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Assessment of Exclusive Breast-Feeding Practice among HIV-Positive Mothers in Abuja Nigeria

Casmir Ifeanyichukwu Cajetan Ifeanyi, Janet Aribike, Nkiruka Florence Ikeneche, Lovina Nkechi Ukwueze, Gladys Adaku Iroegbu

ABSTRACT

***Background*: Empirically, exclusive breastfeeding has proved invaluable in the reduction of mother-to-child transmission of human immunodeficiency virus and infant mortality particularly of children under-five years. Regrettably, breastfeeding practice is not widespread in most resource-poor sub-Saharan countries in Africa including Nigeria.**

***Objective*: This study assessed the practice of exclusive breastfeeding of infants for the first-six months of life by HIV-positive mothers after receiving care for prevention of mother-to-child transmission.**

***Methods*: Between February 2019 and September 2021, a cross-sectional descriptive study was conducted among 388 HIV-positive mothers receiving care for prevention of mother-to-child transmission of HIV at the Gwarinpa General Hospital in Abuja Municipal Area Council. HIV-positive mothers were enrolled and assessed for their practice of exclusive breastfeeding for the first-six months of the infant life. Structured questionnaires were used to survey for their socio-demographics, reproductive history, HIV and exclusive breastfeeding characteristics. Data were analyzed using Statistical Package for Social Science version SPSS 24.**

***Results*: Overall, 68% of the HIV-positive mothers practiced exclusive breastfeeding for the first six months of life. Majority, 83% of the HIV-positive mothers had knowledge of the nutritional benefits of breast milk in the first-six months of infant's life. In addition, 75% of them are aware that babies exclusively breastfed are healthier than those not so breastfed. Religious beliefs and education status positively influenced exclusive breastfeeding in 82% and 55% of the mothers respectively. However, 69% of HIV-positive mothers attest they had no communal norms and taboos against exclusive breastfeeding. In contrast, mothers' occupation negatively influenced exclusive breastfeeding in 36% of the studied subjects.**

***Conclusion*: This study found a significant increase in the rate of exclusive breastfeeding by HIV-positive mothers. It is evident that the practice of exclusive breastfeeding by HIV-positive mothers is dependent on their level of knowledge and awareness of its benefits in the first-six months of infant's life.**

Keywords: Assessment, exclusive breastfeeding, HIV-positive, infant, mother-to-child.

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I. Introduction

Exclusive breastfeeding (EBF) is defined as the practice of providing only breast milk for an infant for the first 6 months of life without the addition of any other food or water, except for vitamins, mineral supplements, and medicines [1]. EBF is an important public health strategy which is the most widely known and effective intervention for preventing infant morbidity and mortality [2], [3]. The World Health Organization (WHO) and the United Nation Children's Fund (UNICEF) recommend: early initiation of breastfeeding within 1 hour of birth; exclusive breastfeeding for the first 6 months of life; and introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond [4]. According to the 2015 UNICEF report, the worldwide rate of EBF is low compared to the 2012 World Health Assembly endorsement to increase the rate of EBF in the first 6 months up to 50% [5], [6].

However, the current global prevalence of EBF for infants aged zero to 6 months is estimated to be only 38%, which is far behind to making EBF during the first 6 months of life the norm for infant feeding [1].

Breastfeeding is renowned for being beneficial for the health and survival of children but it has remained a challenge to mothers who are infected with human immunodeficiency virus (HIV) [7], [8]. With HIV-positive mothers, mother-to-child transmission (MTCT) of the virus can occur to their children during pregnancy, delivery, and breastfeeding. Globally, over 90% of HIV infections among children are due to mother-to-child transmission and breastfeeding accounts for 5–20% of the burden [7]. Accordingly, human immunodeficiency virus infection remains a formal contraindication to breastfeeding [9]. The best way to prevent transmission of HIV to an infant through breast milk is to not breastfeed [10]. To not breastfed is not widely favoured because breastfeeding is important for growth, development and survival of HIV exposed infants [11]. The not to breastfed option is in addition impracticable in most resources limited setting including Nigeria lacking in access to clean water and affordable replacement feeding such as infant formula. For this reason, the World Health Organization new guidance 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 [4]. In addition, these HIV-positive mothers should be given ART to reduce the risk of transmission through breastfeeding [10].

