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Analysis of some Socio-Demographic Factors Influencing Choices of Infant Feeding Options among HIV positive mothers in Cross River State, Nigeria

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Abstract

Making the choices of feeding the new infant of HIV+ mothers is influenced by a lot of factors the purpose of this paper is to take an in-depth examination of some sociodemographic factors influencing the choices of infant feeding options among HIV+ mothers in two health facilities: General Hospital Ogoja and Roman Catholic Mission (RCM) Maternity Hospital Ogoja, Cross River State, Nigeria. Using descriptive research design, a purposeful sample of 136 HIV+ mothers were sampled and administered with structured questionnaire and semi structured interview. Data generated was analyzed using Chi Square statistical method. The result of the analysis shows that the calculated Chi square value is 54.600 at 0.05 level significance with a degree of freedom 2, is higher than the critical table value of 5.991, the result is statistically significant implying that there are some socio-demographic factors which

influences the choices of infant feeding options among HIV+ mothers in Ogoja Local Government Area of Cross River State Nigeria. To further buttress how significant each factor influence the choices of infant feeding options among HIV + mothers, another Chi square analysis was further carried out and the result shows that seven socio-demographic factors marital status (x^2 20.924, p<.05), religious status (x^2 14.972, p<.05), mother's educational qualification, (x^2 21.324, p<.0.5), mother's occupation (x^2 21.970, p. <.05), husband's occupation (x^2 17.704, p<.05), spouses monthly income (x^2 14.862, p<.05), significantly influence the respondents choice of infant feeding options; whereas the age of the respondents (x^2 = 7.001, p>.05) is not statistically significant factor in influencing the respondents' choice of infant feeding options. The research therefore concluded that sociodemographic factors influences the choices of infant feeding options among HIV+ mothers in Ogoja Local Government Area of Cross River State. It was therefore recommended among others that HIV+ mothers should always make infant feeding choices that can be affordable, feasible, accessible and sustainable.

Keywords: sociodemographic factors, HIV+ mothers, infant feeding and PMTCT.

Introduction

Infant feeding has been a most debated topic over the years, this became more advanced even with the recent discovery of the effect HIV has on mother and their infant's children. This is more so because there is the serious crusade advocating for exclusive feeding of infants by lactating mothers for at least six months. It is a good practice for infants to be fed by their mothers for a prolong period of six months, but the health status of the mother may not really support the practice of exclusive breastfeeding, even if it does, how long can that be carried out, where it becomes imperative that alternative sources of infant feeding should be adopted, there are some factors that may hinder or encourage such practices. It is however observed that most infant feeding mothers are faced with the dilemma of feeding their children during their birth especially HIV positive mothers and mothers whose health status may not permit this practice.

In a study to investigate the infant feeding options/practices among HIV positive mothers and its determinants in selected health institutions in Addis Ababa, Ethiopia, using simple random

sampling to select a sample of 100. The study used Questionnaire for data collection, while Chi-square statistic was used for analysis, Maru and Haidar, (2009), found out that formula or replacement feeding (RF) for infants of HIV positive mothers was the most recommended choice because the risks of HIV transmission far outweighs morbidity and mortality resulting from replacement foods in developed countries. The authors further found out that in the developing world, the debate continues regarding the benefits and risks of replacement versus breast-feeding, where nearly half of the mothers studied, practiced exclusive replacement feeding, while exclusive breast feeding is slightly greater than a quarter. This result concurred with findings in Botswana, Zambia, Nigeria, South Africa and Uganda studies where 50% of HIV positive mothers used exclusive replacement feeding and 30-40% exclusive breast feeding and few (5%) practiced expressed breast milk feeding compared to the various practices of infant feeding. The authors concluded by demonstrating that the major predictors for making safer choices of infant feeding options ranges from maternal attributes such as mode of delivery, positive attitudes towards infant feeding, and disclosure of HIV status to spouse, household income, education and knowledge/awareness and infant illness. Hence, Adejuyigbe *et al.* (2008) recommended that to achieve success in exclusive choosing feeding options, mothers' decision should be respected, and pressuring the mother by the family/neighbors to introduce other food to the infant should stop. Furthermore, the risks involved in each infant feeding option should be communicated to the mother/father during clinical sessions to enable them make informed safer choices.

