos University Teaching Hospital ADM/DCST/HREC/APP/2212. A copy of the informed consent form was given to the respondents along with the questionnaire. They were informed that participation in the study is voluntary and that they can withdraw from the study at any time without prejudice. Confidentiality of the respondents' information was maintained.

Data were analyzed using Statistical Package for Social Science (SPSS) computer software version 20. Descriptive data were presented in tables and charts while inferential data were tested using Chi-square at a significance of $p = 0.05$. Correct answers on knowledge and good practice were scored 1 while the wrong answers were scored 0. The scores were converted to a percentage.

Results

A total of 214 self-structured questionnaires were distributed, only 202 of the questionnaires were returned given a response rate of 94.4%.

Table 1: Socio-Demographic Characteristics of the Participants

Variables	Frequency (n=202)	Percentage (%)
Age range (years)		
18-22	10	4.9
23-27	77	38
28-32	100	49.5
33-37	14	6.9
No response	1	0.5
Mean age	= 27.80±5.25	
Marital Status		
Single	7	3.5
Married	190	94.0
Separated/ Divorced	3	1.5
No response	2	0.9
Educational qualification		
Primary school certificate	3	1.5
Secondary school certificate	61	30.2
Tertiary	131	64.8
No response	7	3.5
Occupation		
Self-employed	74	36.6
Civil servant	27	13.4
Trader	47	23.3
House wife	33	16.3
Others	15	7.4
No response	6	3.0
Tribe		
Yoruba	73	36.1
Igbo	83	41.1
Hausa	5	2.5
Others	14	6.9
No response	27	13.4

Number of children		
1-3	60	39.6
4-6	33	16.4
No response	89	44.1
Monthly income (Naira)		
<40,000	60	29.7
41,000-70,000	85	42.1
71000-100,000	9	4.5
No response	48	23.8

Table 1 showed that the majority of the respondents 100 (49.5%) were within the age group 28-32, mean age 27.80±5.25, 190(94%) were married and about two-third were educated up to tertiary level. Majority were self-employed 74(36.6%), (16.3%) were housewives and 85 (42.1%) earned 41,000-N70,000 naira.

Table 2: knowledge on Parent-to-Child Transmission of HIV among participants

Variables	Frequency (n=202)	Percentage (%)
Have you heard of Prevention of Mother to child transmission?		
Yes	202	100.0
No	0	0
I don't know	0	0
Can a baby get HIV from breastfeeding?		
Yes	202	100.0
No	0	0
I don't know	0	0
If yes can this be prevented?		
Yes	182	90.1
No	13	6.4
I don't know	7	3.5
How can a mother who is infected with HIV prevent her newborn from becoming infected		
Replacement feeding	3	1.5
Exclusive breastfeeding for 6 months then abrupt weaning	93	46.0
Wet nursing	62	30.7
Heat-treating breast milk	44	21.8
Mother to child transmission could occur during;		
Pregnancy	3	1.5
Delivery	22	10.9
Breastfeeding	20	9.9
Delivery and breastfeeding	157	77.7
Prevention of Mother to child transmission could be by;		
Anti-retroviral treatment; drugs	126	62.4
Only breastfeeding up to 6 months	67	33.2
I don't know	9	4.4

Which of the following can cause transmission of mother to child of HIV?

Lack of knowledge of PPTCT	36	21.8
Poor compliance to ART	125	61.9
Pregnancy	24	11.8
I don't know	9	4.5

Table 2 showed that all the respondents have heard about the Prevention of Mother to child transmission and also that HIV can be transmitted to babies from breastfeeding. The majority of the respondents 182(90.1%) believed that Mother to child transmission of HIV can be prevented. Exclusive breastfeeding for 6 months then abrupt weaning was identified by 93(46.0%) of the respondents as a way a mother who is infected with HIV prevent her newborn from becoming infected. More than half of the respondents 125(61.8%) reported that Poor compliance to ART can cause transmission of mother to child of HIV.

