



## Knowledge of Healthcare Providers in Secondary Health Care Facilities towards Exclusive Breastfeeding among HIV Positive Mothers in Akwa Ibom State, Nigeria

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Exclusive Breastfeeding for 6 months by HIV infected mothers has been recommended by the Nigeria National guidelines on Preventing Mother to Child Transmission (PMTCT) of HIV. This study was designed to assess the knowledge of Health Care Providers in secondary healthcare facilities towards exclusive breastfeeding among HIV positive mothers in Akwa Ibom State, Nigeria. A self-administered questionnaire was used to elicit data from the respondents. Approval to carry out the study at the health facilities was obtained from the Ethical Review Committee of the Akwa Ibom State Ministry of Health, Uyo. A purposive sampling technique was used to select three secondary health facilities (one per senatorial district), while proportionally stratified sampling

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technique was used to select 278 healthcare providers. Data were analysed using the Statistical Package for Social Science (SPSS) version 20.0 and presented using inferential and non-inferential statistical method. Statistical significance was established at  $p < 0.05$  level. The findings revealed that 191(68.7%) of the respondents had good knowledge of exclusive breastfeeding among HIV positive mothers. The odd ratio findings of nurses' response (OR = 4.20, C.I = 1.781-9.889,  $p = 0.001$ ,  $p < 0.05$ ) were significantly higher than the reference group (the CHEW/CHO cadre). There was also a significant association between years of experience and knowledge of exclusive breastfeeding among the respondents ( $\chi^2 = 12.78$ ,  $p = 0.005$ ,  $p < 0.05$ ). The findings reveal that nurses have higher knowledge and are in constant relationship with the women. However, there is still a gap in encouraging HIV positive mothers to practice exclusive breastfeeding.

*Keywords: Exclusive breastfeeding; HIV-positive mothers and health care provider.*

## 1. INTRODUCTION

Breastfeeding is essential for the well-being and survival of children, especially in resource-poor setting. Breast milk provides first immunisation for the child, contains antibodies that protect the child from infection, does not become contaminated and provide optimal nutrition for the child [1,2]. Therefore, the child who is breastfed exclusively receives more benefits from it. Exclusive Breastfeeding is defined as "an infant's consumption of human milk with no supplement of any type (no water, no juice, no infant formula and no food) except for vitamins, minerals and medications" [3]. Exclusive Breastfeeding is being recommended for the first six months of life and continue breastfeeding well into the second year of life [4]. Lack of exclusive breastfeeding in the first six months of life can lead to high child morbidity and mortality rate mostly due to childhood diarrhoea. Exclusive breastfeeding for the first six months of life has been found to significantly reduce the risk of Human Immune-deficiency Virus (HIV) transmission in comparison with non-exclusive or mixed feeding [3,5,6].

Despite all the benefits, the rate of Exclusive Breastfeeding (EBF) of an infant for six months is still sub-optimal. Different factors hinder Exclusive Breastfeeding. These include mother's employment, mother's health, unfriendly hospital practices, advertisement of breast milk substitutes, ignorance, family pressures etc. [7,8]. With the HIV epidemic, HIV positive mothers are in a dilemma over infant feeding option because most breast milk transmission of HIV-1 occurs in the first four months of life. Guidelines to help health workers with infant feeding counselling in the context of HIV have been issued by the World Health Organization

(WHO). The guidelines advocate that HIV positive mothers should breastfeed their infants exclusively for the first six months of life, introducing appropriate complementary foods from six months and continue breastfeeding up to twelve months of life and be accompanied with maternal Antiretroviral Therapy (ART) or Antiretroviral (ARV) prophylaxis for an infant [9,10]. With the WHO recommendations, breastfeeding has received a boost that will encourage its practice among HIV infected women especially in low resource countries like Nigeria and cultures that discriminate against HIV infected persons.

