



# INFANT FEEDING PATTERN OF HIV POSITIVE WOMEN ASSESSING CARE AT A TERTIARY HEALTH FACILITY IN SOUTH EASTERN NIGERIA AND ITS OUTCOME IN INFANTS

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## ABSTRACT

**Background:** Breastfeeding is the normative and culturally accepted way of feeding newborn babies. Breastfeeding by HIV mothers raises a lot of concern because of the risk of transmission of HIV in their babies. There is also the risk of malnutrition and transmission of diarrhoeal disease if a mother does not breastfeed. Therefore, the dangers of not breastfeeding must be balanced against the risk of HIV transmission before feeding HIV exposed infants. This study was carried out to determine the infant feeding practices of HIV positive mothers attending care at Federal Medical Centre (FMC) Owerri and the outcome in their babies

**Method:** The study involved a cross sectional prospective survey of one hundred and fifty seven HIV positive mothers and their infants.

**Results:** Out of 157 HIV positive mothers studied, 143(91.1%) practiced exclusive replacement feeding, 8(5.1%) practiced mixed feeding while 6(3.8%) breastfed exclusively. However, about 2.1% of the babies on exclusive replacement feeding were HIV positive while 25% of the babies on mixed feeding were HIV positive. All exclusively breastfed infants were HIV negative. The relationship between infant mode of feeding and HIV DNA result was statistically significant ( $\chi^2=13.093$ ,  $p=0.001$ )

### Conclusion:

Exclusive breastfeeding rate among HIV positive women from this study was low despite the national policy of exclusive breast feeding in HIV positive women provided they received antiretroviral medication. This implies that most HIV positive mothers do not adhere to national guideline and are still scared of the risk of transmitting HIV virus to their babies from breastfeeding.

## INTRODUCTION

Breastfeeding is the normative and culturally accepted way of feeding newborn babies. It is the best way to give a baby the best start in life because of its numerous advantages [1]. However, among women who are infected with HIV and receiving no antiretroviral treatment or other interventions, breastfeeding increases the risk of transmission of infection from mother to child [2]. Globally, breastfeeding has been estimated to cause between one-third to one-half of HIV infections in infants who do not receive any intervention and the duration of breastfeeding is strongly associated with increased rate of HIV transmission [2].

When a mother is infected with HIV, the dangers of not breastfeeding must be balanced against the risk of HIV transmission. The World Health Organisation (WHO) recommends that the most appropriate infant feeding option for an HIV infected mother depends on her individual circumstances, including the health status and local situation, but should take consideration of the health services available and the counselling and support she is likely to get [3]. National and sub-national health authorities should decide whether health services will principally counsel and support mothers known to be HIV infected to either breastfeed and receive ARV intervention or avoid breastfeeding.

This implies that each nation should adopt one infant feeding option bearing in mind the strategy that will most likely give infants the greatest chance of HIV survival [3]. For HIV positive women in resource-rich countries in which infant and child mortality rates are low, largely due to low rates of infectious diseases and malnutrition, the recommendation from national health agencies is straightforward: they should avoid breastfeeding entirely because the risk of HIV transmission far outweighs the risk associated with replacement feeding [3]. However, in resource-poor countries, where replacement feeding may be hazardous, the recommendation is women in this region should be supported to breastfeed and get antiretroviral intervention.

The restriction of infant feeding option to one strategic national policy means that health workers should no longer counsel HIV-infected mothers on infant feeding options. This infringes on the mother's decision in terms of which infant feeding option to give her child. It also raises some questions on the different recommendations for different parts of the world in tackling the same problem. It may be better for all HIV infected mothers to receive counselling which includes provision of general information about the risks and benefits of various infant feeding

options, specific guidance in selecting the option most likely to be suitable for their situation and supported in her choice.

This study was carried out to determine the infant feeding practices of HIV positive mothers assessing care at Federal Medical Centre (FMC) Owerri and the outcome in their babies.

## Methods.

### Study area

The study was undertaken at FMC Owerri, Imo State. The centre is one of the major HIV/AIDS treatment centres in the South East geographical region of Nigeria.

### Study design

The study was a cross sectional prospective study.

### Sample size determination

The sample size was calculated based on the formula shown below[4]

$$N = \frac{(Z_{\alpha} + Z_{1-\beta})^2 Pq}{d^2}$$

Where N = the desired sample size

$Z_{\alpha}$  = the standard normal deviation usually set at 1.96 or more simply at 2.0, which corresponds to 95% confidence level.

$Z_{1-\beta}$  = represents the desired statistical power (A desirable level for power is  $1-\beta = 0.80$  which corresponds to 0.842).

P = the proportion or the target population estimated to have a particular characteristic. The prevalence of HIV in Imo State is 4.6%. [5] This was used to calculate minimum sample needed for this study.

$$q = 1.0 - p$$

d = Degree of accuracy desired, usually set at 0.05

$$\text{Hence } N = \frac{(1.96 + 0.842)^2 \times (0.046) \times (0.954)}{(0.05)^2}$$

N = 137 subjects

The minimum calculated sample size was 137 subjects. One hundred and fifty seven (157) mother infant pairs were recruited in this study upon their consent.