Ajayi, Hellandendu, Garba, Oyedele, Anyebe and Sani (2011) in their study on factors associated with the practice of exclusive breast feeding (EBF) among mothers in Kogi state, Nigeria. Using cluster sampling technique to select one town and one village from each of the 3 randomly selected LGA's with a sample size of 255 mothers. Questionnaire and interview methods were used to measure relationships and variability. Findings showed that the level of education played a major role (38%) in breast feeding. Mother's occupation (19.5%), age (14%), hours of work per day (21%). Result proves that educational level plays a significant role in mother's choice of infant feeding options.

In another qualitative study in Kenya, mothers' views on infant feeding options were investigated in a community by WHO, (2011), using 36 HIV positive mothers during focus group discussion session. Mothers were asked what alternative they would choose if they hypothetically tested positive for HIV. A set of infant feeding options were presented to them. These options included: expressed and heat-treated breast milk, milk banks, goat's milk, wet

nursing, replacement feeding including infant formula and cow's milk. Women were requested to give their opinion on all of the options presented. Descriptive statistic was used and they found out that customs, availability of information, income to afford replacement feeding including infant feeding formula were some factors that affected their choice of decisions on infant feeding. WHO, (2011), concluded that it was advisable to use feeding options that are most economically affordable, feasible, culturally acceptable and convenient, sustainable and safe to the HIV positive mothers.

Chopra, *et al.* (2005) in their descriptive study on preventing HIV transmission to children and quality of counseling mothers in South Africa. 360 mothers were studied using accidental sampling with structured questionnaire to collect data. Chi-square was used to analyze data. It was discovered that counseling of HIV positive mothers on cow's milk feeding would be appropriate for those who produce the milk or have sufficient money to buy it, and prevention of mother to child transmission (PMTCT) programs should endeavor to improve the supply of cow's milk in the area, and that women should be guided on how to prepare and modify cow's milk and micronutrient supplements should be made available for them. This demands the need for a multi-dimensional behavioral change strategy involving spouses, mothers, family members and significant community members. This they said can be achieved through Health Education/ awareness program in the communities. Such health education or awareness efforts should focus not only on narrowly promoting exclusive breast feeding and exclusive replacement feeding amongst HIV-positive women, but on changing the knowledge, perception, understanding and attitudes of families and communities and explicitly dealing with the issue of mixed feeding. The study showed that socio-cultural factors militating against exclusive replacement feeding are amenable to interventions such as maternal and community education and counseling, as well as training of health workers on infant feeding support. The authors however recommended that the involvement of a male partner in antenatal care should be integrated into public health system. This is important if the disclosure of HIV status is to be promoted since non-disclosure to partners often encourages mixed feeding and poor adherence to replacement feeding. Partners should be counseled along with their wives at the time of testing. When situations like this occurs, effective measures to support both husband and wife must also be put in place to prevent the negative effects of this on their relationship (Aidam, Escamilla, Lartey, 2005; AIHA, 2008).

Abusomwan (2011) conducted a study on infant feeding choices and practice of HIV positive mothers at lower Umfolozi District War Memorial Hospital, Empangene, KwaZulu-Natal

Province, using descriptive cross-sectional study in 3 areas of the poor-rural communities. Data was obtained by the use of structured questionnaire administration to 395 mothers attending prevention of mother to child transmission (PMTCT) clinic 6 weeks after birth. Result showed 78.2% who choose exclusive breast feeding (EBF), replacement feeding (RF) 19.4% and mixed feeding 2.5%. The study demonstrated that EBF is the predominant choice and RF was common among few HIV positive mothers.

KMOH (2007) conducted a study to determine the factors influencing infant and young child feeding choices and practices among HIV positive mothers with children below 24 months of age in Kibera, Nairobi. The study determined; maternal knowledge and attitude on appropriate infant feeding practices in the absence of HIV/AIDS and in view of mother to child transmission of HIV/AIDS; Socio-demographic, economic, health-related and cultural factors affecting infant feeding practices among HIV positive mothers and to compare HIV-positive mothers with different feeding methods with regard to these factors. Using descriptive cross sectional study in Kibera, Nairobi between January 2007 and March 2007, the study population included HIV positive mothers living in Kibera with infants aged 0-24 months. The study used both quantitative and qualitative data collection techniques. Variables that were found to be statistically significant were then fed into a logistic regression model.

