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**INFANT FEEDING PRACTICES AMONG HIV INFECTED WOMEN RECEIVING PREVENTION OF MOTHER-TO-CHILD TRANSMISSION SERVICES AT KITALE DISTRICT HOSPITAL, KENYA**

S.C. Bii, MBChB, MPH, Provincial AIDS/STI Coordinator, North Rift Province, Ministry of Health, NASCOP, KVDA Plaza, 11th Floor, P.O. Box 5665, Eldoret, Kenya, B. Otieno-Nyunya, MBChB, MMed(Obs & Gyn), Fell. CTR (USA), Fell. FAIMER (USA), Lecturer and Head, Department of Reproductive Health, A. Siika, MBChB, MMed (Int. Med), Lecturer, Department of Internal Medicine and J.K. Rotich, PhD, Associate Professor and Dean, Moi University, School of Public Health, P.O. Box 4606, Eldoret, Kenya

Request for reprints to: Dr. S.C. Bii, Ministry of Health, P.O. Box 5665, Eldoret, Kenya

**INFANT FEEDING PRACTICES AMONG HIV INFECTED WOMEN RECEIVING PREVENTION OF MOTHER-TO-CHILD TRANSMISSION SERVICES AT KITALE DISTRICT HOSPITAL, KENYA**

S.C. BII, B. OTIENO-NYUNYA, A. SIIKA and J.K. ROTICH

**ABSTRACT**

**Objectives:** To determine the types and modes of infant feeding practices among the HIV infected mothers on prevention of mother-to-child transmission (PMTCT) and attending MCH-FP clinic at Kitale District Hospital, Kenya.

**Design:** Descriptive cross-sectional study.

**Setting:** Kitale District Hospital in Western Kenya within the maternal and child health and family planning (MCH -FP) and comprehensive care clinics.

**Subjects:** A total of 146 respondents who had delivered 150 babies were recruited for this study.

**Results:** Thirty five percent (52/150) of the babies were exclusively breastfed while 50% (75/150) were not breastfed at all and 14% (21/150) of the babies received mixed feeding. The length of exclusive breastfeeding ranged from 1-6 months with most (53%) women exclusively breastfeeding for two to three months. Only 13% of the women exclusively breastfed for five to six months. There was a strong relationship between mode of infant feeding and spouse's awareness of HIV status. Mothers who had disclosed their HIV status to their spouses were more likely not to breastfeed than mothers who had not disclosed their status ( $p < 0.05$ ). The choice of infant feeding method was also influenced by the socio-economic status of the mothers and nevirapine uptake. The level of education did not influence the mode of infant feeding.

**Conclusion:** Infant feeding decisions were mainly influenced by the male partner's involvement and the socio economic status of the mother. Half of the respondents did not breastfeed at all. The duration of exclusive breastfeeding rarely reached six months. To encourage women to adhere to good infant feeding practices, involvement of their partners, family members as well as the community for support should be encouraged.

**INTRODUCTION**

Most children (90%) living with HIV are found in sub-Saharan Africa (1). In Kenya, an estimated 10% of those living with HIV/AIDS are children under 15 years of age (2). High rates of maternal

infection coupled with high birth rates and lack of access to PMTCT services as well as prolonged breastfeeding translates into a high burden of HIV in children. In the developed countries, rates of mother to child transmission of HIV have fallen to as low as 2% due to the introduction of

routine HIV testing among antenatal mothers and the provision of antiretrovirals (ARVs), elective Caesarean delivery and safe infant feeding (3). In sub-Saharan Africa however, these interventions are largely unavailable to the majority, and where prolonged breastfeeding is the norm, it is estimated that without any intervention, 40% of these mothers will pass the infection to their babies (3). Infants who acquire HIV infection from their mothers do so during pregnancy, during labour and delivery and after birth through breastfeeding. Breastfeeding accounts for 5–10% of the infections (4).

HIV is present in breast milk although the concentration is lower than that found in blood. The risk of HIV transmission is higher when mixed feeding is practiced in the first months of life than when babies are exclusively breastfed (5). Exclusive breastfeeding therefore carries a significantly lower risk of HIV transmission than mixed feeding and may offer an affordable, culturally acceptable and effective means of reducing mother to child transmission of HIV while maintaining the benefits of breastfeeding (6).

