

Assessment Of Factors Influencing The Choice Of Infant Feeding Among Hiv Positive Post- Partum Mothers In The Two Teaching Hospitals, Lagos State, Nigeria

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Abstract

Objective: A large percentage of children born to HIV infected mothers become infected through breastfeeding, particularly if the mother is not on Anti-retroviral therapy. Mother to child transmission can be reduced if the mothers have safe choices of infant feeding after birth. This study was carried out to assess factors influencing the choice of infant feeding among HIV positive post-partum mothers attending two teaching Hospitals in Lagos State.

Methods: The research design was a non-experimental descriptive cross-sectional survey. A total of 130 questionnaires were administered to the respondents. Data was collected using self-developed questionnaires. Face and content validity were ensured by the researcher's supervisor and other experts. Reliability index for internal consistency using Cronbach alpha was between 0.764 -0.769. The SPSS version 22 was used for analysis frequency tables, percentages chi-square were used for both descriptive and inferential statistics respectively.

Results:

The result revealed, that 90(69.2%) chose breastfeeding as the preferred option of infant feeding. Majority of respondents 45(34.6%) had good knowledge about infant feeding options. Socio-cultural factors influencing infant feeding choices include affordability of infant formula 81(62.3%) and previous successful breastfeeding 75(55.4%). Maternal factors influencing choice of infant feeding include health condition 116(89.2%) and enough energy to breastfeed exclusively 79(60.8%). Infant factors influencing the options of feeding include giving of ARV 72(63.9%) and 79(56.15%) will choose formula for a sick child. Availability of ARV will enable 104(80%) of respondents to breastfeed while 118(90.8%) will consider options if HIV status is checked regularly. Hypothesis revealed a significant relationship between knowledge and choice of infant breastfeeding ($\chi^2=70.252, p = 0.000$) exclusive breastfeeding ($\chi^2 = 51.261, p =0.000$) and breastfeeding + water ($\chi^2 = 38.192, p = 0.000$). While age ($\chi^2 = 24.885, p = 0.000$) and parity ($\chi^2 = 25.724, p = 0.000$) showed significant relationship with infant feeding options.

Conclusion: The study concluded that HIV positive mother choice of infant feeding depend on their age, parity, regular check of their HIV status and health. They should therefore have regular health check and take their ARV in order to have the best option for feeding their infants.

Key words: Breastfeeding, HIV, Maternal factors, Mothers Socio-demographics, Transmission

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I. Introduction:

The advent of human –immune-deficiency virus infection in the early decade has caused a lot of global and local problems among nations. It has led to a devastating effect on both men and women. Human immune-deficiency virus (HIV) is a chronic, health problem with symptoms appearing several months to years (Agunbiade, &Ogunleye, 2014). HIV is found among all known populations of the world, including the embryonic population (unborn babies) and the breastfed babies (Agunbiade, &Ogunleye, 2014). World Health Organization, (WHO, 2017) revealed that more than eleven million people worldwide had died of AIDS, while another 3.6 million people are already infected with HIV, with a daily infection rate of over 16,000 people globally. Nearly two thirds of these are in Sub-Saharan Africa. Globally, an estimated 600,000 children are infected vertically (in utero) each year, while in places where women do not breastfeed, most of the transmission occurs at the time of labor and delivery, (Anyebe, Whiskey, Ajayi, Garba, Ochigbo, &Lawal, 2018). In Nigeria

(UNAIDS,2019)estimated that there are 1.9million people living with HIV, of all adults aged 18 years and above with HIV, 55% were on treatment, while only 35% of children aged 0–14 years living with HIV were on treatment. Forty-four per cent of pregnant women living with HIV accessed antiretroviral medicine to prevent transmission of the virus to their baby, preventing 7200 new HIV infections among newborns. Early infant diagnosis—the percentage of HIV-exposed infants tested for HIV before eight weeks of age—stood at 16.3% in 2019.

HIV can be transmitted from an HIV-positive woman to her child during pregnancy, childbirth and breastfeeding (Zulliger, Abrams, and Myer, 2014). Mother-to-child transmission (MTCT), which is also known as ‘vertical transmission’, accounts for the vast majority of infections in children (0-14 years).Without treatment, if a pregnant woman is living with HIV the likelihood of the virus passing from mother-to-child is 15% to 45% (WHO,2017). However, antiretroviral treatment (ART) and other interventions can reduce this risk to below 5%. In 2017, about 180,000 children newly infected with HIV were infected during breastfeeding (UNAIDS, 2018). There are particular challenges in maintaining women living with HIV in care and on effective ART throughout the breastfeeding period, as well as reducing, detecting and managing new infections occurring among women while they are pregnant or breastfeeding. As a result, WHO (2016) recommended that mothers living with HIV who are on treatment and are being fully supported to adhere to it can exclusively breastfeed their infants for the first six months of life, then introduce complementary foods while continuing to breastfeed for at least 12 months and up to 24 months.