The national policy also recommended that healthcare providers should counsel and support HIV-positive mothers to breastfeed their infants. It also emphasised that both mother and baby must receive ARV drugs for prophylaxis or treatment as appropriate. It is believed that the strategy will give the Nigerian infants greatest chance of HIV-free survival. It was also recommended that women who choose not to breastfeed and those with medical contraindications to breastfeeding should be counselled and supported in their decision [11,12].

Studies have shown that healthcare providers are essential in the promotion, protection and support of breastfeeding. In a study conducted by Utoo et al. (63.3%) health workers did not recognise that HIV could be transmitted from mother to child through breastfeeding. They also opined in their studies that medical and paramedical personnel who did not receive adequate training to counsel mothers on breastfeeding would impact the optimal practice of breastfeeding negatively due to knowledge gap [7].

Earlier studies on HIV and breastfeeding [13-15] from sub-Saharan Africa revealed that both healthcare workers and mothers felt that breastfeeding is a risky way of feeding children by HIV-positive mothers. They believe strongly that children can contract the virus from the mother. In another study conducted in Blantyre, Malawi by Kafulafula, et al. the nurse-midwives' statements regarding the feeding of an infant of HIV-positive mothers reflect views about the ideal situation in which the surest way of preventing mother to child transmission of HIV is to abstain from breastfeeding. From their findings, they supported the need to educate healthcare workers, HIV-positive mothers and society on the role of exclusive breastfeeding in the promotion of infant well-being [16].

World Health Organization 2010 Preventing Mother to Child Transmission (PMTCT) recommended infant and maternal ARV prophylaxis to reduce the risk of transmission of HIV during lactation. Majority of health workers that participated in a study by Matovu et al., were of the opinion that only the positive mother should take ARV drugs [17]. This finding is similar to the study conducted in Malawi by Chesela, Hudens, Jamlesonet et al. [18], among HIV-positive breastfeeding mothers. In both studies, it was seen that maternal ARV prophylaxis was more beneficial than infant ARV prophylaxis because it protects the infant while maintaining the mother's health. Stein and Kuhn in their study reported on the high benefit of exclusive breastfeeding to mother and child. They documented that breastfeeding the baby exclusively for six months significantly reduces HIV transmission, ensures a greater chance of infant survival in the first year of life, and also helps the mother to recover from the negative health effects of birth much more quickly [19].

Healthcare providers play a major role during antenatal, delivery and postnatal period to give accurate information to mothers. They are uniquely positioned to educate HIV positive mothers on infant feeding option. It is, therefore, necessary to determine the level of knowledge among healthcare providers in the healthcare system. However, little is known about the knowledge level of healthcare providers in secondary health facilities towards exclusive breastfeeding among HIV positive mothers in Akwa Ibom State, Nigeria. This is due to the low

involvement of healthcare workers in capacity building activities of the State Human Immune-deficiency Virus / Acquired Immune Deficiency Syndrome (HIV/AIDS) programme. Capacity building of healthcare workers on HIV/AIDS and other health programmes seems to be lopsided as those in the primary and tertiary healthcare facilities, who have received more training than those in the secondary health facilities. There is, therefore, the need to explore the knowledge of healthcare providers in secondary healthcare facilities towards exclusive breastfeeding among HIV positive mothers.

## 2. MATERIALS AND METHODS

This was a cross-sectional study design which employed a quantitative method to investigate healthcare providers' knowledge towards exclusive breastfeeding among HIV positive mothers. Purposive sampling technique was used to select three secondary health facilities (one per senatorial district) out of the 34 secondary health facilities in Akwa Ibom State that conduct focused antenatal care, take deliveries and conduct postnatal care. The hospitals were selected because they serve as a referral hospital in the respective senatorial district. The hospitals include General Hospital, Ikot Ekpene, General Hospital, Oron and St. Luke Hospital, Anua, Uyo.

The respondents were selected using proportionally stratified sampling technique. Within every selected health facility, a list of the names of all healthcare providers in the different cadres working at the Ante-Natal Clinic (ANC), maternity and child welfare unit was obtained from the administrative authority. The cadres include medical doctors, nurses, midwives and Community Health Extension Workers / Community Health Officers (CHEWs/CHOs). From the list of the different cadres, a random selection of the person was made, with each person having an equal probability of being selected. The sample size for this study was determined using Taro Yamane (1967). A total of 278 respondents participated in the study.