Infant feeding choices provide real challenges to HIV positive mothers. Women should be counselled on the different infant feeding alternatives available. Breastfeeding has many health, nutritional, birth spacing, emotional and psychological benefits. However, with the onset of HIV/AIDS, the dilemma of HIV transmission through breastfeeding has made safe infant feeding a critical issue in PMTCT. The use of formula feeds with avoidance of breastfeeding is the best way of avoiding breast milk transmission of HIV/AIDS. However, breastfeeding is not only a cultural issue but is also the lifeline for the survival of the babies in many African societies. Formula feeds are beyond the reach of most mothers and even where the feeds are provided free of charge, infant mortality among formula-fed infants has been found to be high due to poor hygiene and contamination during preparation (7). The stigma associated with failure to breastfeed and the socio-cultural issues surrounding breastfeeding may also force the mothers to breastfeed. The mothers are therefore advised to exclusively breastfeed for six months with abrupt weaning after six months (8). Mothers may also not breastfeed exclusively because of misconceptions that breast milk is not adequate for the baby. The Kenya Demographic and Health Survey (KDHS) 2003 found that only 2.8% of the babies were still exclusively

breastfeeding at age four to five months (9). Mixed feeding could therefore be the most likely option for these mothers with the attendant risk of increasing breast milk transmission of HIV.

WHO currently recommends that when replacement feeding is acceptable, feasible, affordable, sustainable and safe "AFASS", avoidance of all breastfeeding is recommended otherwise, exclusive breastfeeding is recommended, during the first months of life and should then be discontinued as soon as feasible (10). To help HIV positive mothers make the best choice, they should receive counselling that includes information about the risks and benefits of various infant feeding options and guidance in selecting the most suitable option for them and their babies. Mixed feeding could introduce contaminated fluids that might predispose the infant to gastrointestinal infections and inflammation that could compromise the gastrointestinal mucosal integrity thus facilitating HIV transmission.

## MATERIALS AND METHODS

*Study area and study design:* This was a cross-sectional study carried out at Kitale District Hospital between April 2005 and July 2005. A structured questionnaire was administered to the respondents. The information collected was based on self-reporting by the study participants. The study participants were drawn from the MCH and FP clinics and the comprehensive care clinic (CCC) within the hospital. The respondents had already undergone antenatal and postnatal infant feeding counselling. The standard of care regarding infant feeding counselling was that an HIV positive pregnant woman was informed about the feeding options, including exclusive breastfeeding, formula feeding and modified animal milk. The advantages and disadvantages of each method were explained in the context of HIV, mother-to-child transmission through breast milk vis-à-vis the protective nature of breast milk against diarrhoeal diseases. The protective effects of formula feeds against MTCT was also discussed within the context of the AFASS criteria. Mother's choice was respected and supported.

*Target population and inclusion criteria:* All HIV-positive postnatal mothers who had been enrolled in the PMTCT programme at the hospital were

requested to participate in the study. A written informed consent was obtained from the participants. The criteria used in the recruitment of the study participants was that they were HIV- positive, knew their HIV status, were post-natal between six weeks and one year of delivery, had undergone PMTCT at the antenatal clinic or maternity ward at Kitale District Hospital. This study was approved by Institutional Research and Ethics Committee (IREC) of Moi University and Moi Teaching and Referral Hospital.

*Sampling and sample size:* A total of 146 mothers were recruited within the study period. The minimum sample size was statistically determined. All clients who met the recruitment criteria and consented to join the study were recruited.

*Data management and analysis:* Data from the structured questionnaires were analysed using the Statistical Package for Social Sciences (SPSS) software. Cross tabulations were derived and chi-squares used to test significance of relationships between variables. Logistic regressions were also used to compare several variables. Statistical significance was taken as  $P < 0.05$ . Tables and bar graphs were used to present the data.

## RESULTS

The modes of infant feeding were categorised into three. There were those who were exclusively breastfed with abrupt weaning, those who were mixed fed, and those who were not breastfed at all. Fifty percent of the babies were not breastfed at all while 35% (52/150) of them were exclusively breastfed. Only 14% (21/150) of the babies received mixed feeding. Two babies died soon after birth. The

length of exclusive breastfeeding ranged from one to six months with most (53%) women exclusively breastfeeding for two to three months. The mean duration of exclusive breastfeeding for mothers who had delivered 4-12 months before the study was three months while only 13% of the women exclusively breastfed for 5-6 months (Table 1).

There was a strong relationship between mode of infant feeding and spouse's awareness of HIV status of mother. Those who had disclosed their HIV status to their spouses were more likely not to breastfeed than those who had not disclosed their status ( $p < 0.05$ ). Among those who had disclosed their HIV status, 65% (45/69) of them did not breastfeed as opposed to only 32% (21/65) of those who had not (Figure 1).