When ARV drugs are not immediately available, the WHO guidelines still recommend mothers exclusively breastfeed for the first six months of an infant’s life and continue, unless environmental and social circumstances are safe for, and supportive of, replace feeding. People on antiretroviral treatment who maintain an undetectable viral load (which is when HIV in the body has been suppressed to such a low level that blood tests cannot detect it) are not at risk of transmitting HIV to sexual partners. This has led to the question of whether women living with HIV who are undetectable can breastfeed without fear of passing HIV to their infants. Research on breastfeeding women living with HIV that includes viral load data is limited. What evidence does exist indicates that an undetectable viral load provides significant protection from HIV transmission. However, there have been cases of HIV transmission among breastfeeding women with undetectable viral loads (WHO, 2016). The choice of infant feeding in HIV positive mothers is dependent on many factors such as the level of knowledge of the mothers about the various available choices, previous successful or non-successful breast feeding, and level of maternal health or cultural expectations. The state of health of the newborn and some hospital policies, socio-economic factors play significant roles in the choice of infant feeding.

II. Method

This Study was a Cross Sectional Descriptive Survey was adopted for this study, the research design approach is present-oriented and based on on-going event as it provides a detailed description of existing of factors influencing infant feeding of HIV positive post-partum mothers,. The Descriptive survey was considered appropriate for this study because it allowed for description of the phenomenon as they exist in their natural setting at a time of the research.

Research setting

The setting of this study was carried out in Lagos University Teaching Hospital, popularly called LUTH, a tertiary institution established in October 3rd 1962.It is one of the largest teaching hospitals in Nigeria, located at Idi – Araba in Surulere Local Government Area, Lagos State .The hospital is made up of twenty wards sub grouped into blocks namely A,B,C,D and E block, each having four (4) wards with the exception of A and D blocks with only three (3) wards each ,12 specialty units and 10 out- patient clinics .The hospital provides both preventive and curative services for in and out patient care with various illnesses .

These specialty units and clinics include antenatal clinic HIV/AIDS clinic, Labour wards ,Neonatal unit Adult and Children Emergency units, Intensive care unit , Guinness eye Centre, Physiotherapy and Radiotherapy units ,Dental clinic ,Dialysis Centre and Theatres rendering varying specialty care.The hospital has a total of 634 Nurses .HIV/AIDS Clinic is held on Tuesdays near the DOT Clinic Centre.

The Lagos State Government formally converted the Ikeja General Hospital to the Lagos State University Teaching Hospital in July 2001. Despite LASUTH’s relatively young age as a Teaching Hospital, evidence abounds that it is one of the foremost teaching hospitals in West Africa in terms of the high quality services rendered by highly skilled professionals using state-of-the-art equipment.

The Lagos State University Teaching Hospital Ikeja emerged from a modest cottage hospital, which was established, 25th of June 1955 by the old Western Regional government to provide health care services for the people of Ikeja and its environment.

The cottage hospital later metamorphosed into a full-fledged general hospital, which served as a secondary level health care facility. The need for a tertiary health care facility for the training of doctors and the

rallied health care professionals to provide high quality clinical services led to its upgrade from a general hospital to a modern, well equipped center of excellence armed with the state of art equipment teaching hospital.

Data Collection and Coding

Data was collected using a self-developed questionnaire on the factors influencing the choice of infant feeding among HIV positive post-partum mothers. The questionnaire was generated from reviewed literature based on the objectives set for the study. It is a 36 items questionnaire.

The instrument was divided into six sections.

Section A: This section focuses on the participant’s demographic data such as gender, age, educational background. Section B: deals with information on the participants’ knowledge of mother about available infant feeding options .The items are six(6) in number the response column of the questionnaire ranges from 0-1 point :0=No, 1= Yes .The maximum possible score is 6 .The higher the score, the greater the knowledge of mothers about available feeding options,

- Good- 7 above
- Average 5-6
- Fair- below 5

Section C: deals information on socio cultural/economic factors influencing baby feeding options, It is a 4 - points Likert scale. The responses column of the questionnaire ranges from 1-4points:4=Strongly Agreed, 3 =Agreed, 2= Disagreed, 1= strongly Disagreed. The items are seven (7) in number and the maximum possible score is 28.The higher score signifies positive socio cultural/economic factors influencing baby feeding options while low score signifies negative socio cultural/economic factors.

Section D: deals with information on the maternal factors influencing feeding options .The item are6 in number and the maximum score is 6.

The responses column of the questionnaire ranges from 1-4points 4=strongly agreed, 3=Agreed, 2= Disagreed, 1= Strongly Degreed.

