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DETERMINANTS OF INFANT FEEDING PRACTICES AMONG HIV-POSITIVE MOTHERS ATTENDING COMPREHENSIVE CARE CLINIC AT AHERO SUB-COUNTY HOSPITAL, KENYA

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Abstract: **Breast-feeding is usually the best way to feed infants, yet the advent of HIV has complicated this practice in our mothers today. There is enough evidence that exclusively breastfed infants are more protected against childhood morbidity and mortality from respiratory and gastrointestinal infections than those who are mixed fed or exclusively formula fed. The main objective of the study was to find out determinantsof infant feeding practices among mothers living with HIV attending comprehensive care clinic in Ahero sub-county hospital in Kisumu County, Kenya. The Study utilized descriptive cross sectional study. The study employed both qualitative and quantitative methods of data collection. A study sample of 168 HIV-positive mothers with infants aged 0 to 12 months wasinterviewed. Semi-structured researcher administered questionnaires was used to collect data from the sampled respondents. Key informant interviews and focused group discussions were also used to collect qualitative data. SPSS version 21 was used to analyze quantitative data. Qualitative data was analyzed in key thematic areas. Descriptive statistics were employed to draw percentages while Chi square and fisher exact test was employed in testing significant associations with significance level set at p ≤0.05.The analyzed data was presented with figures, tables, and narratives. The study concluded that, majority of women living with HIV and giving birth are below 35 years of age, highest level of education at primary level, married and with unstable source of income. The study further reviewed that, despite good antenatal care visit among HIV positive mothers with majority first attendance before 24 weeks of gestation, mix feeding was still prevalent among the mothers with only 57.7% practicing exclusive breastfeeding while the rest had mix feeding which still increased the risk of mother to child transmission of HIV despite majority being of antiretroviral therapy.**

Keywords: **Exclusive Breast Feeding, HIV Positive mothers, Infant Feeding Practices, Mix feeding.**

I. INTRODUCTION

Infant feeding is critical in the first year of life and a key determinant of child survival and development. Breastfeeding is a universal socio-culturally acceptable, nutritious way to feed an infant and provides immunity (Bentley, 2012). However, research indicates that breast milk contributes about 15% risk of HIV transmission from an infected mother to the child especially when mixed feeding is practiced before weaning (Campbell, 2010). Despite the benefits which results from its practice, EBF rates remain low throughout the world, where globally it is estimated that the rate of exclusive

breastfeeding is 35% (Eaton, 2013). Different regions in the world have reported increase of EBF, for instance from 22% (1996) to 30% (2006) in sub-Saharan Africa, East Asia /Pacific, (excluding China) 27% (1996) to 32% (2006) and in Latin America and the Caribbean, (excluding Brazil, and Mexico) 30% to 45%, despite the reported increase of EBF, the rates are still low (Amy, 2012) .

A culturally acceptable, low cost approach to infant feeding is essential to prevent breast milk HIV transmission (Anema & Kadiyala, 2009). In countries not affected by HIV, improving infant feeding can reduce mortality by up to 19%. The impact could be greater in HIV affected populations if interventions that reduce HIV transmission through breast feeding could be successfully linked to strategies that improve infant feeding practices. However, this is confounded by complexity of identifying most appropriate infant feeding practices that fits household and social circumstances of mothers (Bentley, 2012). World Health Organization (2010) recommends that in light of the effectiveness of ARVs, HIV infected mothers should continue breast feeding the infant until twelve months of age (Black & Bryce, 2003).

This capitalizes on the maximum benefit of breast feeding to improve the infant's chances of survival while reducing the risk of HIV transmission. The guideline also recommends to national health authorities to promote a single infant feeding practice as a standard of care.