### Ethical approval

Official approval to carry out the study was obtained from the Ethical committee of FMC, Owerri Imo State Nigeria. A signed written consent was also obtained from the mothers of the subjects.

### Inclusion criteria

1. Any child less than 18 months and born to HIV positive mother who attended antenatal clinic and was delivered in FMC, Owerri.
2. Babies who received Nevirapine for 6 weeks

### Exclusion criteria

1. Children who were attending the Paediatric HIV clinic, but were not delivered in FMC Owerri.
2. Children attending the HIV clinic whose mothers were dead.
3. Mothers who did not consent to be part of the study

## Laboratory methods

The subjects' HIV DNA PCR was determined using dried blood sample method of collection.

## Data analysis

The data collected was sorted out, coded and imputed into Statistical Package for Social Sciences (SPSS) version 15.0 statistical package. Frequency tables were generated for relevant variables. The chi-square test was used to test for relationship between 2 categorical variables. P-value less than 0.05 was considered statistically significant.

## Results

A total of 157 mother infant pairs were recruited over the study period. Majority of the mothers, 94 (59.9%), were between the ages of 21-30 years, while 63 (40.1%) were between the ages of 31-40 years. The mean maternal age was  $29.01 \pm 4.92$  years. Majority of the mothers were married 153 (97.5%). This is shown in table 1

Table 2 shows HIV status at different times of testing. One hundred and fifty two (96.8%) of the infants were DNA PCR negative at 6 weeks while 5 (3.2%) of them were positive. All the 6 (100%) infants who were on mixed feeding and had repeat DNA PCR test at 14 weeks were negative. All the exclusively breastfed babies re-tested at 8 months were HIV negative. Majority of the study population 91.1% practiced exclusive replacement feeding, 5.1% practiced mixed feeding at some time while 3.8% did exclusive breastfeeding. However, 2.1% of those on exclusive replacement feeding were HIV positive while 25% of the babies on mixed feeding were HIV positive. All exclusively breastfed infants were HIV negative. The relationship between infant mode of feeding and HIV DNA result was statistically significant ( $\chi^2 = 13.093$ ,  $p = 0.001$ ).

## Discussion

The mothers in our study were offered infant feeding option counseling. It was observed that majority of the HIV positive women assessing care at FMC Owerri practiced exclusive replacement feeding, while minority practiced exclusive breastfeeding. This was not surprising because breast milk is known to transmit HIV virus. The observed transmission rate of 25% among the infants in our study who had mixed feeding is significantly higher compared to other forms of feeding. Sadoh et al [6] and Coovadia et al [7] also reported an increased HIV transmission rate among the infants on mixed feeding. The increased transmission rate in mixed feeding has been suggested to be due to the triggering of an infant's immune system to the introduction of new foods, this attracts white blood cells to the gastrointestinal tract thereby increasing targets for HIV to spread infection [3].



The initial inflammatory response may also increase HIV infectivity and transmission by gastrointestinal damage and penetration of the wall by HIV virus in the infected breast milk [8].

The lower rate of HIV transmission among those on exclusive replacement in our study (2.1%) is similar to the observation from other studies [6][7]. It is known that exclusive replacement feeding eliminates the chances of mother to child transmission of HIV after birth. However, exclusive replacement feeding raises a cultural question in our locality. The lack of family support to this form of infant feeding coupled with the financial demand on the family system has made it difficult for some families to sustain exclusive replacement feeding. Some mothers may resort to mixed feeding without disclosing such to the health professionals to avoid criticism. This will eventually result to increased mother-to-child transmission risk. It is not surprising therefore to see some of the mothers on exclusive replacement feeding having HIV positive babies. The transmission may also have been in utero or during labor and delivery.

Our study did not record any HIV positive result among the few infants who were documented to have been exclusively breastfed. Homby et al [10] in Uganda observed no HIV transmission after six weeks of cessation of breastfeeding among 102 exclusively breastfed HIV exposed infants whose mothers were on highly active anti-retroviral therapy (HAART). Exclusive breastfeeding has been shown to be protective against some viral pathogens as seen in acute respiratory tract infection and diarrhoeal diseases [10]. It could be that there is the presence of specific antibodies directed against HIV-1 in breast milk of sero-positive mothers. It could also be due to the fact that all the mothers in our study who exclusively breast fed their infants were on HAART which may have reduced the viral load thereby reducing the risk of transmission from breast milk. Exclusive breast feeding has been recommended for infants of HIV-infected women in resource-poor settings to reduce the complications associated with not breastfeeding [11]. However, in the context of HIV, the risk of postnatal transmission through breast milk still exist. Our study had very small proportion of mothers that practiced exclusive breastfeeding therefore, a definite conclusion on the protective effect of breastfeeding by HIV infected women could not be made.

### Conclusion

Exclusive breastfeeding rate among HIV positive women as recorded from this study was low despite the national policy of exclusive breast feeding in HIV positive women provided they receive antiretroviral medication. This implies that most HIV positive mothers do not adhere to national guideline and are still scared of risk of transmitting HIV virus to their babies from breastfeeding.

It was also observed that mixed feeding increased the risk of HIV transmission. Therefore, mixed feeding should be discouraged as a form of infant feeding in HIV positive mothers.

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