Section E: Contains information on infant factors influencing feeding options, the items are 7 in number and maximum score is 7

The responses column of the questionnaire ranges from 1-4points 4=strongly agreed, 3=Agreed, 2= Disagreed, 1= Strongly Degreed.

Section F: Contains items of healthcare facility factors. The items are 3 in number with score of 3. The responses column of the questionnaire ranges from 1-4points 4=strongly agreed, 3=Agreed, 2= Disagreed, 1= Strongly Degreed.

Analysis

Data entry and analysis was done using the Statistical Package for Social Sciences (SPSS) software, version 23. The data was subjected to descriptive and inferential statistical analysis. Data was summarized using frequencies, distribution tables and cross tabulation. Pearson Product Moment correlation was used to test hypotheses at 0.05 level of significance.

Ethics

An ethical clearance was obtained from BUHREC Babcock University, Ilisha, Ogun State, then approval was obtained from the authorities of the LUTH and LASUTH Informed consent was obtained from the mothers after being fully informed of the objectives and design of the study. Respondents was assured of confidentiality and anonymity. Respondents wishes and rights were respected at all times, including right to discontinue with the study at any point in time if they so desire.

III. Results

A total number of 130 questionnaires were distributed among the respondent in two teaching hospitals in Lagos State. (Lagos University Teaching Hospital, Idi-Araba, Surulere, Lagos and Lagos State University Teaching Hospital, Ikeja, Lagos.). A total of 130 questionnaires were adequately filled and returned.

Table 1: Socio-demographic data of the respondents.

Variable	Years	Frequency	Percentage
AGE	15-21	7	5.4
	22-28	15	11.5
	29-35	46	35.4
	36-42	53	40.8
	43-49	9	6.9
	Total	130	100
Educational Qualification	Primary Education	4	3.1
	Secondary Education	82	63.1

	Tertiary Education	36	27.7
	No Response	8	6.1
	Total	130	100
Marital Status	Single	19	14.6
	Married	98	75.4
	Widowed	7	5.4
	No Response	6	4.6
	Total	130	100
Religion	Christianity	104	80
	Islam	7	5.4
	Traditional	5	3.8
	No Response	14	10.8
	Total	130	100
Occupation	Business	81	62.3
	Housewife	19	14.6
	Civil Service	25	19.3
	Teaching	5	3.8
	Total	130	100
Husband's Work	Self employed	89	68.46
	Civil Service	27	20.7
	No Response	14	10.8
	Total	130	100
Ethnicity	Yoruba	49	37.7
	Hausa	9	6.9
	Igbo	56	43.1
	Others	16	12.3
	Total	130	100
Parity	1 – 4	103	79.23
	5 And Above	20	15.4
	No response	7	5.4
	Total	130	100

Table 1 shows that majority 53(40.8%) were between ages 36 – 42 years with mean age of 34.26. it was observed that almost two – quarter of the respondents 82(63.1%) attained only secondary education. Also, majority 98(75.4%) of the respondents were married; this was expected as the study targeted women of child bearing age. Despite the study was carried out in the south – West geo – political zone of Nigeria dominated by Yorubas, there were more Igbos' 56(43.1%) than Yorubas 49(37.7%). Majority 103(79.23%) of the respondents have given birth to not more than four children.

Table 2: Respondents knowledge on infant feeding options.

Variable	Response	Frequency	Percent
Breastfeeding	Yes	90	69.2
	No	40	30.8
	Total	130	100
Exclusive breastfeeding	Yes	89	68.5
	No	41	31.5
	Total	130	100
Infant formular	Yes	64	49.2
	No	62	47.7
	No Response	4	3.1
	Total	130	100
Mixed feeding (Breastfeeding + Formular)	Yes	24	18.5
	No	102	78.4
	No Response	4	3.1
	Total	130	100
Breastfeeding + Water	Yes	41	31.5
	No	86	66.2
	No Response	3	2.3
	Total	130	100
Surrogate breastfeeding	Yes	28	21.5

	No	99	76.2
	No Response	3	2.3
	Total	130	100

Table 2 illustrates respondents 'preferred infant feeding options. Majority 90(69.2%) chosen breastfeeding as their preferred option while surrogate breastfeeding was the least option chosen by the respondents with frequency/percentage of 28(21.5%).

Table 3: Knowledge level of the respondents on infant feeding options

Level/Score	Frequency	Percentage (%)
Poor 0-1	44	33.8
Fair 2-3	41	31.5
Good 4-6	45	34.6
Total	130	100

Table 3 shows that Majority of the respondents had good knowledge of infant feeding options with 45(34.6%), those with fair knowledge was 41(31.5%) and poor knowledge was 44(33.8%).