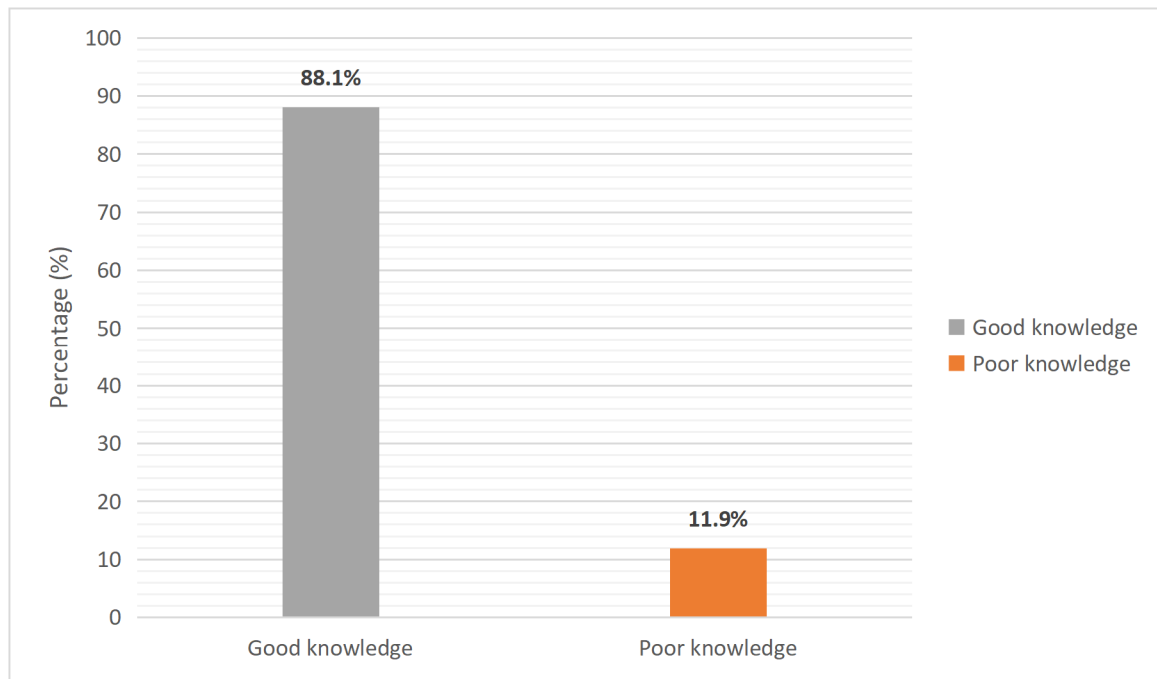


Figure 1: A bar chart showing overall knowledge on parent-to-child transmission of HIV among participants

Figure 1 showed that the majority of the respondents 178(88.1%) have good knowledge of PPTCT of HIV. The correct answer was scored 1 while the wrong answers were scored 0. The scores were converted to a percentage.

Table 3: Breastfeeding Practices on Parent to-Child Transmission of HIV among participants

Variables	Frequency	Percentage (%)
Are you breastfeeding?		
Yes	199	98.5
No	2	0.9
No response	1	0.5
What type of breastfeeding?		
Exclusive	109	54.0
Non exclusive	90	44.6
No response	3	1.5

If Non-exclusive, what has been given?		
Baby food	52	25.7
Water	26	12.9
Pap	12	5.9
No response	111	55.0
If Yes why was the baby given anything aside breast milk?		
Work	23	11.4
Ill-health	13	6.4
Delayed lactation	8	4.0
Tiredness	13	6.4
Hiccup	11	5.4
Others	9	4.5
No response	125	61.9
How long have you been breastfeeding?		
6months to 1 year	53	26.2
0 to 6 months	149	73.8
How long do you intend to breastfeed?		
Less than 4 months	1	0.5
4 to 6 months	3	1.5
6 months	24	11.9
Above 6 months	170	84.2
No response	4	2.0

Table 3 showed that almost all the respondents 98.5% were breastfeeding, 109(54.0%) were practising exclusive breastfeeding while 90(44.6%) were not. The majority of the NON-EBF mothers 52(25.7%) said they feed their babies with baby food while 26(12.9%) said they give their babies water. The majority of the respondents 170(84.2%) said they intend to breastfeed above 6 months.

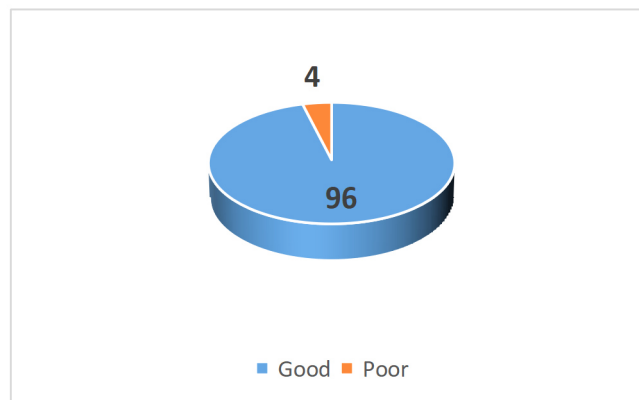


Figure 2: Overall practice of breastfeeding on Parent-to-Child Transmission of HIV among participants

Figure 2 showed that the majority of the respondents 194(96.0%) have good practice of breastfeeding. The correct answer was scored 1 while the wrong answers were scored 0. The scores were converted to a percentage.

