

DETERMINANTS OF ADHERENCE TO THE
EXCLUSIVE BREAST FEEDING OPTION AMONG HIV
POSITIVE MOTHERS IN EIGHT SELECTED HEALTH
CENTRES IN LUSAKA DISTRICT

By

Chisela Kaliwile, BA in Social Sciences

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ABSTRACT

Exclusive breastfeeding (EBF) practice in the context of Human Immunodeficiency Virus (HIV) remains a challenge especially when the infant is HIV negative because breastmilk may contain HIV. Some studies have shown a consistent lower risk postnatal HIV transmission from mother to infant of about 4% among exclusively breastfed infants (Kuhn et. al 2009 & WHO 2009). In Zambia, “EBF is recommended for HIV-infected women for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) for them and their infants before that time” (MOH & NFNC 2007:3). The study was motivated by inadequacies in reviewed literature on determinants of adherence to EBF among HIV infected women relating to design, setting and scope. The overall objective was to assess determinants of adherence among HIV infected mothers aged 18 to 49 years with children aged 0 to 12 months in eight selected health centres in Lusaka district.

The design was cross sectional and used quantitative and qualitative methods. Study sites were stratified into high and medium centres. Sites and respondents were selected using simple random sampling. Quantitative sample included 400 respondents. Qualitative data was collected from Focus Group Discussions (FGDs) and In-depth Interviews (IDIs) from 44 mothers and 8 health workers respectively. Questionnaire and questionnaire guides were used to collect quantitative and qualitative data respectively. Quantitative data was analysed using Statistical Package for Social Sciences. Associations were derived using Chi-square test and were adjusted using logistic regression. Statistical significance level was set at P-value less than 0.05. Framework analysis was used to analyse qualitative data. Study design limited the study as respondent’s feeding practices could not be followed up at various stages.

Findings showed that marital status and breast condition related illnesses determined adherence to EBF. For example married mothers were 2.88 times more likely to report adherence than their single counterparts. Mothers who did not suffer from any form of breast condition were 5.34 times more likely to report adherence compared to those who suffered from some form of breast condition. Other determinants were service, socio-economic and cultural related.

The study recommends that government should invest in strengthening the Infant and Young Child Feeding (IYCF) programme in the context of HIV. First, pre and in-service curricula for health workers should be reviewed and updated to include IYCF issues. Furthermore, male involvement, health centre and community support systems which focus on Preventing Mother-To-Child-Transmission (PMTCT) issues should be strengthened and expanded. Continued health workers’ capacity building regarding feeding in HIV context and provision of Job aids for use during counselling and nutrition education to ensure that consistent messages are passed on to the mothers. Issues of culture detrimental to feeding practices of mothers should be addressed by nutrition education. Future research should undertake a prospective study to follow-up baby-mother pairs’ feeding practices from birth up to six months of age so as to reduce on recall bias.

The study concludes that the main determinants of adherence to EBF were marital status, breast condition, counselling and nutrition education, socio-economic status and acceptability of breastfeeding as a cultural norm in relation to status disclosure.

DEDICATION

This report is dedicated to my daughter, Chita Kaliwile who supported me both morally and emotionally throughout the study period. It is also dedicated to my mother, Elena Mumbi Kaliwile who taught me from childhood that things do not just come like teeth in the mouth. She constantly reminded me that with God on my side and hardwork, everything was possible.

DECLARATION

I, Chisela Kaliwile, do hereby declare that this dissertation presented for Master of Public Health is my original work and has not been submitted either wholly or in part for a degree or Diploma at the University of Zambia or any other University.

Signed: Date:

Chisela Kaliwile

(Candidate)

Supervisors:

We, the undersigned have read this dissertation and have approved it for examination:

Dr. Likwa Ndonyo

Signature: Date:

Mr. Oliver Mweemba

Signature: Date:

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APPROVAL

This dissertation of Chisela Kaliwile is approved in partial fulfillment of the requirement for the award of a Masters of Public Health (MPH) by the University of Zambia.

Examiners

Name:..... Signature: Date:.....

Name:..... Signature: Date:

Name:..... Signature: Date:

Head of Department

Name:..... Signature:..... Date:.....

CERTIFICATE OF COMPLETION OF DISSERTATION

I....., hereby, certify that this dissertation is the product of my work and in submitting it for my Master of Public Health degree programme, further attest that it has not been submitted in part or whole to another university.

We, having supervised and read this dissertation, are satisfied that this is the original work of the author under whose name it is being presented. We confirm that this work is completely satisfactory and is ready for presentation to the examiners.