After the logistic regression analysis, the study revealed that factors found to be independently associated with breastfeeding or non-breastfeeding were Place of delivery, time when mother came to know about her HIV status and previous history of HIV positive child. Marital status, period when infant feeding counseling was done and the number of times counseling was done was also factors strongly associated with breast feeding or non-breastfeeding. The study therefore concluded that infant breastfeeding was the commonest infant feeding choices among HIV positive mothers in Kibera, while home delivery, knowledge of HIV status after delivery and previous history of HIV negative child (ren) were found to be independently associated with breastfeeding. The study further found out that majority of the mothers who breastfed practiced exclusive breast feeding varying from 1-6 months, mixed infant feeding practice were less common and was mostly due to stigma and cultural practices. It was further gathered that non-breast feeding was mostly due to; Hospital deliveries, knowledge of HIV status before pregnancy and previous history of HIV positive child (ren). The authors therefore concluded that the knowledge of the respondents on PMTCT of HIV/AIDS and infant feeding counseling were found to be important in

influencing infant feeding choices (Becquet, *et al.*, 2005; Bentley, *et al.*, 2005; Branson, *et al.*, 2006; Anyebe, *et al*. 2011; Didiza-Maganga, 2012).

Swarts, Kruger and Dolman (2010) conducted a study to determine factors influencing choices of breast- versus the formula-feeding of infants in order to understand where the focus should lie in the promotion of breastfeeding in Lower Umfolozi District War Memorial Hospital, KwaZulu-Natal, using a well-structured questionnaire which was completed by 100 women and focus-group discussions were held with 12 women who delivered babies at the Lower Umfolozi District War Memorial Hospital (LUDWM) in Kwazulu-Natal. The result of the finding shows that most of the mothers (72%) chose breastfeeding and 58% intended to breastfeed for only 6 months. It was also discovered that one-third (33%) of the women were influenced by health care professionals and 44% of the mothers made their own decisions in their feeding method. Only one participant stated that she chose formula-feeding due to her HIV-positive status, but in the focus-group discussions, the fear of transmission of HIV through breast-milk was stated as an important reason why mothers chose replacement-feeding (Hofmann, *et al.*, 2009; Horstmann, *et al.*, 2010; Didiza-Maganga, 2012).

Significantly more HIV-infected than uninfected mothers chose replacement-feeding as the feeding method and mothers who chose breastfeeding were significantly older than mothers who selected replacement-feeding. HIV positive breastfeeding mothers made their infant-feeding decision earlier than those who chose replacement-feeding. It was further discovered that majority of the women in this study came from a poor socio-economic background and they could not afford formula food for their infants safely and sustainably. Many of these infants are of mothers who do not have access to portable and safe drinking water and flush toilets. These mothers may then get diarrhea, toilet and water borne infections and malnutrition that may even lead to death. Most of the mothers in this study received information about infant feeding methods from health professionals and some of the mothers were influenced in their choice of early feeding method by health care workers, or relatives.

The majority of the mothers stated that they made their own decisions even after receiving information about infant feeding choices. From the focus group discussions it became clear that the fear of mother to child transmission of HIV infection was regarded as an important factor in the decision of an infant feeding method. The focus group discussion results also revealed positive feelings towards breastfeeding and an awareness of the disadvantages of formula feeding, the respondent's opinion that mothers who give formula will be stigmatized

as being HIV-infected were factors causing women to choose breastfeeding. Hence health professionals should promote exclusive breast feeding (EBF) for 6 months even when there is no high prevalence (Kakute, *et al.,* 2005; Joan, *et al.,* 2009; Horstmann, *et al.,* 2010).

In another cross-sectional study conducted by Bezner-Kerr, Dakishon, Shumba, Mshachi and Chirwa (2007) on the influence of family members on the choices of infant feeding practices/ options among HIV-positive mothers in Addis Ababa Region. Accidental sampling technique was used with structured questionnaire to collect data. Data was analyzed using descriptive statistic. The authors observed that most family members are not accommodating and most often are against the success of the marriages of their male children, so they may serve as a negative influence on the choices of infant feeding options. The authors further observed that most fathers and grandmothers demonstrated a good understanding of the link between breastfeeding and HIV infection and the benefit of replacement feeding in reducing the risk of HIV transmission from mother to child. Despite the facts that these family members understood these linkages, they still argued for the continuation of breastfeeding for reasons of mother-to-child bonding. The family members under study argued that "non-breast fed children miss the motherly love, bonding and communication that is usually created between the mother and the baby in the course of breastfeeding, through voice, smell and touch". In addition, they also supported mixed-feeding (breast-feeding and the introduction of water and foods) during infancy based on cultural norms "the new born baby is welcomed by giving water or herbal mixture for it to become part of the family as custom demands. Such traditional medicines have the potency of making the baby to fight against evil spirits which may come its way". Following their traditional belief or norm, the respondents in this study further observed that it is wrong to exclusively breastfeed a new born child since giving water to the new born baby is just like one welcoming a visitor or a stranger to the home with water"