Table 4: Factors Affecting Exclusive Breastfeeding on Parent-to-Child Transmission of HIV among participants

Factors	Yes (%)	No (%)	No response (%)
Are you working?	156(77.2)	42(20.8)	4(2.0)
Does your work prevent you from breastfeeding?	46(22.8)	143(70.8)	13(6.4)
Does your husband encourage you to breastfeed exclusively?	186(92.1)	12(5.9)	4(2.0)
Have you been attending an antenatal clinic?	193(95.5)	6(3.0)	3(1.5)
If Yes, were you taught about exclusive breastfeeding?	181(89.6)	18(8.9)	3(1.5)
Did the health education encourage you to breastfeed?	175(86.6)	23(11.4)	4(2.0)
Did you ever fall sick during your nursing period?	60(29.7)	139(68.8)	3(1.5)
If Yes, did it stop you from breastfeeding	25(41.7)	35(58.3)	0(0)
Does your culture encourage exclusive breastfeeding?	188(93.1)	11(5.4)	3(1.5)
Is exclusive breastfeeding practised by nursing mothers in your family?	170(84.2)	29(14.4)	3(1.5)

It was discovered in table 4 that most of the respondents 156(77.2%) were working, and 110(70.8%) out of the respondents working said it does not prevent them from breastfeeding. Most of the respondents 175(86.6%) said health education encourage them to breastfeed while 23(11.4%) said it does not. Only 60(29.7%) of the respondents

felt sick during their nursing period and 25(41.7%) said it prevented them from breastfeeding. The majority of the respondents 186(92.1%) said their husbands encourage them to breastfeed and 188(93.1%) said their culture encouraged them to breastfeed exclusively.

Table 5: Relationship between Knowledge and Practice of Exclusive Breastfeeding among HIV mothers

Overall Practice	Overall knowledge		Total	X ²	df	p-value
	Good	Poor				
Good	173	21	194	5.222	1	0.02
Bad	5	3	8			
Total	178	24	202			

***Significant level at p = 0.05**

Table 5 showed that there is a significant relationship between respondents knowledge of breastfeeding and their practice with X² = 5.22; p < 0.05 (0.02). Majority of the respondents with good knowledge had corresponding good practice of exclusive breastfeeding, while most of those with poor knowledge of exclusive breastfeeding had the poor practice of exclusive breastfeeding.

Table 6: Relationship between the Factors Affecting Exclusive Breastfeeding and the Practice of Exclusive Breastfeeding among participants

Factors	Practice		Total	X ²	Df	p-value
	Exclusive	Non-exclusive				
Does work prevent?						
Yes	14	32	46	14.196	1	0.00
No	89	54	143			
Total	103	86	189			
Does husband encourage?						
Yes	102	84	186	0.106	1	0.77
No	6	6	12			
Total	108	90	198			

Does health education encourage?						
Yes	98	77	175	1.286	1	0.27
No	10	13	23			
Total	108	90	198			
Does culture encourage?						
Yes	103	85	188	0.000	1	0.99
No	6	5	11			
Total	109	90	199			
Did ill health stop you from breastfeeding?						
Yes	6	19	45	9.894	1	0.00
No	78	56	134			
Total	84	75	159			

***Significant level at p = 0.05**

Table 6 showed that there is a significant relationship between respondents' EBF practice and their work also between maternal morbidity and EBF practices with $X^2 = 14.196$; $p = 0.00$ respectively. However, there is no significant relationship between respondents EBF practice and husband encouragement, health education and culture with $X^2 = 0.106$; $p = 0.77$. $X^2 = 1.286$; $p = 0.27$ and $X^2 = 0.000$; $p = 0.99$ respectively.