Mother to child transmission (MTCT) of HIV is of a global health concern in the fight against HIV and in breaking the vicious cycle of HIV transmission to newborns [12]. Despite the significant progress that has been made to eliminate vertical HIV infection, MTCT remains the most important route of pediatric HIV acquisition [13]. Recently in 2020, more than 160,000 of such new HIV infections reportedly occurred among children under 5 years of age [14]. MTCT is a significant problem in the Sub-Saharan African countries, and has been documented as a major determinant of sub-optimal infant feeding practices (including non-exclusive breastfeeding) in most African communities where more than 80% of children living with HIV are found [15], [16]. Nigeria reportedly has the second largest HIV epidemic in the world, and the highest rates of new HIV infections (14.6%) in sub-Saharan Africa [17], [18]. Of the documented new HIV infections, 22000 to 56000 where infected with HIV through mother to child transmission and about 26.9% of all cases of mother-to-child transmission (MTCT) of HIV in the world happen in Nigeria [19]. These estimates make MTCT of HIV a major public health target area in Nigeria.

In many developing countries including Nigeria, MTCT of HIV has been impactful on non-exclusive breastfeeding practices. There are concerns therefore that MTCT of HIV similarly impacts exclusive breastfeeding practice in Nigeria – being one of the nations with the highest HIV burden yet low levels of treatment coverage during pregnancy [20]. Infant feeding by HIV positive mothers remains controversial, among HIV-positive mothers in Nigeria, the fear of stigma negatively affects practice of breastfeeding [21]. With limited evidence on MTCT of HIV and infant feeding practices in Nigeria, the relationship between the fear of MTCT of HIV and EBF in Nigeria, and the substantial benefits related with optimal breastfeeding practices remain poorly characterized. Therefore, studies that focus on the challenge of MTCT of HIV and infant feeding practices are needed in Nigeria to support and help guide advocacy for effective programs and policy changes needed to improve infant feeding practices among HIV-positive mothers in Nigeria. This study, aim to evaluate exclusive breast-feeding practice by examining the factors influencing the choices of infant feeding options among HIV-positive mothers receiving care for PMTCT in Gwarinpa General Hospital Abuja, Nigeria.

II. Methods

A. Study Area and Population

The study was conducted in Gwarinpa General Hospital, Abuja, the Federal Capital Territory (FCT) of Nigeria. The hospital is a public district healthcare facility that provide amongst others: obstetrics and gynecology, HIV and Tuberculosis care, general outpatient care, general surgery and optometric care, immunization and vaccines, accident and emergency services to people who live within the district and other parts of Abuja Municipality. The Federal Capital Territory has a landmass of approximately 7,315 km2 lying between latitude 8.25 and 9.20 north of the equator and longitude 6.45 and 7.39 east of Greenwich Meridian [22]. Abuja the Federal Capital Territory has an estimated annual population growth rate of about 35% making it the fastest-growing city on the African continent and one of the fastest-growing cities in the world. As of 2020, the metropolitan area of Abuja was estimated to be above four million persons, placing it behind only Lagos as the most populous area in Nigeria [23]. The inhabitants of Abuja are top politicians, civil servants, traders, and natives, who are mostly farmers.

B. Study Design and Sampling Technique

This is a cross-sectional descriptive study. Systematic random sampling technique was used to administer structured questionnaire for data collection. The instrument for data collection was subjected to scrutiny to determine the content validity using pilot test-retest and analyzed with Cronbach's Alpha [24] at reliability coefficient (r) = 0.7. Thereafter, an entry / advocacy meeting was made to the Gwarinpa General Hospital through the hospital administrator to schedule; meeting day and time with breastfeeding HIV-positive mothers. From the target population, HIV-positive breastfeeding mothers attending Gwarinpa General Hospital, Abuja, were randomly chosen after a fixed sampling interval and interviewed as they exited the final point of PMCTC service delivery for the day.

C. Sample Size Determination

The sample size was determined by the assumption that 50% of HIV-positive mothers do not practice Exclusive Breastfeeding, with 5% marginal error and 95% Confidence Interval (CI). Based on this, the actual sample size for the

study was determined using the formula for a single population proportion.