Heck, Braveman, Cubbin, Cheviz and Kiely (2005) conducted a study on socioeconomic status of HIV positive mothers and breastfeeding initiative among a large random sample of ethnically diverse women in California. The study used logistic regression analysis to examine the influence of a range of socioeconomic factors on the chances of ever breastfeeding among a stratified random sample of 10,519 women delivering live births in California for 1999 through 2001. Measures of socioeconomic status included family income as a percentage of the federal poverty level, maternal education, paternal education, maternal occupation, and paternal occupation. The authors observed that there was a marked

socioeconomic gradient in breastfeeding, since women with higher family incomes, those who had or whose partners had higher education levels, and women who had or whose partners had professional or executive occupations were more likely than their counterparts to breastfeed. After adjustment for many potential confounders, maternal and paternal education remained positively associated with breastfeeding, while income and occupation were no longer significant. Compared with other racial or ethnic groups, foreign-born women were the most likely to breastfeed. Kakute, et al., 2005; Kumwenda, *et al*., 2008; Lise & Bula, 2010; Magavero, *et al.,* 2011).

The authors concluded that the significant association of maternal and paternal education with breastfeeding, even after adjustment for income, occupation, and many other factors, suggests that social policies affecting educational attainment may be important factors in breastfeeding. Breastfeeding rates may be influenced by health education specifically or by more general levels of schooling among mothers and their partners. The continuing importance of racial/ethnic differences after adjustment for socioeconomic factors could reflect unmeasured socioeconomic effects, cultural differences, and/or policies in Latin American countries. The authors further concluded that partners occupational status, family income, educational status of the HIV positive mothers and their partners, socio-cultural factors, belief systems among others influences the choices of infant feeding options among HIV positive mothers.

Based on the report from the studies of Heck, *et al.* (2005), Laar and Govender (2011) conducted another study to assess the perspectives of HIV-positive mothers and family members (grand-mothers and fathers) on the infant feeding options recommended for HIV-infected mothers in South-Ghana. Using individual interviews with 40 HIV-positive mothers with infants aged 0 to 12 months and 6 focus group discussions with HIV-positive mothers, fathers and grandmothers of unknown status in two urban districts. The study found out that all infants born to HIV-positive mothers in both districts had been breastfed. Breastfeeding was initiated between three hours and three days following birth. While some of the infants had been exclusively breast-fed, none had been exclusively formula fed. The study found out that early mixed feeding patterns were deeply entrenched, but discovered barriers to exclusive replacement feeding by HIV-positive mothers to include cultural and familial influences, socio-economic factors including cost of infant formula, lack of access to fridges, clean water and fuel. Interventions designed to promote safer infant feeding among HIV infected mothers in these settings need to be mindful of these barriers (socio-economic, cultural and familial) that these women face. The study concluded that when making decisions on the infant feeding

choices for HIV positive mothers, the health status of the HIV positive mothers should be taken seriously into consideration.

Bloom, Golgobloom and Stevens (2008) in their comparative study carried out on factors affecting the HIV positive mother's choice of infant feeding methods. Using a purposive sampling with semi-structured interview to collect data. Data was analyzed with multiple regressions. They found out that compared with formula-feeding mothers, breast feeders were older and of higher socioeconomic status. The two groups did not differ significantly with respect to parity, prior abortions, pre-pregnancy employment, obstetrical condition or behavior at first contact with infants. Infants in the two groups showed no significant differences in gestational age, birth weight or apgar scores. Compared with formula-feeding mothers, breast feeders showed significantly greater tendencies to use advice or literature in choosing breast feeding; they made their feeding choice before pregnancy, and do not consider an alternative feeding method. They more frequently attend pre-natal classes; have a higher degree of coincidence between their choice (to breast feed) and preferences of their husbands and physicians. These differences were independent of age and of socioeconomic status. The study concluded that socio-demographic factors are active determinants of the choices of infant feeding options adopted by HIV positive mothers. This result helped in understanding social and cultural aspects of the choice of method for infant feeding among HIV positive mothers, and may be useful in designing programs to increase the prevalence of breast-feeding. It is in view of this that this research seek to analyze some socio-demographic factors influencing the choices of infant feeding options among HIV positive mothers in Cross River State, Nigeria.