Table 4: Distribution of the respondents socio-cultural / economic factors influencing baby feeding options.

Variable		Frequency	Percent
I have family support whenever i am breastfeeding my baby	SA	55	42.3
	A	18	13.8
	SD	31	23.8
	D	24	18.5
	No response	2	1.5
	Total	130	100
I breastfeed my baby out of fear of stigmatization	SA	21	16.2
	A	11	8.5
	SD	63	48.5
	D	33	25.4
	No response	2	1.5
	Total	130	100
I breastfeed my baby because of external pressure from family members	SA	21	16.2
	A	31	23.9
	SD	44	33.8
	D	32	24.6
	No response	2	1.5
	Total	130	100
our culture does not allow another woman to breast feed our baby	SA	71	54.6
	A	11	8.5
	SD	33	25.4
	D	13	10
	No response	2	1.5
	Total	130	100
I can afford to buy infant formular to feed my baby	SA	52	40.0
	A	29	22.3
	SD	26	20.0
	D	21	16.2
	No response	2	1.5
	Total	130	100
Buying baby formular is too expensive for me to feed my baby	SA	8	6.2
	A	2	1.5
	SD	72	55.4
	D	46	35.4
	No response	2	1.5
	Total	130	100
will breastfeed my baby because i have done it before	SA	72	55.4
	SD	17	13.1
	D	34	26.2
	A	5	3.8
	Total	130	100

Table 4 indicates socio – cultural/ economic factors influencing infant feeding option among HIV mothers. Responses gotten from respondents indicate that family support and previous experience regarding breastfeeding have significant influence on the choice of infant feeding. Majority of the respondents claimed to have family support whenever they breastfeed their babies with 55(42.3%), 18(13.8%), for SA and A respectively while 72(55.4%) breastfed their babies because they have done it before. However, majority 81(62.3%) of the respondents agreed/strongly agreed that they can afford infant formula.

Table 5: Distribution of the respondents maternal factors influencing baby feeding options.

Variable	Response	Frequency	Percent
I take decisions for my baby feeding method	SA	94	72.3
	A	22	16.9
	D	12	9.2
	No response	2	1.5
	Total	130	100
My health condition may affect the choice of feeding my baby	SA	55	42.3
	A	24	18.5
	SD	34	26.1
	D	15	11.5
	No response	2	1.5
	Total	130	100
I may not have enough energy to breastfeed exclusively	SA	22	16.9
	A	5	3.8
	SD	69	53.1
	D	34	26.2
	Total	130	100
I fear that the drugs am taking may affect my baby negatively	SA	37	28.5
	SD	37	28.5
	D	56	43.0
	Total	130	100
I may not have enough breast milk for my baby	SA	4	3.1
	A	6	4.6
	SD	82	63.1
	D	38	29.2
	Total	130	100
I can combine breastfeeding with infant formula	SA	10	7.7
	A	14	10.8
	SD	71	54.6
	D	35	26.9
	Total	130	100

Table 5 revealed maternal factors influencing baby feeding options. Majority of the respondents 116(89.2%) always took decision of the choice of their baby’s feeding, health condition may affect the choice of feeding the baby, with 79(60.8%) agreed, may not have enough energy to breastfeed exclusively, with 37(28.5%) agreed, fear that the drugs they are taking may affect their baby negatively 37(28.5%) may not have enough breast milk for the baby with 10(7.7%) agreed, can combine breastfeeding with infant formula with 24(18.5%) agreed.

Table 6: Distribution of the respondents’ infant factors influencing baby feeding options.

Variable		Frequency	Percent
If my baby is given ARD, I will breastfeed	Agreed	72	63.9
	Disagreed	45	34.6
	No response	2	1.5
	Total	130	100
My baby may refuse to take breast milk due to ill health	Agreed	77	59.23
	Disagreed	53	40.77
	Total	130	100
A small or premature baby may not be able to breastfeed	Agreed	61	46.92
	Disagreed	66	50.77
	No response	3	2.3
	Total	130	100
Because of health condition, baby may not be able to suck breast adequately	Agreed	56	43.10
	Disagreed	74	56.9
	Total	130	100
Infant formula is the best if baby is premature?	Agreed	18	13.82
	Disagreed	111	85.38
	Total	130	100

Baby can be given water along with exclusive breastfeeding to quench thirst	Agreed	53	40.77
	Disagreed	77	59.23
	Total	130	100
If baby is sick, it is best to give formular	Agreed	73	56.15
	Disagreed	57	43.85
	Total	130	100

Table 6 shows infant factors influencing baby feeding options. Feedback from respondents are; if my baby is given ARV, they will still breastfeed with 72(63.9%) agreed with the statement, baby may refuse to take breast milk due to ill health, with 77(59.23%), small or premature baby may not be able to breastfeed with 61(46.92%) agreeing, because of health condition, baby may not be able to suck breast adequately, with 56((43.1%), infant formular is the best if baby is premature with 18(13.82%)agreeing, baby can be given water along with exclusive breastfeeding to quench thirst with 53(40.8%), if baby is sick, it is best to give formular with 73(56.15%) agreeing.