### 2.1 Inclusion Criteria

The inclusion criteria were healthcare professional who is directly or indirectly involved at the antenatal clinic, maternity and child welfare unit.

## 2.2 Exclusion Criteria

The exclusion criteria included healthcare professionals who are on leave, National Youth Service Corp (NYSC) members, student nurses, industrial attachment students and those who did not give their consent to participate in the study.

## 2.3 Data Collection

The questionnaire was developed by the researcher. For the structured, self-administered questionnaire, a Likert scale was used to determine the knowledge of the respondents. The scale had agreement options with statements from strongly agree to strongly disagree. The draft questionnaires were shared with experts in the field for validation. The instrument was also pretested on 20 healthcare providers outside the facilities used for the study to ensure its reliability and validity of the instrument. The validated questionnaires were used to collect data on the field.

Prior to the study, three research assistants were trained to assist the researcher with the collection of data. The data were collected between November 2015 and January 2016. The quantitative data were collected from

the participants using self-administered questionnaires. Healthcare providers were either interviewed or self-administered depending on the convenience of the participant.

## 2.4 Data Analysis

Data obtained from self-administered questionnaires were coded and entered into the Statistical Package for Social Sciences (SPSS) version 20.0. Frequency and simple percentages were used to analyse the demographic characteristics of the respondents. The level of knowledge about exclusive breastfeeding among the health service providers was also analysed using frequency and percentages. To make the result more appreciable, the results obtained were presented using pictorial representation. Univariate association between socio-demographic variables and their knowledge towards exclusive breastfeeding were tested using chi-square. Furthermore, the multivariate association between knowledge and attitude to exclusive breastfeeding and possible associated factors were analysed using multiple logistic regression. Hence, odd ratios and its 95% confidence interval were estimated. Statistical significance was established at the 0.05 level of significance.

## 3. RESULTS

### 3.1 Socio-demographic Data of the Respondents

Table 1. Socio-demographic data of the respondents (n=278)

Social and demographic variables	No. of respondents	Percentage
<b>Sex</b>		
Male	64	23.0
Female	214	77.0
Total	278	100.0
<b>Age(years)</b>		
18-25	54	19.4
25-30	87	31.3
31-35	31	11.2
36-40	20	7.2
40 years and above	66	30.9
Total	278	100
<b>Marital status</b>		
Single	144	51.8
Married	125	45.0
Separate	2	0.7
Widow	7	2.5
Total	278	100
<b>Education</b>		
Secondary school	19	6.8
Certificate level training	64	23.0
Diploma level training	80	28.8

<b>Social and demographic variables</b>	<b>No. of respondents</b>	<b>Percentage</b>
University	106	38.1
Others	9	3.2
Total	278	100
<b>Respondents' cadre</b>		
CHEW/CHO	58	20.9
Nurse	56	20.1
Nurse/Midwife	108	38.8
Doctor	34	12.2
Gynaecologist	4	1.4
Others	18	6.5
Total	278	100
<b>Working experience after qualification</b>		
1-5 years	151	54.3
6-10 years	38	13.7
11-15 years	13	4.7
20 years and above	76	27.3
Total	278	100
<b>Years of your experience in maternal/child health care services</b>		
1-5 years	159	57.2
6-10 years	56	20.1
11-20 years	10	3.6
20 years and above	53	19.1
Total	278	100