Signature of supervisor.....Date.....

Signature of supervisor.....Date.....

Signature of Head of Department.....Date.....

Department of Public Health

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ABBREVIATIONS

AFASS:	Acceptable, Feasible, Affordable, Sustainable and Safe
AIDS:	Acquired Immune Deficiency Syndrome
ARV:	Anti-retroviral
EBF:	Exclusive breastfeeding
ERF:	Exclusive replacement feeding
FGDs:	Focus Group Discussions
HIV:	Human Immunodeficiency Virus
IDIs:	In-depth Interviews
IYCF:	Infant and Young Child Feeding
LDHMB:	Lusaka District Health Management Board
MOH:	Ministry of Health
MTCT:	Mother-To-Child-Transmission
NFNC:	National Food and Nutrition commission
PMTCT:	Prevention of Mother To Child Transmission
SPSS:	Statistical Package for Social Sciences
UTH:	University Teaching Hospital
WHO:	World Health Organisation

DEFINITION OF TERMS

- **Adherence** – “Refers to the act of conforming to the recommendations made by the provider with respect to timing, dosage, and frequency of taking medication” (Cramer, Roy & Burrell 2008). In this study, adherence refers to the extent to which a mother acts in accordance with the definition of exclusive breastfeeding as set by the Government of Zambia through the Ministry of Health.
- **AFASS**- is an acronym which stands for Acceptable, Feasible, Affordable, Sustainable and Safe. Below is an elaboration of each letter:
 - *Acceptable*- The mother perceives no problem in replacement feeding. Problems may be cultural or social, or due to fear of stigma and discrimination (WHO 2007).
 - *Feasible*- The mother (or family) has adequate time, knowledge, skills, resources and support to correctly mix formula or milk and feed the infant up to 12 times in 24 hours (WHO 2007).
 - *Affordable*- The mother and family, with community or health system support if necessary, can pay the cost of replacement feeding without harming the health and nutrition of the family (WHO 2007).
 - *Sustainable*- Availability of a continuous supply of all ingredients needed for safe replacement feeding for up to one year of age or longer (WHO 2007).
 - *Safe*- Replacement foods are correctly and hygienically prepared and stored, and fed preferably by cup (WHO 2007).
- **Determinant**: ‘An influencing *cognitive* factor that tends to have an effect on what you do or determining element or factor that settles something conclusively’ (Dictionary of the English language 2009).
- **Early cessation**-means completely stopping breastfeeding, which includes no more suckling at the breast for infants less than 6 months of age. Ideally, it happens among HIV-positive mothers as soon as replacement feeding is acceptable, feasible, affordable, sustainable and safe, as a strategy to reduce the risk of HIV transmission by limiting the infant’s exposure to HIV virus in the breast milk (MOH & NFNC 2008).

- **Exclusive breastfeeding-** means ‘giving a baby only breast-milk for six months, and no other liquids or solids, not even water or vitamin and mineral syrups unless medically indicated’ (MOH & NFNC 2008).
- **Replacement feeding-** “is the process of feeding of a child who is not breastfeeding with a diet that provides all the nutrients the child needs until the child is fully fed on family foods” (MOH & NFNC 2008).

CHAPTER ONE: INTRODUCTION

1.1 Background

In Zambia, Human Immunodeficiency Virus (HIV) epidemic is one of the major health burdens with a prevalence of 14.3% in the general population (CSO 2009) and 21% for Lusaka district. According to UNAIDS (2008), there were 95,000 children aged 0 to 14 years living with HIV in Zambia. It has been estimated that more than 90% of HIV transmission in children is through Mother-To-Child-Transmission (MTCT) (Preble & Piwoz 1998). This is particularly worrying because HIV prevalence among pregnant women in antenatal clinics in Zambia stands at 19% (MOH 1998). Furthermore, it is estimated that without any intervention, 40-45% of HIV positive women would transmit HIV to their children (De Cock et. al. 2000).

Despite the lower risk of MTCT of HIV through exclusive breastfeeding and breastfeeding being a cultural norm in Zambia, mothers may not breastfeed exclusively. This is so, especially for HIV positive mothers. Reasons include cultural practices and norms where mothers are expected to give prelacteal feeds before initiating breastfeeding. Additionally, mothers are expected to also give their infants water and other solid foods before the age of six months. In addition to being subjected to the said cultural norms, HIV positive mothers receive mixed messages on breastfeeding from health workers that hinder them from adoption of exclusive breastfeeding. Furthermore, HIV positive mothers who give birth to HIV negative babies are afraid of transmitting the virus to their infants and therefore, tend to cease breastfeeding before children are six months. Infant feeding is therefore, a great challenge in the Prevention of Mother-To-Child-Transmission (PMTCT) of HIV.