Table 7: Distribution of the respondent’s health care system factors in the health facility where I take my AVS

Variable	Response	Frequency	Percent
Availability of ARV and other drugs will assist me to know the best feeding option for my feeding baby	SA	104	80.0
	A	15	11.5
	D	11	8.5
	Total	130	100
Adequate health education will enable me to choose the best option for my feeding baby?	SA	120	92.3
	A	10	7.7
	Total	130	100
Regular checking of my HIV status will enable me to choose the best feeding options for my baby	SA	118	90.8
	A	10	7.7
	No response	2	1.5
	Total	130	100

Table 4.1.7 shows feedback from respondents as regards to the health care system factors that may influence infant feeding option. Majority of the respondents in the study areas claimed that the availability of ARV and other drugs will assist them to know the best feeding option for their feeding baby with 104(80.0%), 15(11.5%), and 11(8.5%) for SA, A, and D respectively, adequate health education will enable me to choose the best option for my feeding baby, with 114(87.7%), and 10(7.7%), for SA, and A, respectively, regular checking of my HIV status will enable me to choose the best feeding options for my baby, with 118(90.8%), and 10(7.7%), for SA, and A, respectively.

Research Hypotheses
Hypothesis one

Table 8: There is no significant relationship between the knowledge of HIV positive mothers about the available choices of infant feeding and their choice of infant feeding option

		Knowledge Level			Total	
		Poor	Fair	Good		
Breastfeeding	Yes	8	34	45	87	X ² :70.252 P=0.000
	No	33	7	0	40	
	Total	41	41	45	127	
Exclusive breastfeeding	Yes	13	31	45	45	X ² :51.261 P=0.000
	No	30	10	0	0	
	Total	43	41	45	129	
Infant formula	Yes	29	10	25	64	X ² :18.596 P=0.000
	No	12	31	19	62	
	Total	41	41	44	126	
Mixed feeding breast feeding+formula	Yes	0	2	22	24	X ² :42.324 P=0.000
	No	41	39	22	102	
	Total	41	41	44	126	
Breast feeding + water	Yes	4	7	30	41	X ² :38.192 P=0.000
	No	37	34	15	86	
	Total	41	41	45	127	
Surrogate breast feeding	Yes	0	8	20	28	X ² :8.884 P=0.672
	No	41	33	25	99	
	Total	41	41	45	127	

Table 8 shows that the chi-square value obtained for breastfeeding is ($X^2 = 70.252$, $P = 0.000$) and Exclusive breastfeeding ($X^2 = 51.261$, $P = 0.000$), Infant Formula($X^2 = 18.596$, $P = 0.000$), Mixed feeding breastfeeding + formula ($X^2 = 42.324$, $P = 0.000$) and Breastfeeding + water ($X^2 = 38.192$, $P = 0.000$), at the significant levels less than 0.05 for the five variables respectively. Since these p – values were less than 0.05 values, it could be said that breastfeeding, exclusive breastfeeding, infant formula, breastfeeding + formula and breastfeeding + water have a relationship with knowledge of the choice of infant feeding among HIV positive post- partum mothers in two teaching hospitals, Lagos State.

Hypothesis Two

H 1: There is no significant difference between socio-demographic variables of HIV positive post-partum mothers and their choice of infant feeding.

Table 9: Relationship between the socio-demographic variables and choice of infant breastfeeding (Exclusive breastfeeding).

Socio - Demographic Data	Infant feeding option (breastfeeding and formular)			X ²	p-value
	Yes	No	Total		
Age					
22-28	11	11	22		
29-35	25	19	44	24.885	0.000
36-42	44	9	53		
43-49	7	1	8		
Total	87	40	127		
Educational Qualification				6.465	0.039
Primary	1	3	4		
Secondary	60	26	86		
Tertiary	19	19	38		
Total	80	48	128		
Marital Status				9.429	0.024
Single	13	6	19		
Married	74	27	101		
Total	87	36	123		
Religion				2.857	0.240
Christianity	69	32	101		
Islam	5	5	10		
Traditional	2	3	5		
Total	76	40	116		
Occupation				8.772	0.032
Business	47	31	78		
House Wife	17	2	19		
Civil Servant	23	7	30		
Total	87	40	127		
Husbands Work				4.115	0.944
Civil Service	16	9	25		
Self Employed	57	31	88		
Total	73	40	113		
Ethnicity					
Yoruba	35	13	48		
Igbo	31	23	54	6.453	0.092
Others	21	4	25		
Total	87	40	89		
Parity				25.724	0.000
1-4	69	34	103		
5 And Above	12	5	17		
Total	81	39	120		