Kenya, like other developing countries across the world, has a strong breastfeeding culture, where breastfeeding is practiced for up to 2 years of age and above (Kenya National Bureau of Statistics (KNBS)/ICF Macro, 2008-09). Despite the strong breastfeeding culture, only a minority of women practice exclusive breastfeeding (EBF) up to 6 months of age (Brahmbhatt & Kigozi, 2006). Initiation of breastfeeding often starts between a few minutes to three days after delivery depending on the type of influence from the community, family members and the mother's exposure to health and nutrition information from health workers (Fergusson & Tomkins, 2009)Existing literature indicates existence of numerous determinants of breastfeeding practices across different cultural, social and demographic settings.

II. STATEMENT OF THE PROBLEM

It is estimated that about 1000 children get infected with HIV daily through vertical transmission. According to UNAIDS (2012), breast milk contributes 15%. The risk increases (25-45%) with age of infant and maternal practice of mixed infant feeding before 6 months (Kenya Fact Sheet, 2011), Supporting optimal infant feeding practices is a challenge for health systems (WHO, 2010). Despite numerous efforts in prevention of mother to child transmission of HIV during lactation, Kenya has continued witnessing slow drop in reduction of HIV positive infants at six months of life, with Nyanza province where this study was conducted leading in cases of infants living with HIV at six months of live and beyond. Table 1 gives a clear elaboration of the situation.

III. JUSTIFICATION OF THE STUDY

Despite existence of programs addressing prevention of mother to child transmission of HIV during lactation for over a decade, Kenya has continued witnessinga slow reduction in cases of HIV positive infants. The problem has been confounded by cultural and social differences that support different infant feeding practices which as largely led to failure to eliminate transmission of HIV from mother to child in the first months of life. Similarly, there is no published research on factors influencing infant feeding practices among HIV-positive mothers at Ahero sub-county hospital. Identification of determinants of feeding practices among mothers will give a platform to address existing gaps within the existing programs to help eliminate HIV transmission during feeding in the first twelve months of life.

IV. RESEARCH QUESTIONS

What proportion of HIV positive mothers is practicing exclusive breastfeeding for six months in Ahero?

What are the demographic factors influencing infant feeding practices among HIV-positive mothers attending the comprehensive care clinic program at Ahero?

What reproductive health factors influence infant feeding practices among HIV-positive mothers attending the comprehensive care clinic program at Ahero?

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What are the sociocultural factors thatinfluence infant feeding practices among HIV-positive mothers attending the comprehensive care clinic program at Ahero?

V. OBJECTIVES

Broad Objectives

To find out determinants of infant feeding practices among HIV-positive mothers attending the comprehensive care clinic program at Ahero sub-county hospital, Kenya.

Specific Objectives

To determine the proportion of HIV positive mothers practicing exclusive breastfeeding for six months in Ahero

To determine the demographic factors influencing infant feeding practices among HIV-positive mothers attending the comprehensive care clinic program at Ahero

To establish the reproductive health factorsinfluencing infant feeding practices among HIV-positive mothers attending the comprehensive care clinic program at Ahero

To determine socio-cultural factorsinfluencing infant feeding practices among HIV-positive mothers attending the comprehensive care clinic program at Ahero

VI. RESEARCH METHODOLOGY

Research Design

Cross-sectional descriptive study design was used to collect qualitative and quantitative data. This design was preferred because it is relatively cheap and had ability to collect diverse data within a short period required analyzing cause-effect relationships in representative subset of a population.

Study Area

The study was carried out at Ahero sub county hospital, which is situated in Kisumu County, Nyando Constituency next to Ahero Police Station along Kisumu – Busia road in Ahero town. The sub county hospital caters for a population of 162,000 people and is divided into 18 villages. It is one of the public health facilities in the sub county and it provides wide range of health services to the residence of an informal settlement. The hospital attends to a monthly average of 300 HIV positive patients with the Sub county HIV prevalence among pregnant women estimated at 7.4%(Brahmbhatt & Kigozi, 2006).