This was determined by using the formula:

$$\text{Sample size (n)} = \frac{t^2 \times p\,(1-p)}{m^2}$$

where; n = required sample size; t = confidence level according to the standard normal distribution at 95% (standard value of 1.96); p = estimated proportion of the population that presents the characteristic (0.5); m = tolerated margin of error (5%, 0.5), 10% prevalence value (3.6).

$$n = \frac{(1.96)^2 \times 0.5\,(0.5)}{(0.05)^2} = \frac{3.8416 \times 0.25}{0.0025} = \frac{0.9604}{0.0025} = 384.16$$

$$= 384$$

By adding the 10% prevalence value (3.6), the final sample size was 384+3.6=387.6=388.

A total of 388 HIV-positive mothers were enrolled in the study.

D. Ethical Approval

Ethical approval for this study was obtained from the Federal Capital Territory Health Research Ethics Committee Abuja (Approval Number: FHREC/2019/01/10/18-02-19). The participants were informed about the research and their consent duly obtained. All the information collected from participants were treated with utmost confidentiality.

E. Data Collection and Analysis

Pre-tested interviewer-administered questionnaires were used to collect participants information and recorded using Microsoft Excel. Frequencies and proportions were calculated for both categorical and numeric variables. Means, percentages, Bar and pie charts were used to represent characteristics of participants such as the influence of religious belief, education status, knowledge of exclusive breastfeeding options for HIV-positive mothers amongst others on exclusive breastfeeding. Data were analyzed using the SPSS 24 statistical package (SPSS Inc., Chicago, U.S.A.). The Chi-square test was used to examine the differences in variables and statistical significance at a p value < 0.05.

III. Results

A total of 388 HIV-positive mothers participated in the study with a 100% response rate. All 388 interviewer-administered questionnaires were analyzed, and the results are presented below.

Table I show the sociodemographic characteristics of the HIV-positive mothers in the study. The age ranges of the participants were as follows: 18-25 years 121 (31.2%), 26-30 years 102 (26.3%), 31-35 years 78 (20%), 36-40 years 60 (15.5%), 41-45 years 23 (6%) and the least age group (1%) were those within the ages of 46-50 years. Majority, 269(64.8%) of the HIV-positive mothers studied had tertiary education, 107 (25.9%) of the participants had primary education and 39(9.3%) had secondary education. Half 194(50%) of the participants were stay at home mother (full-time housewives), 101(26%) were doing business, 85 (22%) were working with government (civil servants) and only 8 (2%) of them were farmers. More than half 200 (51.5%) of the HIV-positive mothers studied were practicing Christianity, 188 (48.5%) were practicing Islam and none practiced Traditional religion. On the average, 198 (51.0%) of the participants earn above N50,000 (a little less than $100) monthly, 113 (29.2%) earn between N10,000 and N50,000 monthly while 77 (19.8%) earn below N10,000 monthly. Majority 264 (68%) of the HIV-positive mothers delivered through spontaneous virginal delivery and only 124 (32%) of them delivered through cesarean section.

A total of 265 (68%) of the participants had knowledge of MTCT. Most of the HIV-positive mothers 289 (75%) know that babies exclusively breastfed are healthier than those not so breastfed. For 324 (84%) of the HIV-positive mothers, the benefits of breast milk nutrients in the first six months of life were their reasons for breastfeeding. Overall, 265 (68%) of the HIV-positive mothers practiced exclusive breastfeeding for the first six months of life, only 123 (32%) did not practice exclusive breastfeeding for the first six months of life. In less than half 186 (48%) of the HIV-positive mothers studied, exclusive breastfeeding was not negatively influenced by their occupations.