Methodology

This research adopted the descriptive survey research design for this study; the research design approach is present-oriented and based on on-going event as it provides a detailed description of existing factors influencing infant feeding options of HIV positive mothers. The study is located in two health facilities General Hospital Ogoja and Roman Catholic Mission (RCM) Maternity Hospital are situated in Ogoja Local Government Area of Cross River State, Nigeria. Ogoja local government area is one of the 18 local government areas of Cross River State, Nigeria. Ogoja Local Government Area is bounded in the north, south, east, and west by Bekwarra, Obudu, Ikom, Boki and Yala Local Government Areas of Cross River

State, Nigeria respectively. The people of Ogoja are predominantly farmers; pockets of civil and public servants, traders, artisans among others, they grow crops like yam, cassava, potato, rice, millet, guinea corn, groundnut, cocoyam, water yam, palm oil, plantain and banana. Fairly large populations of the study area are students.

The population for this study included all HIV positive mothers who were registered and were accessing Anti Retro-Viral Therapy (ART) or attending support group meetings in the health facilities (General Hospital Ogoja, and RCM Maternity Hospital, Ogoja) from January-December 2011-2013. They were 92 registered HIV positive mothers in General Hospital Ogoja and 44 from RCM Hospital, making a total of 136 registered HIV positive mothers. The sample comprising all the 136 registered HIV positive mothers in General Hospital and RCM Maternity Hospital Ogoja were all used for the study. The criteria for the inclusion of respondents include:

- ❖ Mothers must be HIV positive and attending prevention of mother to child transmission and antiretroviral therapies in General Hospital Ogoja and RCM Maternity Hospital centers in Ogoja, Cross River State within the periods under study.
- ❖ Mothers must be nursing a child between the ages of 1-36 months old
- ❖ HIV positive mothers who were not mentally challenged
- ❖ HIV positive mothers who gave informed consent to participate in the research

The instrument for data collection was a structured questionnaire. The questionnaire was generated from reviewed literature based on the objectives set for the study. The instrument has two sections. Section A comprised of eight (8) items on socio-demographic characteristic of respondents. Section B was made up of ten (10) items scored on Yes (1) and No (0) rating scale.

The researcher and a trained research assistants administered the 136 copies of the questionnaire directly to respondents during their support group meetings and their routine assessment of ARVs and collected the filled questionnaire same day. Where they cannot read, trained assistants were made to interpret questions to their understanding. The researcher and assistants then filled the questionnaires according to their responses within one month. Data generated was analyzed using Chi square statistical technique with the Statistical Package for Social Sciences (SPSS) 21.0 version.

Results and discussion

The result on table 1 shows that the calculated Chi square value is 54.600 at 0.05 level significance with a degree of freedom 2, while the critical table value is 5.991, from the analysis, the result is significant implying that socio-demographic factors influences the choices of infant feeding options among HIV+ mothers in Ogoja Local Government Area of Cross River State Nigeria. To further buttress how significant each of the sociodemographic factor influence the choices of infant feeding options among HIV + mothers, another Chi square analysis was further carried out to see how each of these variables influences the choices of infant feeding options.

Table 1: Summary of Chi Square analysis of the relationship between socio-demographic factors and choice of infant feeding options among HIV+ mothers (N=136)

S/NO	Variable Type	Response options		Total	N	X^2	Sig
		Yes	No				
1	Socio-demographic factors	51	35	86			
	Infant feeding options	34	16	50	136	54.600[a]	.05
	Total	85	51	136			

*Significant at .05; df = 2; X^{2}-critical = 5.991

Table 2: seven socio-demographic factors were considered, Marital status (x^2 20.924, p<.05), religious status (x^2 = 14.972, p<.05), mother's educational qualification, (x^2 21.324, p<.0.5), mother's occupation (x^2 = 21.970, p. <.05), husband's occupation (x^2 = 17.704, p<.05), monthly income (x^2 = 14.862, p<.05), significantly influence the respondents choice of infant feeding options. Indeed age of the respondents (x^2 = 7.001, p>.05) is not statistically significant in influencing the respondents' choice of infant feeding options.