Discussion

The mean age of the respondents was 27.80 ± 5.25 and 88.1% have good knowledge of parent-to-child transmission of HIV. This is similar to the study by Alemu (2018) where the majority of their respondents' knowledge on the prevention of mother-to-child transmission of HIV were higher among pregnant women who were younger (16 to 24 years old). The majority of the respondents (94.0%) were married, (41.1%) were Igbos. This result is similar to the result of the study conducted by Akinyinka, Olatona and Oluwole (2016) on Breastfeeding Knowledge and Practices among Mothers of Children under 2 Years of Age Living in a Military Barrack in Southwest Nigeria which revealed that majority (91.8%) of the respondents were married but the result differ in terms of tribe in that a larger proportion of them were Hausas (27.3%).

Also most of the respondents (64.8%) have tertiary education. This was in contrast to a descriptive study carried out in Osun State on factors influencing the practice of exclusive

breast feeding where 40.8% of the respondents were educated up to secondary level. The result of this current study showed that majority of the respondents (88.1%) have good knowledge on mother-to-child transmission of HIV. This is in agreement with a study by Sama, Feteh, Tindong, Tanyi, Bihle, Angwafo (2017) where 79.3% of the respondents were aware of MTCT.

The result of this study showed that the majority of the respondents 96.0% had good practice of breastfeeding, this result is consistent with a study carried by Andare, Ochola and Chege (2019) where the practice of exclusive breastfeeding was good. The study is also similar to another study by Belay and Wubneh (2019) with 63.4% of respondents, having a good practice of exclusive breastfeeding. In line with the specific objectives of the study, respondents were asked if they were able to practice the recommended exclusive breastfeeding according to the World Health Organization standards with their current breastfeeding babies.

The result of this study also showed that 32.1% of the nursing mothers were practising pre-lacteal feeding (baby food and pap). This is similar to the study conducted by Ojofeitimi, Esimai, Owolabi, Oluwabusi, Olaobaju and Olanuga (2012) on Breastfeeding Practices in

Urban and Rural Health Centers: Impact of Baby-Friendly Hospital Initiative in Ile-Ife, Nigeria in Ilesha which reported that 36.6% of the infants received pre-lacteal feeds.

The study revealed that the reasons why mothers gave their babies anything aside from breast milk were ill-health 6.4% and delayed lactation 4.0%. This result is similar to the study conducted by Legesse, Demena, Mesfin and Haile (2014) on pre-lacteal feeding practices and associated factors among mothers of children aged less than 24 months in Raya Kobo district, North Eastern Ethiopia which revealed 3.7% of the mothers were sick and 3.3% had delayed lactation. About 70.8% of the respondents said their work does not prevent them from practising exclusive breastfeeding as the majority of them (36.6%) are self-employed, this finding disagrees with that of Warille (2015), on the knowledge and practice of exclusive breastfeeding among women with children between 9 and 12 months of age in el Sabbah Hospital Juba-South Sudan which showed that 52% said one of the reasons for not practising exclusive breastfeeding for 6 months was that they had to resume work.

The majority of the respondents 92.1% said their husbands encourage them to breastfeed. This result is similar to a study carried out on nursing mothers in Sagamu, Southwest Nigeria on exclusive breastfeeding and its associated factors where 98.8% of the nursing mothers indicated that their husband encouraged them to breastfeed. This does not support the study done by Nsirimobu and Balafama (2019), which revealed prevention of HIV transmission to the child and the nutritional benefits of the milk was the main underlying reason for the mother's choice of infant feeding.

Antenatal clinics were attended by the majority of the respondents (95.5%) and 89.6% were taught about exclusive breastfeeding during antenatal. This result correlates with a study carried out in Ethiopia on factors affecting exclusive breastfeeding

practices of urban women where 98% of mothers attended antenatal clinics but does not correlate with the number of mothers that were taught about exclusive breastfeeding as only 70.2% were counselled on EBF.

The result of this study showed that there is a significant relationship between respondents knowledge of breastfeeding and their practice of EBF with $p = 0.02$. Also, the work of the respondents and ill-health have a significant association on their EBF practice with $p = 0.00$ respectively. However, no association exists between respondents' EBF practice and husband encouragement, health education and culture with p -values >0.05 .

Conclusion

Breastfeeding contributes to a substantial proportion of new infant HIV infections (UNAIDS, 2019). The study revealed that majority of the participants have good knowledge of PPTCT of HIV and good practice of breastfeeding. Exclusive breastfeeding by HIV mother based on the health education during ANC is of benefit to the child, also use of expressed breast milk for infant's feeding need to be emphasized among the participants.

Recommendation

The health institutions should also mandate that health education on infant feeding options for people living with HIV is carried out in hospitals during antenatal care.

Conflict of interest; The authors declared that there is no conflict of interest

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