TABLE I: CHARACTERISTICS DISTRIBUTION OF HIV-POSITIVE MOTHERS

Characteristic	Frequency (Numbers)	Percentage (%)
Age Distribution		
18-25	121	31.2
26-30	102	26.3
31-35	78	20
36-40	60	15.5
41-45	23	6
46-50	4	1
Educational Levels		
Primary	121	31
Secondary	136	35
Tertiary	131	34
Occupation		
Civil Servant	85	22
Business/Market Woman	101	26
Farming	8	2
Stay-at-home mother	194	50
Religious Affiliation		
Christianity	200	51.5
Islam	188	48.5
Traditional	0	0
Monthly Income (N)		
Below 10,000	77	19.8
10,000-50,000	113	29.2
50,000 and above	198	51.0
Delivery Type		
Caesarian Section	148	32
Virginal Delivery	314	68
HIV Status		
Positive	388	100
Negative	0	0
I don't know	0	0
	N=388	100%

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TABLE II: PROPORTION OF HIV POSITIVE MOTHERS WHO EXCLUSIVELY BREASTFEED THEIR INFANTS

INDICATORS	YES	%	NO	%	I don't know	%
Do you have knowledge about MTCT of HIV?	265	68	42	11	81	21
As HIV-positive mother, do you know that babies who are exclusively breastfed for the first six months of their lives are healthier than those who are not.?	289	75	61	16	38	9
Do you understand that breast milk has sufficient nutrients for babies for first six months of life?	324	84	18	4	46	12
As HIV-positive mother, do you practice exclusive breastfeeding for the first six months of life?	265	68	123	32	0	0
Does your occupation influence exclusive breastfeeding?	141	36	186	48	61	16
Do you have breast health related problem?	0	0	348	90	40	10
If yes to the above, does your breast problem affect your practice of exclusive breastfeeding?	0	0	348	90	40	10
Does your spouse support exclusive breastfeeding?	187	48	69	18	132	34
Do you have norms and taboo about exclusive breastfeeding in your community?	46	12	269	69	73	19
Did you initiate breastfeeding Immediately after birth?	120	31	203	52	65	17
					N=388	

Most of the HIV-positive mothers studied had no breast health-related problems. In this study, 187 (48%) participants had spousal support for exclusive breastfeeding, 69 (18%) had not the privilege of spouse's support and in 132 (34%) of the HIV-positive mothers their spouses were reportedly indifferent to exclusive breastfeeding. Norms and taboos posed no problem to 269 (69%) of the HIV-positive mothers studied. While 73 (19%) of them know nothing about taboo and norms, 46 (12%) said they were hindered by taboo and norms. More than half (52%) of the HIV-positive mothers did not initiated breastfeeding immediately following birth, only 120 (31%) commenced breastfeeding immediately after birth, whereas 65 (17%) of the participants could not relate with their commencement of breastfeeding practice (Table II).

The observed attitude of the participants towards exclusive breastfeeding of babies for the first six months of life were categorized either as 'excellent', 'good' or 'bad' and is represented in Fig. 1. Majority, 253 (65%) of the HIV-positive mothers' attitude was good towards exclusive breastfeeding of babies for the first six months of life, 81 (21%) had attitude towards exclusive breastfeeding rated excellent and the attitude of 54 (14%) of the participants towards exclusive breastfeeding of babies for the first six months of life were bad. Fig. 2. shows the Influence of religious beliefs on the practice of exclusive breastfeeding. Most 317(82%) of the HIV-positive mothers had positive religious beliefs influence on exclusive breastfeeding and only 71 (18%) of them had negative religious beliefs influence on exclusive breastfeeding. Fig. 3. reveals the opinion of participants on education status as it influences exclusive breastfeeding. About 242 (55%) of the respondents agreed that education status influenced exclusive breastfeeding; 97 (25%) of the respondents strongly agreed that education status influenced exclusive breastfeeding; 58 (15%) respondents disagreed on this; while only 19 (5%) strongly disagreed.

Fig. 4 shows the impact of distance to the place of delivery on the practice of exclusive breastfeeding during the first six months of life. More than half 217 (56.0%) of the HIV-positive mothers disagreed that distance is a barrier to the practice of exclusive breastfeeding during the first six months of life, 100 (25.8%) do not know, while 71 (18.2%) agreed that distance is a barrier to the practice of exclusive breastfeeding during the first six months of life. The frequency of child breastfeeding per day is shown in Fig. 5. Of those breastfeeding mothers, majority 252 (65%) breastfeed their child between 5-10 times of per day, 97 (25%) breastfeed more than 10 times per day, while 10% of them breastfeed their child between 1-5 times of per day. Fig. 6. shows participants knowledge about exclusive breastfeeding option for HIV-positive mothers represented as 'excellent', 'good' and 'bad' correspondingly. In total, 225 (58.0%) of the participants had good knowledge about exclusive breastfeeding options for HIV-positive mothers, 138 (35.6%) had excellent knowledge about exclusive breastfeeding options while few (6.4%) of the participants had bad knowledge about exclusive breastfeeding option.