Table 1: statistics of infants exposed to HIV and infants confirmed HIV status in Ahero Sub-county

Data shows an increasing trend on infants confirmed HIV positive after six mothers of life

Year	Infants exposed to HIV	Exposed infants confirmed +ve at age 6 of months	Exposed infants confirmed -ve at age of 6 months	Percentage increase in cases of infants confirmed +ve at age of 6 months
2011	1507	271	1236	18%
2012	1867	392	1475	21%
2013	2269	544	1725	24%
2014	3012	993	2019	33%

Source: MOH; Ahero sub county hospital Health Records, 2011 to 2014

Sample Size Determination

The sample size for this study was determined using Fisher's formula (Fisher *et al.*, 1998)

$$n = \frac{z^2 p(1-p)}{d^2} = 384$$

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The sample size was adjusted using formula by Yamane (1967) recommended for populations of below 10000

$$nf = \frac{n}{1 + \frac{n}{N}}$$

final sample size = **168**

Data collection Tools

A questionnaire, a key informant interview schedule and focused group discussion was used to collect data from the respondents.Data from the HIV positive mothers was collected with a researcher administered semi structured questionnaire as an exit interview to mothers attending CCC PMTCT clinic. Key informant interviews were conducted where the clinicians in charge of different CCC PMTCT programs were interviewed. Focused group discussion was conducted during the group teaching sessions among the HIV positive mothers.

Ethical Considerations

Approval to carry out the study was sought from Kisumu County Administration. The researcher also sought authority to conduct the study from the Ahero sub county hospital administration. Informed consent was obtained from the entire respondent attending comprehensive clinic. The confidentiality was observed by use of codes/ numbers instead of names.

VII. RESULTS

Respondents Socio-demographic characteristics

Majority of mothers living with HIV were aged between 26 – 35 years (51%), with highest level of education being primary school (51%), Christians by religion (81%), married (45%) and with no reliable source of income (57%) as shown in **table 2.**

Table 2: Respondents Socio-demographic characteristics

VARIABLE	CATEGORY	Frequency (n)	%
AGE (YEARS)			
	15 - 25	17	10.16
	26 - 35	86	51.4
	36 - 49	65	38.44
HIGHEST LEVEL OF EDUCATION			
	None	9	5.70
	Primary	87	51.60
	Secondary	53	31.30
	Post-secondary	19	11.90
RELIGION			
	Christian	136	81.10
	Muslim	17	10.10
	Others	15	8.80
MARITAL STATUS			
	Single	61	36.40
	Married	77	45.60
	Others	30	18
OCCUPATION			
	Student	23	13.70
	Unemployed	15	8.70
	Formal employment	17	10
	Self-employment	16	9.80
	Others	97	57.8

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Respondents infant feeding practices

Study respondents infant feeding practices were explored on whether they practiced exclusive breastfeeding or had opted for a different method or mixed feeding. 57% of study respondents practiced exclusive breastfeeding while 42% did not exclusively breastfeed their infants as shown in **figure 1.**