### 3.2 Respondents' Accessibility to Information on Breastfeeding and HIV

Table 2 shows that almost all the respondents 270 (97.1%) have received information on HIV while only 8 (2.9%) are yet to receive such information. Of the total 270 respondents who have received information on HIV, 146 (54.1%) received the information while in school, 66(24.4%) during seminar/workshop and 26 (9.4%) on television. This result clearly shows that the major source of information on HIV is school. Out of the 270 respondents who received information of HIV, 223 of them (80.2%) were trained on HIV counselling and testing while 55 (19.8%) were not trained. Also, more than half (51.1%) of the respondents have managed an HIV positive mother on infant feeding option for the first 6 months. Out of the 142(51.1%) respondent who has done this, 73.2% said they managed exclusive breastfeeding, 15.5% managed mixed feeding, and 11.3% of the respondents managed replacement feeding. This result indicates that most of the respondents managed HIV positive mothers on infant feeding option. One hundred and sixty-three respondents representing more than half of the respondents (58.6%) have ever received training on breastfeeding counselling. Of these 163 respondents, 52.8% went for 1-week training

while 14.7%, 3.7% and 28.8% said the training lasted for 2 weeks, 3 weeks and 4 weeks respectively.

### 3.3 Organisation that Provided Training on Breastfeeding Counselling

The result shows that the majority of the respondents (36) was trained by Non-Governmental Organisation and professionals in healthcare services (12.9%). Twenty-seven respondents (9.7%) were trained by Home Visit Nurse (HVN), 26 respondents (9.4%) were trained by the World Health Organization.

### 3.4 Healthcare Providers' Level of Knowledge towards Exclusive Breastfeeding

Table 3 provides the result of the responses on knowledge towards exclusive breastfeeding among the respondents. The result shows that almost all the respondents, 268 (96.4%) supported the statement that breast milk is the ideal food for babies. Two hundred and seventeen (78.1%) strongly agreed and fifty-one (18.3%) agreed that exclusive breastfeeding provides the entire nutrient required by the newborn up to the age of 6 months. Two hundred and fifty-two (89%) of the respondents believed

that exclusive breastfeeding babies have fewer gastrointestinal infection respiratory illness, eczema or allergic reaction than formula fed babies. Their responses to other items on knowledge of exclusive breastfeeding are shown in Table 3. With regard to the national policy regarding infant feeding by HIV positive mothers, 168 (60.1%) agreed that the option is exclusive breastfeeding for 6 months with the use of ARV drugs, while 68(24.5%) strongly agreed. Based on the result, it can be concluded that majority of the respondents have good knowledge of exclusive breastfeeding among HIV positive mothers.

**Table 2. Percentage of respondents'accessibility to information on breastfeeding and HIV (n=278)**

Questions	No. of respondents	Percentage
<b>Q8: Have you ever received information on HIV?</b>		
Yes	270	97.1
No	8	2.9
Total	278	100
<b>Q9: if yes, where was your first source of information on HIV?</b>		
School	146	54.1
Seminar/workshop	66	24.4
Radio	26	9.6
Television	15	5.6
Personal reading	9	3.3
Others	8	3.0
Total	270	100
<b>Q11: Are you trained on HIV counselling and testing (HCT)?</b>		
Yes	223	80.2
No	55	19.8
Total	278	100.0
<b>Q12: Where were you trained?</b>		
Learning institution	113	50.7
Seminar/workshop	107	48.0
Others	3	1.3
Total	223	100.0
<b>Q13: Have you ever managed an HIV positive mother on infant feeding option for the first 6 months?</b>		
Yes	142	51.1
No	136	48.9
Total	278	100
<b>Q14: What type of infant feeding option?</b>		
Exclusive breastfeeding	104	73.2
Mixed feeding	22	15.5
Replacement feeding	16	11.3
Total	142	100
<b>Q15: Have you ever received training on breastfeeding counseling?</b>		
Yes	163	58.6
No	115	41.4
Total	278	100
<b>Q16: If yes, how long was the training?</b>		
1 week	86	52.8
2 weeks	24	14.7
3 weeks	6	3.7
4 weeks	47	28.8
Total	163	100