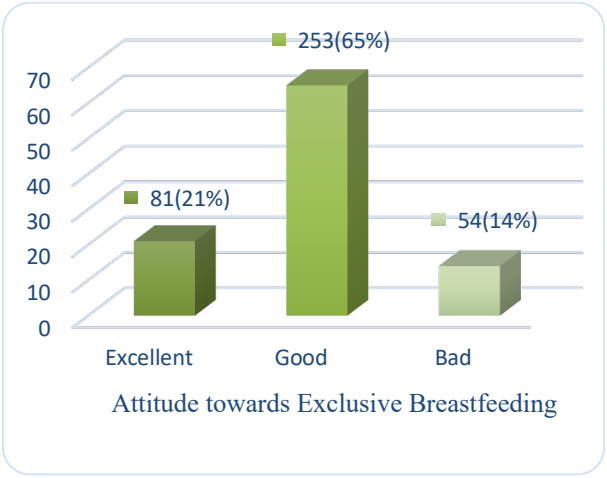

Fig. 1. The observed attitude of the participants towards exclusive breastfeeding of babies for the first six months of life were categorized either as 'excellent', 'good' or 'bad'.

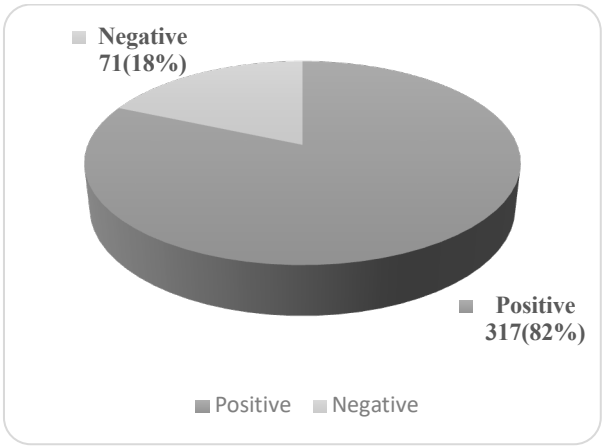

Fig. 2. Influence of religious beliefs on the practice of exclusive breastfeeding.

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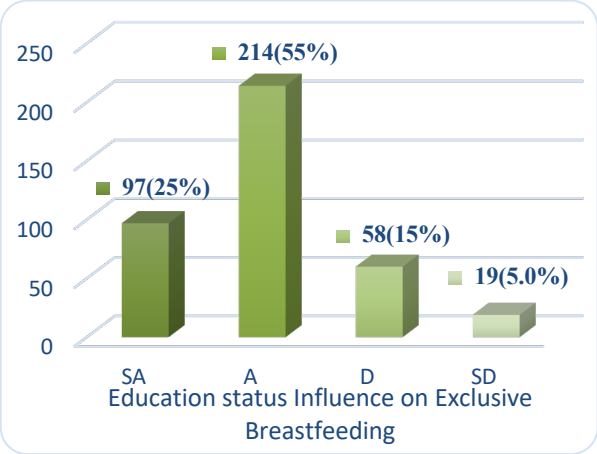

Fig. 3. Influence of education status on the practice of exclusive breastfeeding by HIV-positive mothers (SA=Strongly Agreed, A=Agreed, D=Disagreed; SD=Strongly Disagreed).

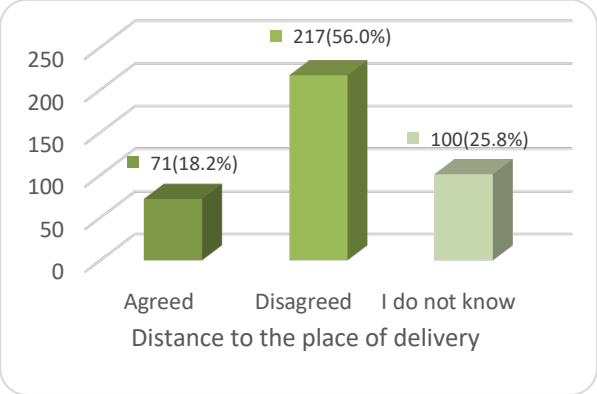

Fig.4. Impact of distance to the place of delivery on the practice of exclusive breastfeeding during the first six months of life.