The choice of infant feeding method was also influenced by the socio-economic status of the mothers. Women who reported earning more than Ksh. 1000 per month (US\$ 15) were more likely to be on replacement feeding and less likely to practice mixed feeding than those earning less than Ksh 1000 monthly (US\$ 15) ( $p < 0.05$ ) (Table 2).

Although the level of education did not significantly influence the mode of infant feeding, a larger proportion of women with no education were mix feeding their babies than those with primary level of education and above (Table 3).

Maternal uptake of nevirapine also affected mode of infant feeding. Mothers who swallowed their nevirapine were less likely to mix feed their babies than those who did not swallow their nevirapine ( $p < 0.05$ ). Only 11.4% (15/132) of those mothers who swallowed their nevirapine mix fed their babies as opposed to 41.7% (5/12) of those mothers who did not swallow their nevirapine. Babies who received their nevirapine syrup were also less likely to be mix fed than those who did not

**Table 1**  
*Duration of exclusive breastfeeding*

Duration since delivery	Length of exclusive breastfeeding (months)			Total No (%)
	1-2 (%)	3-4 (%)	5-6 (%)	
6wks - 3 months	14 78	4 22	0 0	18 100
4-6 months	4 31	6 46	3 23	13 100
7-9 months	4 33	6 50	2 17	12 100
10 - 12 months	7 58	3 25	2 17	12 100
Total	29 53	19 34	7 13	55 100

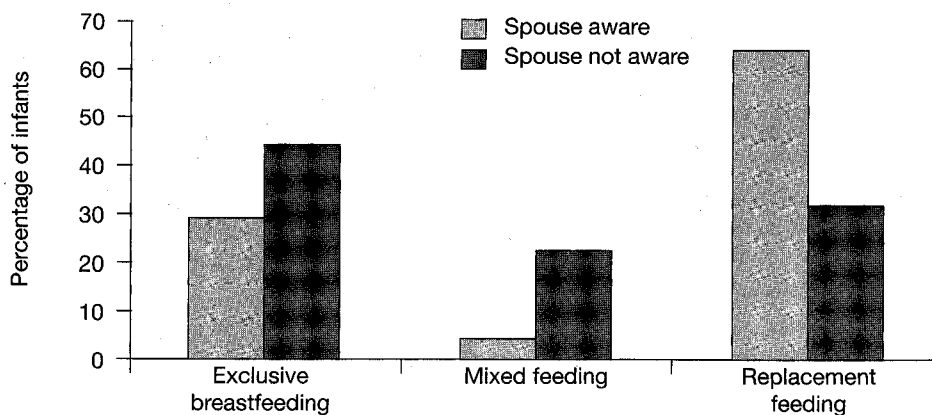
( $p < 0.05$ ). The place of delivery did not significantly affect the mode of feeding the baby ( $p = 0.118$ ). However, mothers who delivered in a health facility were more likely to use replacement feeding (54.2%) and less likely to practice mixed feeding (11.5%) than those who delivered at home, (42% and 18% respectively).

Mothers were also asked whether their babies were alive. Infant mortality was more likely to be affected by mode of feeding and birth weight of the baby than other factors.

Babies who were mixed fed were more likely to die than those who were either exclusively breastfed or formula fed ( $p < 0.05$ ) (Table 4).

**Figure 1**

*Comparison of the spouse's awareness of HIV status and mode of infant feeding*



**Table 2**

*Relationship between mode of feeding baby and monthly income to mother*

Monthly earning (Ksh)*	Mode of feeding baby						Total	
	Exclusive breastfeeding		Mixed feeding		Replacement feeding		No.	%
	No.	(%)	No.	(%)	No.	(%)		
<1000	33	37	17	19	40	44	90	100
>1000	18	33	3	6	33	61	54	100
<b>Total</b>	<b>51</b>	<b>35</b>	<b>20</b>	<b>14</b>	<b>73</b>	<b>51</b>	<b>144</b>	<b>100</b>

$P < 0.05$ ; \* 1 US\$ = Ksh 65

**Table 3**

*Relationship between mode of feeding baby and level of education*

Level of education	Mode of feeding baby						Total	
	Exclusive breastfeeding		Mixed feeding		Replacement feeding		No.	%
	No.	(%)	No.	(%)	No.	(%)		
None	6	35	6	30	6	35	17	100
Primary	34	38	13	15	42	47	89	100
Secondary	10	31	2	6	20	63	32	100
Post secondary	1	17	0	0	5	83	6	100
<b>Total</b>	<b>51</b>	<b>35</b>	<b>20</b>	<b>14</b>	<b>73</b>	<b>51</b>	<b>144</b>	<b>100</b>