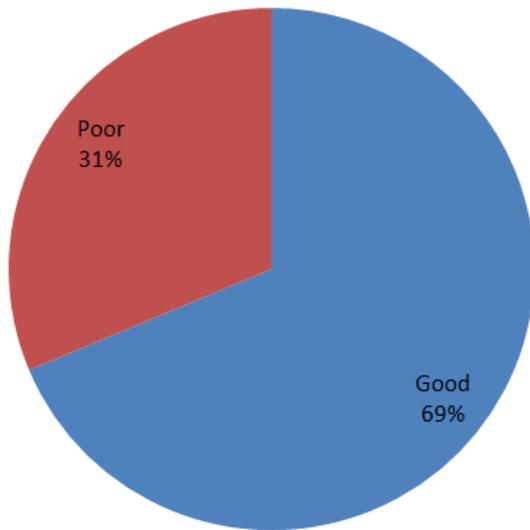
**Table 3. Healthcare providers' level of knowledge towards exclusive breastfeeding (n=278)**

<b>Statement</b>	<b>SA N(%)</b>	<b>A N(%)</b>	<b>UN N(%)</b>	<b>D N(%)</b>	<b>SD N(%)</b>
Breast milk is the ideal food for babies	217(78.1)	51(18.3)	5(1.8)	3(1.1)	2(0.7)
Exclusive breastfeeding provides all the nutrients required by the new-born up to the age of 6 months	205(73.7)	50(18.0)	6(2.2)	12(4.3)	5(1.8)
Exclusively breastfed babies have fewer gastrointestinal infections, respiratory illness, eczema and/or allergic reactions than formula fed babies	154(55.4)	98(35.3)	8(2.9)	6(2.2)	12(4.3)
Breastfeeding is beneficial to a mother's health	134(48.2)	108(38.8)	7(2.5)	23(8.3)	6(2.2)
Breast milk provides health benefits for infants that cannot be provided by formula	179(64.4)	76(27.3)	8(2.9)	13(4.7)	2(0.7)
Growth pattern of breastfed infants differs from those of formula fed infants.	142(51.1)	101(36.8)	20(7.2)	15(5.4)	0(0.0)
Breast milk alone can satisfy most babies for approximately the first 6 months	127(45.7)	112(40.3)	16(5.8)	20(7.2)	3(1.1)
Correct positioning helps to achieve effective breastfeeding	158(56.8)	100(36.0)	6(2.2)	11(4.0)	3(1.1)
The following symptoms could indicate poor attachment at the breast:					
(a) Mother has breast engorgement	63(22.7)	119(42.8)	41(14.7)	55(19.8)	0(0.0)
(b) Mother has sore and cracked nipple	47(16.9)	125(45.0)	37(13.3)	42(15.1)	27(9.7)
(c) Mother has mastitis	59(21.2)	132(47.5)	44(15.8)	22(7.9)	21(7.6)
(d) Baby refusal to suck	103(37.1)	97(34.9)	55(19.8)	13(4.7)	10(3.6)
Development of sore nipple is a normal part of breastfeeding	47(16.9)	62(22.3)	37(13.3)	88(31.7)	44(15.8)
A baby should be allowed to finish the first breast completely before offering the second breast to ensure that the baby received the fore milk at the beginning and the hind milk (milk at the end of a feeding) which has higher fat content than the fore milk	136(48.9)	85(30.6)	19(6.8)	27(9.7)	11(4.0)
Oxytocin and prolactin are the hormones produced during breastfeeding that work together to make milk, establish a letdown and keep up the supply and demand of an infant	153(55.0)	98(35.3)	12(4.3)	15(5.4)	0(0.0)
Mixing breastfeeding with formula feeding reduces breast milk supply	67(24.1)	101(36.3)	16(5.8)	62(22.3)	32(11.5)
HIV virus can be transmitted to an infant from the mother's breast milk if the mother is HIV positive	121(43.5)	105(37.8)	22(7.9)	26(9.4)	4(1.4)
What is the national policy regarding infant feeding by HIV positive mother:					
(a) Exclusive breastfeeding followed by early cessation	66(23.7)	10(3.6)	42(15.1)	154(55.4)	6(2.2)
(b) Exclusive breastfeeding for 6 months with the use of ARV drugs	68(24.5)	168(60.1)	32(11.5)	6(2.1)	4(1.4)
(c) Infant replacement feeding with home prepared formula	12(4.3)	11(4.0)	28(10.1)	172(24.5)	55(19.7)
(d) Giving breast milk and infant formula	9(3.2)	15(5.4)	45(16.2)	142(4.3)	67(4.3)
Complementary feeding should start at 6 months	129(46.4)	117(42.1)	6(2.2)	20(7.2)	6(2.2)