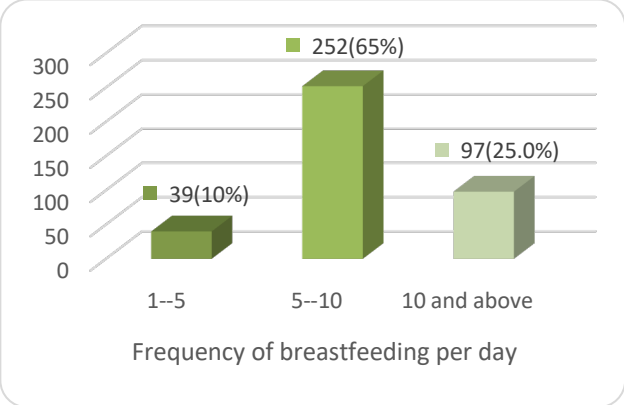

Fig. 5. Frequency of child breastfeeding per day.

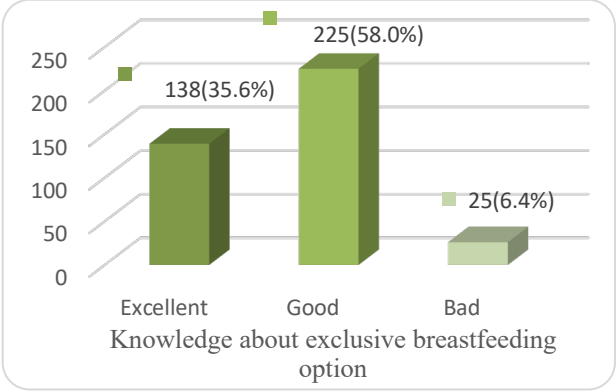

Fig. 6. Participants knowledge about exclusive breastfeeding option for HIV-positive mothers categorized either as 'excellent', 'good' or 'bad'.

IV. DISCUSSION

This cross-sectional descriptive study evaluated exclusive breast-feeding practice by examining the factors influencing the choice of infant feeding options among HIV-positive mothers receiving care for PMTCT in Gwarinpa General Hospital Abuja, Nigeria. The validity and reliability of the instrument used for data collection was scrutinized with Cronbach's Alpha at reliability coefficient (r) = 0.7. Participant's age, educational status, occupation, religious belief, income size, parturition type, norms and taboo were identified in this study as the factors that influenced the choice to practice exclusive breastfeeding for the first six months of infant life by HIV-positive mothers in Abuja, Nigeria.

In this study, 68% HIV-positive mothers practiced exclusive breastfeeding (EBF) for the first six months of life. Our study result of 68% prevalence of EBF among HIV-positive mothers is much higher than the 2018 national average of 29% [24] and the prevalence of 46.1% from a recent study carried out in Ogbomosho, Southwestern Nigeria [26] and the recent Ghana report of 58.33% [25]. However, the finding of EBF prevalence of 68% in this study is lower than the report of 88.8% practice of EBF by HIV-positive women in Ethiopia [27]. Therefore, it can be implied that access to information on infant feeding options for HIV-positive mothers especially through the prevention of mother-to child transmission (PMTCT) program enhances the practice of EBF. In 48% of the HIV-positive mothers in this study, maternal occupation did not negatively influence their practice of EBF which is in agreement to an earlier report that maternal employment has no effect on EBF [28]. On the contrary, studies in Enugu Southeastern Nigeria [29] and Ethiopia [30], reported that maternal employment influenced and had negative effect on EBF. Most probably, the impact of maternal occupation on the practice of EBF depends on subsisting national postnatal and maternal policy implementation. On the average, 51.0% of the participants in this study earn above N50,000 naira (a little less than $100) monthly. Mothers in this study earned much more than the N18,000 and N30,000. per month reported from earlier studies in Nigeria [31], [32]. The influence of maternal income on the practice of EBF cannot be overemphasized. On the other hand, the true association of higher maternal income with EBF remain poorly understood. None of the HIV-positive mother in this study had breast health-related problems. No doubt, the absence of breast health-related problem is an essential condition that encourage the practice of EBF. Spousal's support had considerable effect on the practice of EBF in this study as 18% of the by HIV-positive mothers had not the privilege of spouse's support. This is in consonance with studies in Ghana [25] and Turkey [33] that had shown the positive effect and the positive effect of the influential role of partners in exclusive breastfeeding practice.