$P = 0.160$

**Table 4**  
*Relationship between mode of feeding baby and fate of baby*

Mode of feeding	Fate of baby				Total	
	Alive		Dead			
	No.	(%)	No.	(%)	No.	(%)
Exclusive breastfeeding	49	94	3	6	52	100
Mixed feeding	14	67	7	33	21	100
Replacement feeding	72	96	3	4	75	100
Total	135	90	13	10	148	100

P<0.05

## DISCUSSION

The results show that about half of the respondents breastfed their babies while the other half did not breastfeed at all. A minority of the babies received mixed feeding while the rest of the babies were exclusively breastfed. During PMTCT counselling, mothers who opt to breastfeed are advised to exclusively breastfeed for six months then abruptly wean their babies without introducing mixed feeds. This study however showed that the duration of exclusive breastfeeding rarely reached six months. Most mothers exclusively breastfed for only two to three months. As a result, such mothers are likely to introduce other feeds in addition to breastfeeding resulting in mixed feeding or they are likely to wean their babies too early without proper formula feeds with risk of malnutrition and diarrhoeal diseases to their babies. Although in this study a minority of babies were mixed fed, the babies who were on exclusive breastfeeding were not followed up and therefore it is possible that some mothers may introduce other feeds along the way and so subject the babies to mixed feeds. Kiarie *et al* (11) in their study found that mixed feeding at six weeks was more common among women who were exclusively breastfeeding at one week.

The choice of infant feeding was more likely to be influenced by the partner's awareness of the HIV status of the mother. Women whose partners were aware of their HIV status were more likely not to breastfeed than those who were not. It is possible that women will actually resort to breastfeeding because of the stigma attached to not breastfeeding. This is made worse in situations where the partner has not been informed. In our society, where breastfeeding is the norm, it may be difficult for women to decide

not to breastfeed without consent from the spouse. Men are also usually the breadwinners of the family and considering that replacement feeds are costly, it may not be feasible for the woman to choose alternative feeds without the economic support of the spouse. It therefore becomes difficult for the mother to afford alternative feeds for the baby if the partner is not involved. Male involvement in infant feeding decisions is therefore crucial for the success of the intervention. Several studies have confirmed the relationship between infant feeding choices and male involvement in PMTCT. Kiarie *et al* (12) in a study looking at the effect of partner involvement and couple counselling on uptake of PMTCT interventions noted that HIV positive women receiving couple counselling were five fold more likely to avoid breastfeeding compared to those counselled individually. This tallies with an earlier study by Mbori-Ngacha *et al* (13), which looked at partner notification in association with infant feeding decisions. Studies which have been done in this region have identified factors such as fear of loss of confidentiality, attitudes of partners and experiences of formula fed infants who died or became infected with HIV as some of the reasons why women will opt to breastfeed their babies (13).

Considering that women who opt not to breastfeed have to procure alternative replacement feeds for their babies, those without any source of income may not afford the alternative feeds. In this study the use of replacement feeds was associated with a higher socio-economic status. Women with financial constraints and those without partner support were more likely to breastfeed or mix feed their infants. Women without sufficient financial capacity who opt not to breastfeed may not afford formula milk. Their babies are therefore at risk

of malnutrition and diarrhoeal diseases. In this study, a higher infant mortality rate was associated with babies who were mixed fed than those who were exclusively breastfed. This may be due to the diarrhoeal diseases and malnutrition apart from the fact that they are more at risk of HIV transmission through breast milk. It is therefore crucial to adequately counsel women on infant feeding options and women with low socio-economic status who opt not to breastfeed require additional support in order not to compromise the health of their infants. There was no significant association between the level of education and choice of infant feeding method in this study. This compares with the study by Kiarie *et al* (12), which also reported no association between choice of infant feeding and level of education.

Mothers should be given adequate counselling with information on both risks and benefits of the various infant-feeding options. Health workers should help the mothers to explore the various methods and come up with the best method for their situation. Majority of the mothers opted for replacement feeds for their babies in this study. Some mothers may opt not to breastfeed their babies despite their inability to sustain the replacement feeds. Provision of formula milk for babies whose mothers opt not to breastfeed should be availed to ensure proper nutrition for these babies with special emphasis on proper preparation and hygiene. Partner involvement is also crucial for infant feeding options to succeed. From the study, majority of women who chose to breastfeed had not informed their partners about their HIV status. To encourage women to adhere to good feeding practices, activities that mobilise partner, family and community support for infant feeding such as outreach activities and support groups should be encouraged.

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