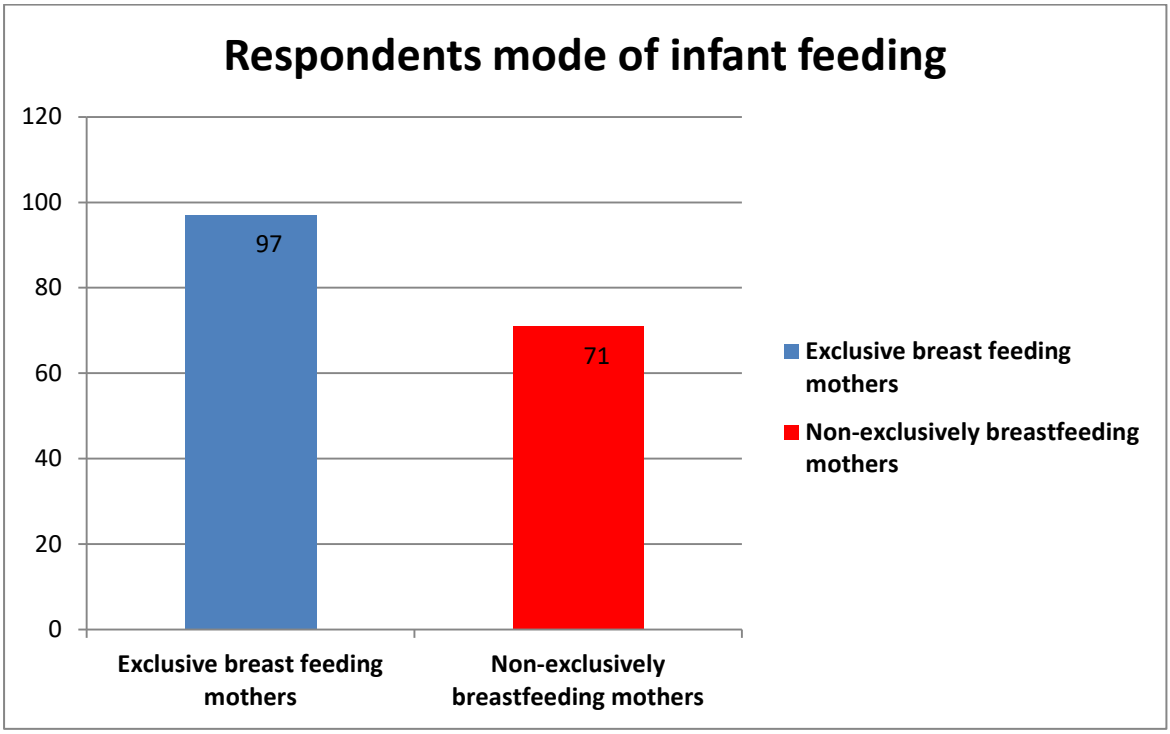

Figure 1: respondents' mode of infant feeding

Statistical Significance of respondents' socio-demographic characteristics and mode of infant feeding (Chi Square test)

As shown in table three, none of the explored socio-demographic characteristics was significantly associated with mode of infant feeding

Table 3: Significant demographic characteristics on choice of mode of infant feeding

VARIABLE	CATEGORY	EXCLUSIVELY B/F	NOT EXCLUSIVELY B/F	P – VALUE	X^2	DF
		Frequency (n)	Frequency (n)			
AGE (YEARS)						
	15 – 25	10	7	0.99	0.01	2
	26 – 35	50	37			
	36 – 49	37	27			
HIGHEST LEVEL OF EDUCATION						
	NONE	7	6	0.95	0.37	3
	PRIMARY	49	34			
	SECONDARY	30	23			
	POST SECONDARY	12	7			
RELIGION						
	CHRISTIAN	79	57	0.98	0.02	2
	MUSLIM	10	7			

	OTHERS	9	6			
MARITAL STATUS						
	SINGLE	35	26	0.96	0.07	2
	MARRIED	44	33			
	OTHERS	18	12			
OCCUPATION						
	STUDENT	13	10	0.99	0.17	4
	UNEMPLOYED	9	6			
	FORMAL EMPLOYED	10	7			
	SELF EMPLOYED	10	6			
	OTHERS	56	41			

Influence of Gestation at First ANC visit on mode of infant feeding

As shown in **figure 2**, majority of HIV positive pregnant women attended their first antenatal care visit between the twenty fourth weeks and the thirty fourth week (58%). Mothers who had visited ANC clinic before the twenty fourth week had the least proportion of women not exclusively breast feeding compared to the other cohort proportions with 94% of this category practicing exclusive breast feeding.