Table 9 shows the chi-square value obtained for age is ($X^2 = 31.455$, $P = 0.002$) educational qualification ($X^2 = 9.429$, $P = 0.039$), marital status ($X^2 = 9.429$, $P = 0.024$), occupation($X^2 = 8.772$, $P = 0.032$), and parity ($X^2 = 25.724$, $P = 0.000$), at the significant levels less than 0.05 for the five variables respectively. Since these p – values were less than 0.05 values, it could be said that age, educational qualification, marital status, occupation and parity have a relationship with infant feeding options (breastfeeding and formula) among HIV positive post- partum mothers in two teaching hospitals, Lagos State.

However, for ethnicity, religion, and husband work, the chi–square values obtained were 6.453, 2.857, and 4.115 respectively at an insignificant level of 0.092 for ethnicity, 0.240 for religion, and 0.944 for the husband work. It could be said that ethnicity, religion and husband work have no relationship with choice of infant feeding among HIV positive post- partum mothers in two teaching hospitals, Lagos State.

IV. Discussion

Socio-demographic data

The age range was between 15 to 49 years with majority within the age range 36-42yrs, 37(41.1%). Most respondents had secondary education, 59(65.6%). Most were married, 63(70.0%), Majority of the respondents were Christians 68(75.6%), 53(58.9%) of the respondents are into business, the respondents were mostly Igbo 56 (43.1%). In terms of parity, most respondents had 2-4 children 63(70.0%). This agrees with the findings by Ajayi, Hellandendu, Garba, Oyedele, Anyebe and Sani (2011) in their study on factors associated with the practice of EBF among mothers in Kogi state, Nigeria. Using cluster sampling technique to select one town and one village from each of the 3 randomly selected LGA's with a sample size of 255 mothers. Questionnaire and interview methods were used to measure relationships and variability. Findings showed that level of education played a major role (38%) in breast feeding. Mother's occupation (19.5%), age (14%), hours of work per day (21%). Result proves that educational levels plays role in mother's choice of infant feeding

Research Question 1:

What is the knowledge of HIV positive mothers about the available choice of infant feeding among HIV post-partum mothers?

It was shown from this study that majority 45(34.6%) of the respondents had good knowledge of infant feeding options while 44(33.5%) have poor knowledge. This probably contradicts the findings by Anyebe et al, (2018) who claimed that lack of knowledge and confidence in the recommended feeding options made it difficult for respondents to cope.

Preferences for the infant feeding options shows breastfeeding, 90(69.2%) of the respondents with yes, and no was 40(30.8%). Exclusive breastfeeding, 89(68.5%) of the respondents with yes, and no was 41(31.5%). Infant formula, 64(49.2%) of the respondents with yes, and no was 62(47.7%). Mixed feeding (breastfeeding+formula), 24(18.5%) of the respondents with yes, and no was 102(78.4%). Breastfeeding+water, 41(31.5%) of the respondents with yes, and no was 86(66.2%). Surrogate breastfeeding, 28(21.5%) of the respondents with yes, and no was 99(76.2%). Majority of the respondents had good knowledge of infant feeding options. This was also the findings by Abusomwan (2011) who conducted a study on infant feeding choices and practice of HIV positive mothers at lower Umfolozi District war Memorial Hospital, Empangene, KwaZulu-Natal Province, using descriptive cross-sectional study in 3 areas of the poor-rural communities. Data was obtained by the use of structured questionnaire administration to 395 mothers attending PMTCT clinic 6 weeks after birth. Result showed 78.2% who choose EBF, RF 19.4% and mixed feeding 2.5%. The study demonstrated that EBF is the predominant choice and RF was common among few HIV positive mothers.

Research Question 2:

What are the socio-economic factors influencing the choice of infant feeding among HIV post-partum mothers?

Majority of the respondents claimed they will breastfeed their baby because they have done it before. Majority of the respondents in study areas claimed to have family support whenever they breastfeed their babies (56.1%). Other socio-economic factors influencing the choice of infant feeding among HIV post-partum mothers are culture, which they claimed does not allow another woman to breast feed their baby with 71(54.6%), cost of being able to buy infant formula to feed their baby (62.3%). These findings were similar to Laar and Govender (2011) who conducted a study to assess the perspectives of HIV-positive mothers and family members (grand-mothers and fathers) on the infant feeding options recommended for HIV-infected mothers in South-Ghana. The study found out that all infants born to HIV-positive mothers in both districts had been breastfed. Breastfeeding was initiated between three hours and three days following birth. While some of the infants had been exclusively breast-fed, none had been exclusively formula fed. The study found out that early mixed feeding patterns were deeply entrenched, but discovered barriers to exclusive replacement feeding by HIV-positive mothers to include cultural and familial influences, socio-economic factors including cost of infant formula, lack of access to fridges, clean water and fuel.