In the present study, majority of the HIV-positive mothers did not initiated breastfeeding immediately following birth, only 31% commenced breastfeeding immediately after birth. The finding of low initiation of breastfeeding immediately after birth in this study is not aligned to the World Health Organization (WHO) recommendation of commencement of breastfeeding within the first hour of birth [34]. Initiation of

breastfeeding immediately following parturition is a golden practice that should be encouraged because it ensures the infant receives the first stock of breastmilk called colostrum which is known to be very rich in nutrients and protective antibodies for the well-being of the newborn. Majority (65%) of the HIV-positive mothers had good attitude towards exclusive breastfeeding of babies for the first six months of life. This figure is higher than 20.9% from a previous study in the island of Abu Dhabi, United Arab Emirates [35]. Nonetheless, it is lower than a recent report from Gondar, North West Ethiopia of a much higher proportion (75.87%) of mothers with good attitude towards EBF [36]. All the participants in this study subscribed to a religious belief. Interestingly, religious beliefs positively influenced the practice of exclusive breastfeeding in 82% of the HIV-positive mothers.

Mother's education status positively influenced exclusive breastfeeding practice in 55% of the HIV-positive mothers in this study. This finding is consistent with report of the postnatal studies of mothers in Nigeria and China on the impact of education status on breastfeeding process and the rate of EBF [37], [38]. In the present study, 56.0% of the HIV-positive mothers disagreed that distance to the place of delivery is a barrier to or influences EBF. This is contrary to a recent report from Northwestern Romania which indicated that the place of delivery is a strong determinant of EBF [39]. The result of this study showed that the practice of EBF by HIV-positive mothers varied in frequency. Majority of the HIV-positive mothers breastfeed their child between 5-10 times of per day, while only 25% breastfeed more than 10 times per day. In a study in Ghana, some mothers were of the opinion that babies be breastfed on demand for breast milk several times within a day, while to other mothers, breastfeeding their infants for not less than 10 times in a day was seen as ideal [40]. Apparently, mothers' views are diverse on the acceptable number of times per day that a child should be breastfed. None the less, our finding is consistent with the Centre for Disease Control recommendation for babies of first weeks and months to be breastfeed about 8 to 12 times in 24 hours.es [41]. It is however evident that babies less than one month old will benefit more if they are breastfed more frequently as well as on demand. In this study, 58.0% of the HIV-positive mothers had good knowledge about exclusive breastfeeding options for HIV-positive mothers. The participants knowledge level about exclusive breastfeeding options for HIV-positive mothers in the present study is lower than an earlier report of 94% from Lagos State, Nigeria [40] and 68.91% from recent studies done in Ethiopia [42]. Overall, good knowledge about EBF is a critical predictor of exclusive breastfeeding practice by all category of mothers.

V. Conclusion

This study found a significant increase in the rate of exclusive breastfeeding by HIV-positive mothers. It is evident that the practice of exclusive breastfeeding by HIV-positive mothers is dependent on their level of knowledge and awareness of its benefits in the first-six months of infant's life. In order to enhance EBF for HIV-exposed infants, this study suggests a comprehensive health campaign supporting all mothers irrespective of their HIV status to exclusively breastfeed their infants for the first six months. Fear of stigma negatively affects the practice of breastfeeding. Therefore, HIV-positive mothers may need improved income and the support of family members to practice the recommended infant-feeding options. More effort is required to improve communication skills among health care workers especially those involved in the PMTCT programs to enable them to provide objective infant-feeding counseling.

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Conflict of Interest

Authors declare that they do not have any conflict of interest.

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