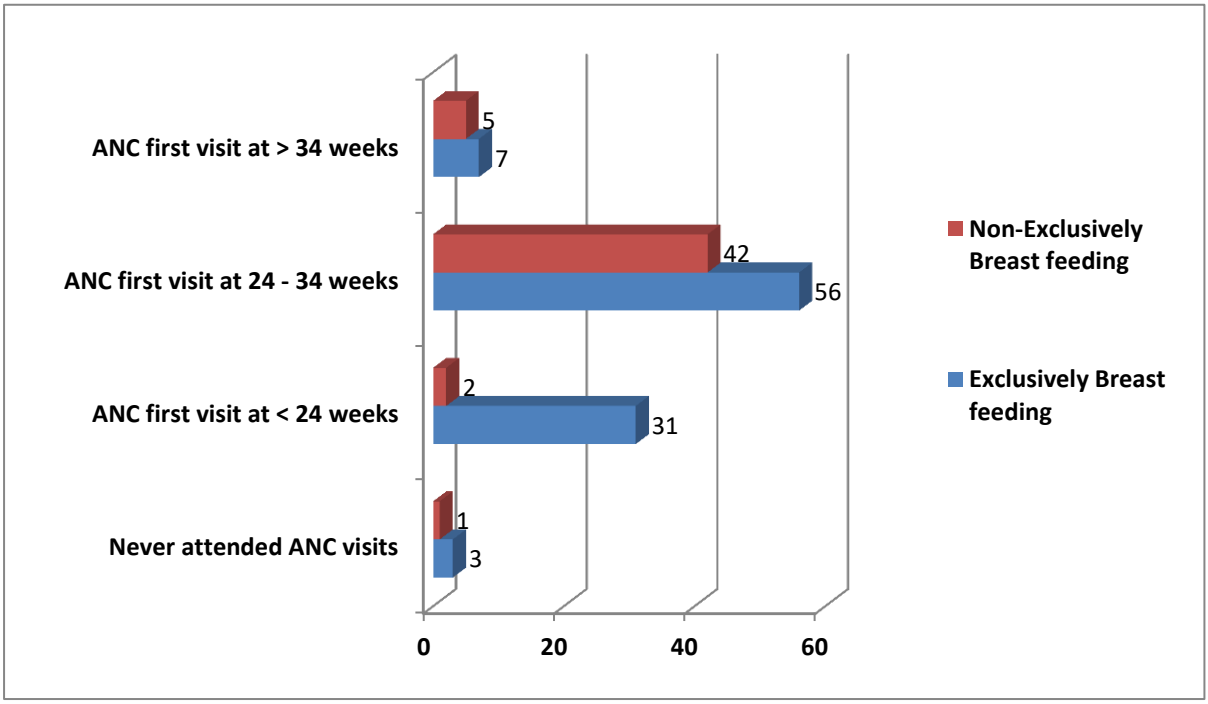

Figure 2: Influence of Gestation at First ANC visit on mode of infant feeding

Influence of other social factors on choice of mode of infant feeding

Other social factors were explored on their influence on mode of infant feeding among HIV positive mothers. Health care provider, community, family members, respondent economic status and the HIV status itself were explored on their potential influence on choice of mode of infant feeding among the HIV positive mothers. Figure 3 shows the various outcomes on possible levels of influence. Majority of respondents chose the mode of infant feeding whole due to their HIV status (40%) while others had other influences on choice of mode.