Research Question 3:

What are the maternal factors influencing the choice of infant feeding among HIV post-partum mothers?

Maternal factors influencing baby feeding options are taking decisions for the baby feeding method with 116(89.2%), health condition may affect the choice of feeding the baby, with 79(60.8%), may not have enough energy to breastfeed exclusively, with 37(28.5%), fear that the drugs they are taking may affect their baby negatively 37(28.5%) may not have enough breast milk for the baby with 10(7.7%), can combine breastfeeding with infant formula with 24(18.5%).

This agrees with another qualitative study in Kenya, where mothers' views on infant feeding options were investigated in a community by WHO, (2011), using 36 HIV positive mothers during focus group discussion session. They found out that customs, availability of information, income to afford replacement feed including infant feeding formula were some factors that affected their choice of decision on infant feeding. The authors concluded that it was advisable to use feeding options that are most economically affordable, feasible, culturally acceptable and convenient, sustainable and safe to the HIV positive mothers. Also Swarts, Kruger & Dolman (2010) conducted a study to determine factors influencing choices of breast- versus the formula-feeding of infants in order to understand where the focus should lie in the promotion of breastfeeding in Lower Umfolozi District War Memorial Hospital, KwaZulu-Natal, using a well-structured questionnaire which was completed by 100 women and focus-group discussions were held with 12 women who delivered babies at the Lower Umfolozi District War Memorial Hospital (LUDWM) in Kwazulu-Natal. The result of the finding shows that most of the mothers (72%) chose breastfeeding and 58% intended to breastfeed for only 6 months. It was also discovered that one-third (33%) of the women were influenced by health care professionals and 44% of the mothers made their own decisions in their feeding method. Only one participant stated that she chose formula-feeding due to her HIV-positive status, but in the focus-group discussions, the fear of transmission of HIV through breast-milk was stated as an important reason why mothers chose replacement-feeding.

The study further found out that some factors that influenced the choices of infant feeding options among HIV positive mothers of reproductive age include HIV related stigma and discrimination, inadequate counseling on infant feeding options for HIV positive mothers, gaps in the supply of free infant feeding formula, poor hygiene and inconsistent formula preparations, early introduction of complimentary food and weak continuum of care. The study discovered an important gap between policies and practice. Many health care providers advised mothers based on 2003 guidelines that called for exclusive formula feeding for HIV-positive women; these providers were either unaware of or uncomfortable with 2010 guidelines on informed choice between exclusive breastfeeding or avoiding all breastfeeding. This suggests that pre- and in-service training is needed in counseling mothers on safe feeding of infants less than 6 months in general.

Research Question 4:

What are the infant factors that can influence choice of feeding among HIV post-partum mothers?

Infant factors influencing baby feeding options from the study are if my baby is given ARV, they will still breastfeed with 83(63.8%), baby may refuse to take breast milk due to ill health, with 60(46.2%), small or premature baby may not be able to breastfeed with 61(46.9%), because of health condition, baby may not be able to suck breast adequately, with 56(43.1%), infant formula is the best if baby is premature with 18(13.8%), baby can be given water along with exclusive breastfeeding to quench thirst with 53(40.8%), if baby is sick, it is best to give formula with 73(56.2%). Infant factors play a central role in the choice of infant feeding options adopted by HIV positive mothers. When children are born with Cleft Lip and Palate, they find it difficult to suck. Cleft is an opening in the lip, the roof of the mouth, or the soft tissue in the back of the mouth. These openings are normally present in early fetal development, and usually close by the tenth to twelfth week of pregnancy. They fail to close in approximately one in every 700 babies born. Kasedde, Doyle, Seeley, and Ross, (2014) opined that the causes of cleft lip and palate are not well understood, so may be as a result of a combination of genetic elements with environmental factors, such as drugs, infections, maternal illnesses, and possibly deficiency of folic acid. Children with clefts have special problems, particularly with feeding, ear diseases and speech development, as well as dental problems (Zulliger, Abrams, and Myer, 2014).

Research Question 5:

What are the health system factors influencing the choice of infant feeding among HIV post-partum mothers?