However, there are some HIV positive mothers who manage to exclusively breastfeed. Research findings in some settings within the country and other countries have shown some of the enabling factors for mothers to exclusively breastfeed which include infant feeding counselling in the context of HIV and peer counselling by other HIV positive mothers. However, in Zambia, these have been on a small scale and in settings that are different in many aspects from those which were covered in this study.

1.2 Statement of the Problem

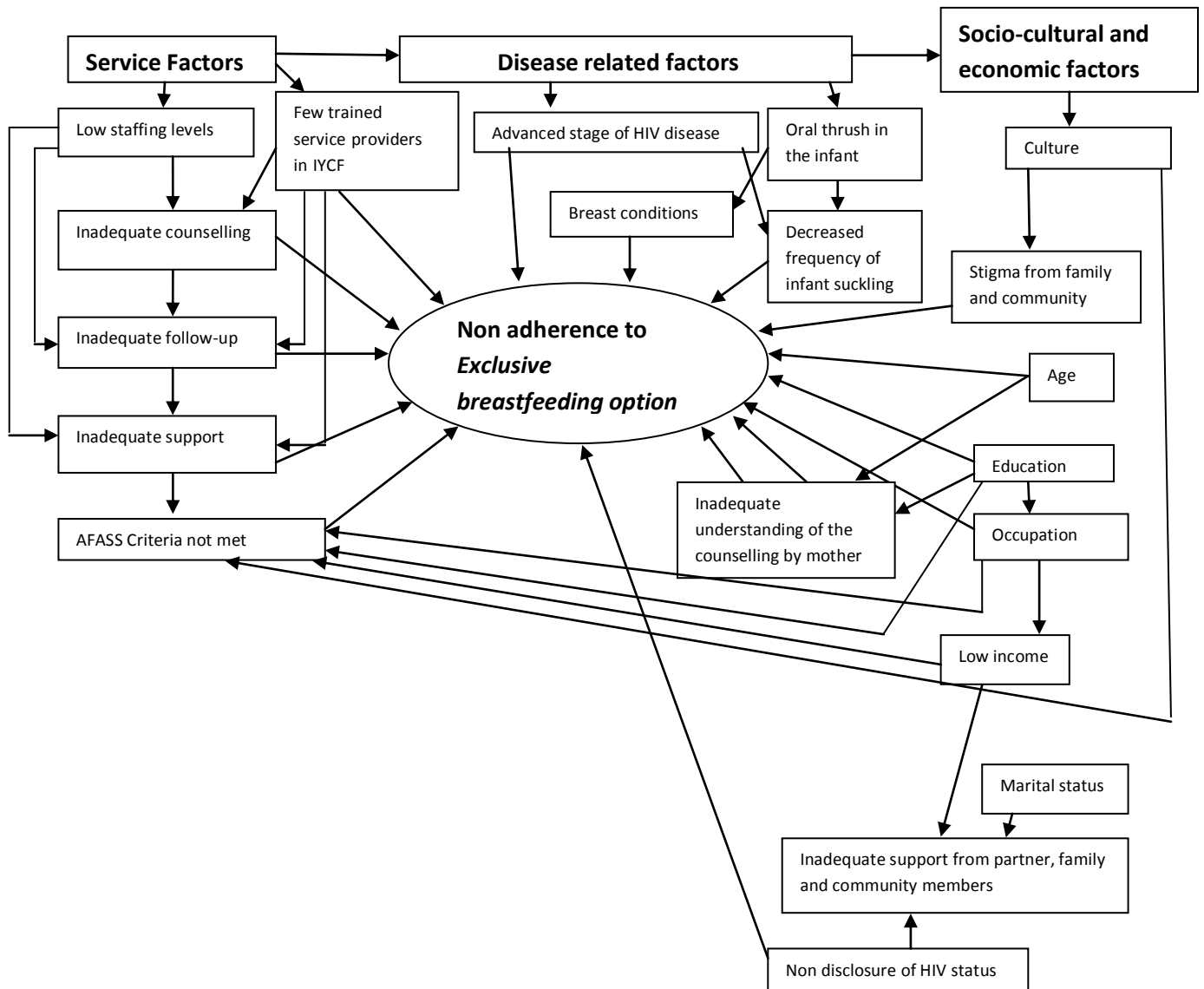
In the context of HIV, Zambia recommends “exclusive breastfeeding for HIV-infected women for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) for them and their infants before that time” (MOH & NFNC 2007:3). Zambia’s recommendation was based on the World Health Organisation (WHO) 2006 guidance on HIV and Infant Feeding in the context of HIV. Currently, evidence has accumulated that antiretroviral (ARV) interventions to either the HIV-infected mother or HIV-exposed infant can significantly reduce the risk of postnatal transmission of HIV through breastfeeding (WHO 2009). WHO (2009) has, therefore, reiterated the WHO 2006 HIV and Infant Feeding Update for continued provision of guidance to both mothers and health workers, recognising that ARVs medication will not be immediately available and accessible to all breastfeeding HIV positive mothers. In a study undertaken in the HIV Family Support Unit of the University Teaching Hospital (UTH) in Lusaka district, about 63% (n=51) of HIV infected mothers decided on exclusive breastfeeding (EBF) option for their infants, but only about 35% of the HIV infected mothers adhered to the option by four months (Omari et al. 2005).