SA= Strongly agree, A = Agree, UN = Undecided, D = Disagree, SD = Strongly disagree

### 3.5 Level of Knowledge towards Exclusive Breastfeeding among HIV Positive Mothers

Result reveals that 191 respondents (68.7%) were classified to have good knowledge about exclusive breastfeeding among HIV positive mothers, while 87 respondents (31.3%) had poor knowledge.



**Fig. 1. Pie chart showing the level of knowledge of health care providers towards exclusive breastfeeding among HIV positive mothers**

The study went further to explore respondents' level of knowledge on how breastfeeding works. More than half (55%) of the respondents strongly agreed that oxytocin and prolactin are the hormones produced during breastfeeding that work together to make milk, establish a let-down reflex and keep up the supply and demand of an infant. In this study, over half (56.8%) of the respondents strongly agreed that correct positioning helps the child to achieve effective breastfeeding. About two-thirds of the respondents noted that breast engorgement, sore and cracked nipple, mastitis in mother and baby refusal to suck are symptoms of poor positioning and attachment.

On the benefits of breastfeeding, 73.7% strongly agreed that exclusive breastfeeding provides all the nutrients required by the new born up to the age of 6 months. Fifty- five % strongly agreed that exclusively breastfed babies have fewer

gastrointestinal infections, respiratory illness, eczema and/or allergic reaction than formula fed babies. Some participants (45.7%) strongly agreed that breast milk alone can satisfy most babies for approximately the first 6 months of life. Also, 51.5% reported that they have managed an HIV positive mother on infant feeding option for the first six months, out of which 73% of these respondents recommended exclusive breastfeeding, 15.5% recommended mixed feeding and 11.3% recommended replacement feeding.

### 3.6 Association between Socio and Demographic Variables of the Respondents and Their Knowledge of Exclusive Breastfeeding among HIV Positive Mothers

Table 4 shows a significant association between sex and knowledge of exclusive breastfeeding among HIV positive mothers ( $\chi^2 = 9.39, p < 0.05$ ). Out of the 191 respondents who had good knowledge of exclusive breastfeeding among HIV positive mothers, 17.8% were male, and 82.2% were female. The result also reveals that the level of knowledge of exclusively breastfeeding among HIV positive mothers was not associated with the respondents age group ( $\chi^2 = 3.53, p = 0.473, p > 0.05$ ), marital status ( $\chi^2 = 3.12, P = 0.373, P > 0.05$ ) and education ( $\chi^2 = 3.12, p = 0.373, p > 0.05$ ). But the Cadre that the respondent belongs was found to be significantly associated ( $\chi^2 = 17.51, p = 0.004, p < 0.05$ ) with a larger percentage of the respondent who had good knowledge of exclusive breastfeeding among HIV positive mothers being nurse/midwife (45.5%). There was also a significant association between the years of experience the respondents have in maternity care and their knowledge of exclusive breastfeeding ( $\chi^2 = 12.78, p = 0.005, p < 0.05$ ).

From the findings, there was a significant association between sex of respondents, cadre of respondents and year of experience of respondents in maternity care ( $P > 0.05$ ). About 82% of the female respondents and a larger proportion of the nurse/midwives (45.5%) had good knowledge of exclusive breastfeeding among HIV positive mothers. However, there was no significant association in the age of respondent, marital status and education qualification.