The findings of this study showed that marital status (x^2 =20.924, P≤.05) , religious status (x^2 =14.972, P≤.05), mother's educational qualification, (x^2 21.324, p<.0.5), mother's occupation (x^2 = 21.970, p. <.05), husband's occupation (x^2 = 17.704, p<.05), monthly income (x^2 = 14.862, p<.05), influenced infant feeding options. It is not a surprised observation because it

is a general opinion in the society that once a woman is married, she dances to marital tunes. Again today, people rely so much on their religious beliefs. Educational status of both husband and wife, occupation status of husband and wife and the monthly income of both the husband and wife determine the choice of infant feeding options to be adopted by HIV+ mothers in the feeding of their infant child. These findings are in agreement with the study of Coutsoudis (2005) and Coutsoudis, Coovadia, Pillary and Kuhn (2005) who found out that religious beliefs, occupation, marital status, education and income level of spouse and age influence the choice of infant feeding options.

Table 2: summary of Chi Square analysis of the influence of socio-demographic factors on infant feeding options among HIV+ mothers in Ogoja LGA(n= 136).

Socio-demographic factors		**Feeding options**					
		EBF	Replacement feeding	Mixed	Df	X^2	P-value
Educational qualification							
i.	Primary education	24	6	9			
ii.	Secondary education	43	6	20	4	21.324	.007
iii.	Tertiary education	20	2	6			
Total		**87**	**14**	**35**			
Marital status							
i.	Single	24	2	2			
ii.	Married	63	12	28	4	20.924	.00
iii.	Widow	0	0	5			
Total		**87**	**14**	**35**			
Religious status							
i.	Christian	85	14	28			
ii.	Moslem	2	0	4	4	14.972	.005

iii.	Traditionalist	0	0	3			
Total		**87**	**14**	**35**			
Occupation							
i.	Farming	17	6	9			
ii.	Businesswomen	33	4	14			
iii.	Nursing	4	0	0			
iv.	House wife	18	4	8	10	21.970	.008
v.	Public servant	7	0	4			
vi.	Teacher/lecturer	8	0	0			
Total		**87**	**14**	**35**			
Husband's occupation							
i.	Farmer	11	2	9			
ii.	Civil servant	21	4	10			
iii.	Self employed	32	6	10	8	17.704	.004
iv.	Artisan	16	2	6			
v.	Others	7	0	0			
Total		**87**	**14**	**35**			
Monthly income							
i.	N1000-10000	63	12	27			
ii.	N11000-20000	12	2	6			
iii.	N21000-30000	6	0	2	8	14.862	.027
iv.	N31000-40000	4	0	0			

v.	N41000-50000	2	0	0			
Total		**87**	**14**	**35**			
Age of respondent							
i.	15-25 years	23	2	8			
ii.	26-35 years	50	12	25			
iii.	36-45 years	12	0	2	6	7.001	.321
iv.	Over 45 years	2	0	0			
Total		**87**	**14**	**35**			

*Significant at .05 levels.

However, findings disagree with that of Maru and Haider (2009) where household cost, spousal disclosure and educational qualification influenced safer choices of infant feeding options. Given this result, in this case the age of spouse and the HIV + mothers did not significantly influenced the choice of infant feeding option among HIV+ mothers. It is a virile belief that the extent one's educational status enhances the person's occupation and income and the level of one's occupation also determine his income and the level of one's income determines his standard of living. This is why in most cases; the income available to one to spend puts him in the economic strata he belongs. The implication of this finding is that educated people read widely and are informed about their surroundings, they get information faster than other s and are likely to be informed about new challenges and opportunities in life. Income level also guarantee ones livelihood, if there is income to be spent, most HIV+ mothers will prefer other infant feeding choices knowing fully well that the possibility of transmitting the virus to their infant is very high during breastfeeding, and slimmer if the use of replacement feeding is encouraged.