The paediatric department at UTH has in the recent past reported high incidence of severely malnourished case admissions. These were highest among lower age groups of 0 to 12 months (NFNC 2008). HIV infected infants were among the severely malnourished admitted cases. It is expected that if these infants were appropriately fed, i.e exclusively breastfed, they would not have become malnourished and if they did, the severity would be less because breast milk is protective (WHO 2000). However, it is not exactly known whether these infants were exclusively breastfed. If they were being exclusively breastfed, determinants influencing adherence to exclusive breastfeeding option among HIV infected women have not yet been studied in specific areas where children live. Suggested determinants affecting adherence to exclusive breastfeeding option in other settings within the country and other countries are in the thought process indicated in Figure 1.1. These settings are different in many aspects including the scope with regards to study site and sample size from those covered in this study. These differences warranted the undertaking of this study.

A number of solutions have been tried by the Government of Zambia through the Ministry of Health to improve adherence to the exclusive breastfeeding option in the general population and among HIV infected mothers. These include the following: revision of training materials on Infant and Young Child Feeding (IYCF) in the general population and in the context of HIV, training of counsellors in IYCF at both health facility and community level, revision of the PMTCT protocol guidelines and training package and follow up support for HIV infected mothers to carry out the exclusive breastfeeding option successfully.

In conclusion, the study will: utilise generated information through the Ministry of Health to replicate positive behaviour of HIV infected mothers who manage to practice the option to others who fail to adhere to the exclusive breastfeeding option. The information will further be used to strengthen PMTCT programmes and increase chances of child survival through optimal infant feeding practices. This will ultimately result in decreased HIV transmission due to appropriate breastfeeding practices. Lastly, reduction in infant and under-five mortality rates which stand at 70 and 119 deaths per 1000 live births respectively (CSO 2009) believed to be caused by preventable diseases compounded by malnutrition and poor feeding practices among HIV positive mothers is expected.

Figure 1.1: Determinants of Non-Adherence to Exclusive Breastfeeding Option Among HIV Positive Mothers



CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

About 30-45% of MTCT of HIV in developing countries occurs during pregnancy, delivery and breastfeeding where interventions such as antiretroviral therapy are not employed (De Cock et al. 2000). Complete avoidance of breastfeeding removes the risk of postnatal mother-to-child transmission of HIV. However, for many women in poor settings, complete avoidance of breastfeeding is either not possible, or is not the most favourable option (Kuhn et al. 2009).

Findings from a number of studies have shown a consistent lower risk of postnatal HIV transmission from mother to infant of about 4% among exclusively breastfed infants compared to non exclusively breastfed infants by the age of six months (Kuhn et al. 2009; Wellcome Trust 2007). According to the same studies, mixed feeding was associated with an average of about 3 fold increase in postnatal HIV transmission by six months of age.

2.2 Factors Determining Adherence to The Exclusive Breastfeeding Option

A number of factors are responsible for HIV positive women's level of adherence to the exclusive breastfeeding option. Reviewed studies revealed the following: service, cultural, socio-economic and maternal related. Details are elaborated below.

2.2.1 Service Factors Influencing Adherence to Exclusive Breastfeeding Option

2.2.1.1 Counselling on IYCF and Support for Mothers to Breastfeed Successfully

In terms of service factors, increased uptake of EBF was associated with proper counselling in which quality information was provided to mothers (Doherty et al. 2006; Kuhn et al. 2007;

Populations council 2003). Doherty and others (2006) conducted a longitudinal qualitative study of infant feeding decision making and practices among HIV positive women in South Africa. Results revealed that increased uptake of EBF was associated with proper counselling and nutrition education through which mothers were made to understand the benefits of EBF in the context of HIV.