### 3.7 Association between Knowledge of Healthcare Service Providers about Exclusive Breastfeeding among HIV Mothers and Possible Factors

Table 5 shows the result of multiple logistic regression showing an association between healthcare providers' knowledge of exclusive breastfeeding among HIV positive mothers and respondent socio-demographic variables and their access to information on HIV. The result shows sex (OR = 0.487, C.I = 0.228 - 0.039,  $p > 0.05$ ), age (OR = 0.501, C.I = 0.211-1.188,  $p > 0.05$ , marital status (OR = 0.926, C. I = 0.447-

1.915,  $p > 0.05$ ), education (OR = 0.715, C. I = 0.371-1.378,  $p > 0.05$ ) and accessibility to information on HIV do not have significant association with knowledge of exclusive breastfeeding among HIV positive mothers. The only factor that was significantly associated was their cadre ( $p = 0.019$ ,  $p < 0.05$ ). The odd ratio of good knowledge among the Nurse (OR = 4.20, C.I = 1.781-9.889,  $p = 0.001$ ,  $p < 0.05$ ) was significantly higher than the reference group which is staff in the CHEW/CHO Cadre. The odds obtained in other groups of cadre were not significantly different from that of CHEW/CHO ( $p > 0.05$ ).

**Table 4. Association between socio and demographic variables of the respondents and their knowledge of exclusive breastfeeding (n=278)**

Variables	Knowledge of exclusive breastfeeding			$\chi^2$ calc.	p-value
	Poor (n = 87)	Good (n = 191)	Total (n = 278)		
<b>Sex</b>					
Male	30(34.5)	34(17.8)	64	9.39	0.003*
Female	57(65.5)	157(82.2)	214		
<b>Age (years)</b>					
18 – 35	15(17.2)	39(20.4)	54	3.53	0.473
25 – 30	26(29.9)	61(31.9)	87		
31 – 35	14(19.6)	17(8.9)	31		
36 – 40	5(5.7)	15(7.9)	20		
<b>Marital status</b>					
Married	44(50.6)	100(52.4)	144	3.12	0.373
Single	39(44.8)	86(45.0)	125		
Separated	0(0.0)	2(1.0)	2		
Widowed	4(4.6)	3(1.6)	7		
<b>Education</b>					
Secondary school	8(9.2)	11(5.8)	19	3.18	0.528
Certificate level training	18(20.7)	46(24.1)	64		
Diploma	25(28.7)	55(28.8)	80		
University Degree	35(40.2)	71(37.2)	106		
Others	1(1.1)	8(4.2)	9		
<b>Cadre</b>					
CHEW/CHO	27(31.0)	31(16.2)	58	17.51	0.004*
Nurse	15(17.2)	41(21.5)	56		
Nurse/midwife	21(24.1)	87(45.5)	108		
Doctor	14(16.1)	20(10.5)	34		
Gynaecologist	2(2.3)	2(1.0)	4		
Others	8(9.2)	10(5.2)	18		
<b>Years of experience in maternity</b>					
1 - 5 years	43(49.7)	116(60.7)	159	12.78	0.005*
6 - 10 years	28(32.2)	28(14.7)	56		
11 - 15 years	1(1.1)	9(4.7)	10		
20 years and above	15(17.2)	38(19.9)	53		

\*significant at 5% ( $p < 0.05$ )

**Table 5. Multiple logistic regression showing association between knowledge of health care service providers about exclusive breastfeeding among HIV mothers and possible factors (Odd Ratios and 95 % confidence interval)**

Variable	B	Wald	OR (95% C. I)	p-value
<b>Sex</b>				
Male/Female	-0.721	3.415	0.487(0.228-1.039)	0.063
<b>Age</b>				
Old/young	-0.691		2.4610.501(0.211-1.188)	0.835
<b>Marital status (Married/single)</b>				
(Married/single)	-0.077	0.043	0.926(0.447-1.378)	0.925
<b>Education (Low/High)</b>				
(Low/High)	-0.336	1.005	0.715(0.371-1.378)	0.316
<b>Cadre</b>				
CHEW/CHO		12.88	1.00( reference group)	0.024*
Nurse	1.025	10.76	2.79(1.184-6.569)	0.019*
Nurse/midwife	1.434	10.761	4.20(1.781-9.889)	
Doctor	0.213	0.159	1.24(0.434-3.527)	0.001*
Gynaecologist	0.241	0.047	1.27(0.146-11.089)	0.690
Others	0.278	0.215	1.321(0.407-4.281)	0.828
<b>Received information on HIV</b>				
Yes/No	0.445	0.320	1.561(0.334-7.305)	0.572