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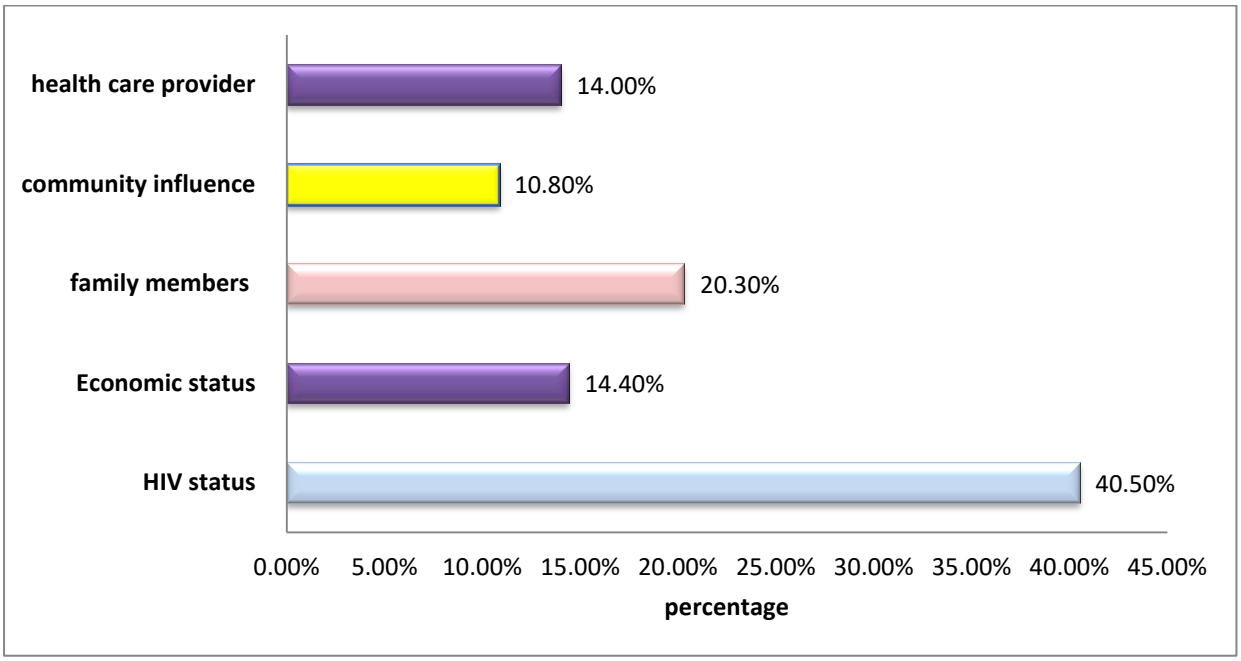

Figure 4: Influence of social factors on choice of mode of infant feeding

Proportion of respondents on ante retroviral drugs

Among the interviewed respondents, 98.8% had already commenced ART while only 1.2% had not been started on ART treatment as shown on **figure 4.**