The study by Kuhn and others (2007) evaluated the safety and efficacy of early weaning among HIV infected women at two clinics in Lusaka district. Results showed an excellent uptake of EBF. Results further showed that mothers who reported EBF were those who were properly counselled by trained health workers and non-clinical staff.

The Population Council Horizons' programme (2003) tested the introduction of infant feeding counselling at antenatal care clinics in Ndola district at a time when antiretroviral drugs were not available. Following an enhanced counselling intervention, it was found that the percentage of mothers in the community who were reporting EBF for the first six months rose from 56% to 76%.

The Wellcome Trust funded study assessed the risk of postnatal MTCT of HIV while trained lay workers offered counselling to HIV-infected mothers to improve EBF practices. As a result, a much higher rate of EBF than previously reported in similar communities, was achieved.

A non-randomised intervention cohort study to increase EBF rates for six months after delivery in HIV positive and HIV negative women in KwaZulu-Natal, South Africa, was also reviewed. Using the most stringent cumulative data, 45% of the HIV negative and 40% of HIV positive women adhered to EBF for six months. Mothers included in the intervention received scheduled supportive visit from lay counsellors. Results showed that counselling visits were strongly associated with adherence to cumulative EBF at four months. Results further showed that mothers who had received the scheduled number of visits were more than twice likely to be still breastfeeding than those who had not (Bland et al. 2008).

2.2.1.2 Health Workers' Support for Mothers to Initiate Breastfeeding Within The First Hour of Birth

The fourth step of the ten steps to successful breastfeeding is 'initiation of breastfeeding within the first hour of birth' (Vallenas & Savage 1998). One of the key factors associated with consistent influence of the overall breastfeeding practices irrespective of socio-cultural settings, is time of initiation of breastfeeding (Baker, Sanel & Franklin 2006). Initiation of breastfeeding within the first hour of birth enables the infant to learn feeding skills faster, prevents low blood sugar level and helps faster passage of the meconium-the first blackish stool (Lisa 2007).

Early initiation of breastfeeding further prevents breast conditions such as mastitis, nipple bleeding or fissures. These breast conditions are associated with the risk of MTCT of HIV by increasing the viral load in breast milk and passage of the HIV through the cracked nipples. Therefore, mothers who suffer from the aforementioned breast conditions are not likely to adhere to the exclusive breastfeeding option as compared to those who do not suffer from the same (MOH & NFNC 2008). Early initiation of breastfeeding is further associated with reduced maternal postpartum bleeding and consequently less maternal morbidity. This reduces the chance of interruption of breastfeeding because the mother is healthy and the need to separate baby from mother is reduced (WHO 2006).

2.2.2 Cultural Factors

2.2.2.1 Breastfeeding as a Cultural Acceptable Mode of Feeding

Issues of culture have been documented as factors that also determine adherence to the EBF option among HIV positive women. For example, the strong cultural position of breastfeeding as the only acceptable infant feeding method and the only way to fulfil ideals of being a good mother has been a major determinant of adherence to the EBF option in some areas. According to the reviewed papers, breastfeeding mothers have a special status in some societies which entitles them to a special diet that gets lost automatically as a mother opts to

feed her infant on artificial milk (Leshebari, Blystad & Moland 2007; Muko et al. 2004; Shapiro et al 2003).

2.2.2.2 Family Support

Family support was an important factor that helped mothers to adhere to the EBF option in certain researched communities. The aforementioned longitudinal study on infant-feeding decision making and practices among HIV-positive women in South Africa indicated that family support is important for successful EBF practice among the HIV positive mothers. The study examined challenges that HIV-positive women face at different stages of early infant feeding, explored factors that influence infant feeding decision making and behaviour of HIV positive mothers and identified characteristics of women and their environments that contributed to successful exclusive infant feeding practices. Twenty seven women were interviewed and the research revealed that: ‘of the women who maintained EBF from birth to four or six weeks, the majority had a husband or partner who was supportive of their feeding choice’ (Doherty et al. 2006).