There is a link between health systems and the choice of infant feeding options including the provision of basic health care services to nursing mothers in general and those of HIV positive mothers in particular (Moses, Chama, Udo, and Omotora, (2015): Lawani et al., (2014). Majority of the respondents in the study areas claimed that the availability of ARV and other drugs will assist them to know the best feeding option for their feeding baby with 104(80.0%), adequate health education will enable them to choose the best option for their feeding baby, with 114(87.7%), regular checking of their HIV status will enable them to choose the best feeding options for their baby, with 118(90.8%). The type of health system any country has constitutes a great deal to the quality of services rendered to its citizens including counseling and accessing ARV drugs and other services. Magavero, Norton and Saag., (2011) observed that the choice of infant feeding options made by any nursing mother is a product of the quality of health information system and services available to such a mother irrespective of the HIV status of such mothers. The authors went further to state that most HIV positive mothers are beneficiaries of the information available on the choice of infant feeding option so they take any available option not minding their health status, the affordability, accessibility and sustainability of such options.

Hypothesis one

It was shown in Table 4.2.1 the chi-square value obtained for breastfeeding is ($X^2 = 70.252$, $P = 0.000$) and Exclusive breastfeeding ($X^2 = 51.261$, $P = 0.000$), Infant Formula ($X^2 = 18.596$, $P = 0.000$), Mixed feeding breastfeeding + formula ($X^2 = 42.324$, $P = 0.000$) and Breastfeeding + water ($X^2 = 38.192$, $P = 0.000$), at the significant levels less than 0.05 for the five variables respectively. Since these p – values were less than 0.05 values, it could be said that breastfeeding, exclusive breastfeeding, infant formula, breastfeeding + formula and breastfeeding + water have a relationship with knowledge of the choice of infant feeding among HIV positive post- partum mothers in two teaching hospitals, Lagos State. These findings were related to a study conducted by Ajayi, Hellandendu, Garba, Oyedele, Anyebe and Sani (2011) on factors associated with the practice of EBF among mothers in Kogi state, Nigeria. Using cluster sampling technique to select one town and one village from each of the 3 randomly selected LGA's with a sample size of 255 mothers. Questionnaire and interview methods were used to measure relationships and variability. Findings showed that level of education played a major role (38%) in breast feeding. Mother's occupation (19.5%), age (14%), hours of work per day (21%). Result proves that educational level plays role in mother's choice of infant feeding. Therefore, health education will be helpful for mothers to choose appropriate feeding option for their babies.

Hypothesis Two

Table 4.2.2 shown the chi – square for socio – demographic variables such as age, educational qualification, marital status, occupation and parity. Since these p – values were less than 0.05 values, it could be said that age, educational qualification, marital status, occupation and parity have a relationship with infant feeding options (breastfeeding and formula) among HIV positive post- partum mothers in two teaching hospitals, Lagos State.

However, for ethnicity, religion, and husband work, the chi–square values obtained were 6.453, 2.857, and 4.115 respectively at an insignificant level of 0.092 for ethnicity, 0.240 for religion, and 0.944 for the husband work. It could be said that ethnicity, religion and husband work have no relationship with choice of infant feeding among HIV positive post- partum mothers in two teaching hospitals, Lagos State.

Limitation to the study

The limitation of this study was that the study catered only for the HIV positive mothers assessing care at the Prevention Mother to Child Transmission Clinic at LUTH and LASUTH Lagos state and not considers other HIV positive mothers assessing care in other hospitals.

Furthermore, it was a little difficulty to gain cooperation from few respondents, as they wanted to be gratified with gifts, food and money after responding to the questions. The researcher also encountered language interpretations and shortage of time in carrying out the research.

Implications of the Study to Health Promotion and Education

Findings from this study revealed a need for improvement of exclusive breastfeeding by HIV positive post-partum mothers as this will curb the prevalence of HIV transmission from mother to child. This can be done in establishing a theory based intervention, aimed at encouraging external protective factors leading to improved attitude to EBF. Breastfeeding contributes to health and well-being of mothers; it helps to space children, reduces the risk of ovarian cancer and breast cancer, and increases family and national resources. It is also a secure way of feeding and is safe for the environment. An extensive body of research has demonstrated that mothers and other caregivers require active support from husbands (partners), health workers, relations and the society as a whole in establishing and sustaining appropriate breastfeeding practices especially among HIV post-partum mothers.

V. Conclusion

Based on the findings of this study, the following conclusions were made on the factors influencing the choice of infant feeding options among HIV positive mothers of reproductive age as socio-economic factors, such as culture, cost of being able to buy infant formula to feed their baby, with maternal factors influencing baby feeding options as taking decisions for the baby feeding method, health conditions, not having enough energy to breastfeed exclusively, fear that the drugs they are taking may affect their baby, and Infant factors influencing baby feeding options from the study are the given of ARV, health condition, and the health system factors such as availability of ARV and other drugs that will assist them to know the best feeding option for their baby, adequate health education and regular checking of their HIV status.

Conflicting Interests

There are no conflicting interests.

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