The finding of this study is in line with the earlier finding of Abiona, *et al.* (2006) who observed that most HIV+ mothers were unable to stand by their decision not to mix-feed their infant children, but their views are premised on the fact that most of the mothers were poorly educated and must take their husband's or mother n law or father in-law's decision concerning the feeding of their infant children very seriously. Their reason for not being able to stand by their decisions varied from fear of their HIV status being discovered and their

subordinate role and lack of autonomy over decision making including their husbands and mothers-in-law. One key finding of this study is that, families (that is fathers, grandmothers) friends and community members play a leading role in infant feeding choices and in the context of HIV infection through breastfeeding, this often leads to non-compliance with infant feeding guidelines, demanding the need for a multi-dimensional behavioral change strategy involving mothers, family members and significant community members. While these group of mothers could not stand by their decisions, educated mothers, whose spouses are educated with better paying occupations and high monthly income give their wives support to enable them cope with daunting challenges of feeding their infant especially when their mothers are HIV +.

This study supports to a large extent the earlier report of Maru and Haidar, (2009), who recommended that because HIV+ mothers should be allowed to make inform decisions especially those who are educated, to achieve success in exclusively choosing infant feeding options, HIV+ mothers' decision should be respected, and pressuring the mother by the family/neighbors to introduce other food to the infant should stop. Furthermore, the risks involved in each infant feeding option should be communicated to the mother/father during clinical sessions to enable them make informed safer choices. Based on this, Chopra, *et al.* (2005) recommended the involvement of the male partner in antenatal care, this should be integrated into public health system. This is important if the disclosure of HIV status is to be promoted since non-disclosure to partners often encourages mixed feeding and poor adherence to replacement feeding. Partners should be counseled along with their wives at the time of testing. When situations like this occurs, effective measures to support both husband and wife must also be put in place to prevent the negative effects of this on their relationship.

It was on the basis of this finding that Sadoh, *et al.* (2008) opined that exclusive breastfeeding is the ideal practice among HIV infected mothers in the first six months of life, as recommended currently, followed by replacement feeding (any formula food rather than breast milk) depending on the acceptability, feasibility, affordability, sustainability and safety (AFASS) of the later. However recent studies have came to remove the insistence of exclusive breast feeding for infant of mothers who are HIV+, these recommendations are predicted on the transmissibility of HIV via breast milk. It is imperative to mention that several factors affect infant feeding practices such as non-affordability, non availability of portable drinking water and lack of information, especially in those who do not know their HIV status, but if parent of infants from HV+ mothers are able to acquire these replacement feeding, it is far

better than exclusive breast feeding. It is in this vain that Chopra, Doherty and Jackson (2005) found out that for HIV positive mothers to choose their infant feeding options, their choices may be based on; family income, maternal and paternal education, maternal age, access to storage facilities, access to clean drinking water and adequate sanitation and cultural values (Sethuraman, *et al.*, 2011).

Conclusion

This study however concluded that Okelle (2011) Throne, Semenenko, Pilipenko & Malyuta, (2009) had earlier stated that since infant have specific nutritional needs and are born with underdeveloped immune system, it is therefore necessary that they need food like breast milk to meet these demands, but these underdeveloped immune system of the infants can become a gateway for the transmission of HIV from their lactating mother during breast feeding, hence it is strongly advised that HIV+ mothers should adopt replacement feeding which is safer, affordable, feasible and sustainable only if they can afford it. The study therefore concluded that religious status, education, occupation, marital status and monthly income are the most significant factors influencing the choices of infant feeding options among HIV + positive mothers. Therefore these factors can be improved to exclusively adopt replacement feeding to prevent mother to child transmission during breast feeding.

Recommendations

Proper awareness should be done to both partners during antenatal care on the different choices of infant feeding and their attendant problems

HIV+ palliative intervention should be done by government with replacement feeding procured for HIV+ mothers who may not or cannot afford to buy replacement feed for their children

Outside factory produced replacement feeding, communities should encourage their women to adopt local feeding options like the use of soybeans, millet and corn for the production of infant food, these locally produced food are more nutritionally balanced and safe and affordable than clone food.

Spouses should be accompanied to antenatal care sessions with their spouses, regular testing and counseling should be encouraged by couples from time to time to gain confidence of spouse, this will encourage the disclosure of HIV+ when it occurs

There should be the provision of aids to HIV+ positive mother by organization or government to help HIV+ mothers cope with the challenges of feeding their infant.

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