\*significant at 5% ( $p < 0.05$ )

#### 4. DISCUSSION

Breast milk is the ideal food for an infant because it contains all the nutrients an infant need in the first 6 months of life. Almost all the respondents (96.4%) agreed with the fact that breast milk is the ideal food for babies. Sixty- four % of the respondents strongly agreed that breastfeeding is beneficial to a mother's health, 51.1% strongly agreed that breast milk provides all the health benefits for infants that cannot be provided by formula, and 87% strongly agreed that growth pattern of breastfed infants differs from those of formula- fed infant. This finding is in line with benefits of breastfeeding as stated by the World Health Organization [1]. The findings reveal that respondents believe that breast milk is best for the infant.

Exclusive breastfeeding for the first six months of life has been found to significantly reduce the risk of HIV transmission in comparison with non-exclusive breastfeeding or mixed feeding infant [5,6,16]. In this present study, 51.5% reported that they had managed an HIV positive mother on infant feeding option for the first six months, out of which 73% of these respondents recommended exclusive breastfeeding. Sten & Kuhn reported the high benefit of exclusive breastfeeding to mother and child. They documented that exclusive breastfeeding of an infant for six months significantly reduces transmission of HIV, provide the infant with a greater chance of survival and also help the

mother to recuperate much more quickly from the negative health effects of birth [19].

In this study 84.6% of the respondents were aware of the national policy regarding infant feeding by HIV positive mothers which states that HIV positive mothers should breastfeed infants exclusively for the first six months with the use of ARV drugs and continue breastfeeding (with the introduction of complementary food from six months of age) to twelve months [12]. Even though the result of the study reveals that 68.7% have a good knowledge about exclusive breastfeeding among HIV positive mothers, effort should be made to ensure that all healthcare providers have good knowledge. This could be done by building the capacity of healthcare providers on HIV and infant feeding. Sadoh et al. [7] in their study also noted that medical and paramedical personnel who did not receive adequate training to counsel mothers on breastfeeding would impact the optimal practice of breastfeeding negatively due to the knowledge gap.

#### 5. CONCLUSION

This study explored the knowledge of healthcare providers in secondary health facilities towards exclusive breastfeeding among HIV positive mothers. The findings revealed that over half of the respondents have good knowledge of exclusive breastfeeding among HIV positive mothers. However, these findings suggest the

need for more breastfeeding education for healthcare providers that will take into consideration current policy guidelines for feeding HIV exposed infants.

The findings from this study may not be generalised beyond the sample since respondents were only drawn from three secondary health facilities that serve as a referral hospital, conduct focused antenatal care, take deliveries and conduct postnatal care. Nevertheless, this study provides useful information about the knowledge of the respondents towards exclusive breastfeeding by HIV positive mothers. The result may serve to encourage governmental bodies to further evaluate the knowledge of healthcare providers on infant feeding option and HIV to strengthen the training of healthcare providers likely to deal with antenatal care and delivery. Effective counselling of HIV positive mothers on infant feeding option as recommended by WHO will go a long way to reduce the risk of postnatal transmission of HIV through breastfeeding. Breastfeeding and the use of ARV have the potential to significantly improve infants' chances of surviving without infecting HIV. Future study should assess the knowledge of healthcare providers in primary and tertiary health facilities. Research should also be conducted to assess the knowledge of HIV positive mothers on infant feeding options in Akwa Ibom State.

## CONSENT

Ethical Committee approval and informed written consent from participants was obtained before the commencement of the study.

## ETHICAL APPROVAL

Approval to carry out the study at the health facilities was obtained from the Ethical Review Committee of the Akwa Ibom State Ministry of Health, Uyo.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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