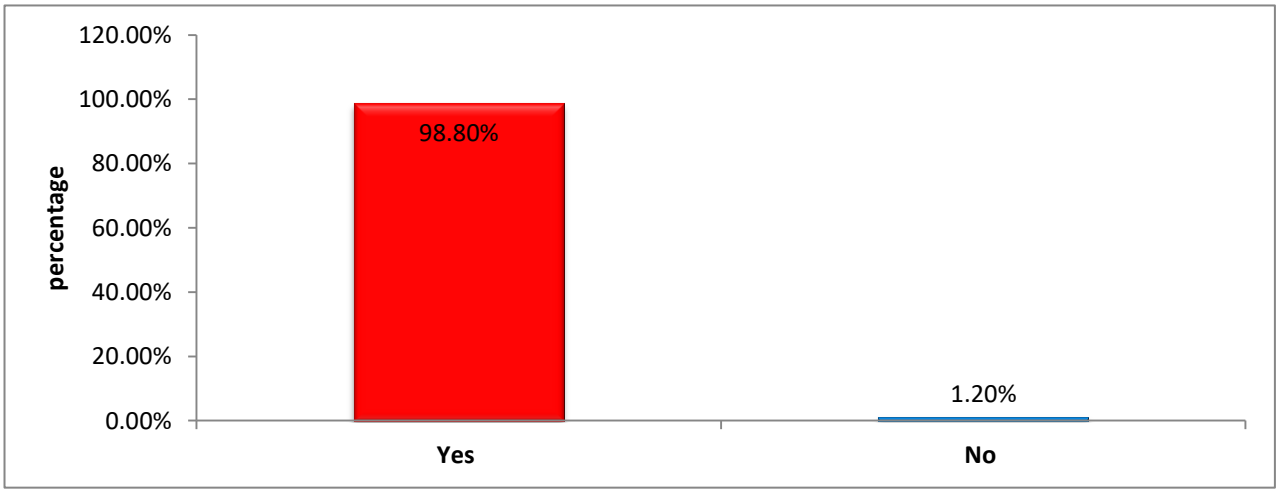

Figure 5: Respondents' Antiretroviral treatment status

VIII. DISCUSSION

Majority of women living with HIV and giving birth fall under the age of 35 years, with majority having the primary school as the highest level of education married and of unstable source of income. The socio-demographic characteristics of respondents show consistency with other surveys in Kenya which indicate majority of women contract HIV before the age of thirty years, are in marriage and lack stable source of income (KDHS, 2008-2009, KDHS 2014, KAIS, 2012/2014). Findings show that only 57.50% of the respondents breast-fed their babies exclusively. Among the respondents who practiced mixed infant feeding (42.2%) nearly all (92.7%)reported that they perceived breast milk was "not enough" for the baby. The findings further show that 54% continued to breastfeed after six months. The study finding is in agreement with Guinan & Levito (2005) that showed most of the mother breastfed their babies with majority continued to breastfeed

their babies after six months, which contributes cases of vertical transmission. The study furtherreviewed that majority of the respondent 40.50% were influenced by their HIV status, with others influenced by family members, economic status, health care providers and by their community. A similar study (Thairu, 2000) revealed most of the mothers were influenced by their HIV status on choosing mode of infant feeding. Thecost implication on mode of infant feeding would significantly influence decision of infant feedingwith84% of respondents reporting cost would influence decision on choice of mode of feeding with similar studies (kabubo et al, 2009)observing thatinfant feeding had cost implications and greatly influenced maternal choice on mode of feeding, particularly evident among HIV mothers in low resource settings.Nearly all of the mothers attended antenatal clinic and they started ANC at gestation less than 23 weeks with nearly all mothers having advised about the mode of feeding therefore all mothers were informed on the mode of feeding appropriate for their infants. Molyneux (2002) on a similar study observed that, majority of HIV mothers attended antenatal clinic and health education during antenatal clinic has led to informed decision among HIV mothers on the mode of infant feeding practices.

All mothers attended comprehensive care clinic (CCC) and all the mothers were taught on infant feeding practice during their CCC attendance corresponding to other studies on CCC attendance among HIV lactating mothers(Manhart, 2000) which showed that mothers attending comprehensive care clinic were frequently taught and reminded on the appropriate mode of infant feeding**.** Thus, majority of the mothers with infant less that 12 months practice exclusive breastfeeding following education on mode of feeding with majority already on antiretroviral therapy (98.80%)as similarly observed in other studies (Nduati, 2009) whichreviewed that mother who adhered to medication also adhered to the mode of feeding hence reducing chances of infecting their children.

IX. CONCLUSION AND RECOMMENDATIONS

The study concluded that, majority of women living with HIV and giving birth are below 35 years of age, highest level of education at primary level, married and with unstable source of income. The study further reviewed that, despite good antenatal care visit among HIV positive mothers with majority first attendance before 24 weeks of gestation, mixed feeding was still prevalent among the mothers which still increased the risk of mother to child transmission of HIV despite majority being of antiretroviral therapy.

The study recommends that,home visiting for follow up on infant feeding practices by health care professionals and community health workers was key to reduced number of HIV exposed infants being introduced to mix feeding to reduce the prevalence and incidence of mother to child transmission of HIV during lactation.Another study with a bigger sample size and more service delivery points in different counties needs to be conducted for a generalization of infant feeding practices among HIV positive mothers to be done.

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