2.2.2.3 Stigma

Other common cultural factors that influence adherence to EBF option include stigma of HIV infection and non disclosure of HIV status. Anecdotal evidence from Botswana and other African countries, Zambia inclusive, have shown that mothers are reluctant not to breastfeed their infants, even when free formula is provided for fear of HIV associated stigma. This was revealed in a study by Omari and others (2005) on Infant Feeding Practices of Mothers of known HIV status undertaken at the University Teaching Hospital, in Lusaka, Zambia. Another example on stigma was a randomised trial on breastfeeding in Nairobi, in which four-fifths of HIV infected mothers chose not to enrol in a study, principally because of the possibility of being assigned to artificial feeding and 30% of those allocated to this option did not comply (Nduati et al. 2000). The primary reason appeared to have been stigma of HIV infection which had become associated with formula feeding, social pressure from family members especially mother-in-laws, neighbours and husbands in case of non disclosure of HIV status (Leshabari et al. 2007; Shapiro et al 2003). Stigma coupled with the fear of HIV

status disclosure, is also a major factor influencing HIV positive mothers to adhere to the EBF option although they may not want to do so. Doherty et. al. (2006) in their earlier mentioned study found that HIV status disclosure to people at home was associated with maintenance of EBF. According to the same study, most of those who maintained EBF lived with their own mothers to whom they had disclosed their HIV status (Doherty et al 2006). Stigma may promote adherence to some extent, but may lead to mixed feeding. Mixed feeding increases the risk of HIV transmission.

2.2.3 Socio-Demographic Factors

2.2.3.1 Inability to adhere to AFASS Criteria

WHO (2006 and 2009) recommends exclusive replacement feeding when the AFASS criterion is met for the mother and baby. This is in light of WHO's (2009) first time recommendation of providing ARVs to the mother or child to reduce the risk of HIV transmission during the breastfeeding period. WHO has, however, recognised that ARVs may not immediately be available and accessible to all HIV positive mothers, making the AFASS recommendation still useful in providing guidance for mothers and health workers. If any one component of the AFASS is not attained, the best option for mothers remains EBF. It has been estimated that forty tins of 500g formula are required by mothers to sustain exclusive replacement feeding (ERF) for the first six months (WHO 2006). It has been further determined that approximately one million, two hundred thousand kwacha (K1, 200, 000.00), is required to purchase and sustain the replenishment of the formula for the whole recommended period of six months (MOH and NFNC 2007). Therefore, mothers who are of low economic status are likely to adhere to the EBF option as they may not be able to sustain ERF for whole recommended period. According to Kuhn and others (2007), one of their research findings revealed that HIV positive mothers who had a full time job, a water source inside their home or on their property and a fridge did not adhere to the EBF option. This implies that those who could not sustain the ERF option could have adhered to the EBF option.

However, some reviewed researches have indicated that even mothers belonging to poor-economic status did not adhere to the EBF option. This was revealed in a prospective cohort study known as the 'Good Start' study in three PMTCT sites, two in rural-peri urban Western Cape and KwaZulu-Natal and one in a rural site in South Africa (Doherty et al. 2006). The aim was to study the actual infant feeding practices of HIV positive mothers on which very little was known about. Results showed that mothers who were socio-economically poor chose to formula feed their children. According to the study, 18% rural women chose formula feeding against 12% and 8% in Umlazi and Paarl respectively who were socio-economically better off.

Marital status is another critical factor influencing adherence to the EBF choice. Study results of the Low adherence to recommended infant feeding strategies among HIV infected women, showed that HIV positive mothers who were not married and were financially constrained faced many challenges in terms of affordability and complying with replacement feeding as compared to their married counterparts who were financially supported by their partners (Shapiro et al 2003). Kuhn et. al. (2007) also revealed that single women reported none adherence to the EBF option. Married women with financial support from their husbands for purchase of formula for the recommended period of six months are likely to adhere to exclusive replacement feeding. However, married women whose husbands' financial status is weak, may adhere to exclusive breastfeeding.

Regarding qualitative data, results showed that women rely heavily on the advice of health workers in guiding their feeding choices. Results further showed higher rates of disclosure of HIV status amongst women who chose to formula feed. Another economic factor was time which some of the HIV positive mothers found to be a constraint in terms of preparation and administration of the replacement feed and therefore, breastfed exclusively.

2.2.4 Maternal Related Factors

Other factors indicated from the review are those related to the mother. The aim of Fadnes et. al. (2009) study was to compare feeding practices, including breastfeeding between infants and young children of HIV positive mothers and infants of mothers in the general population

of Uganda. It was a cross-sectional survey which involved 235 HIV positive mothers. Infant feeding practices, reasons for stopping breastfeeding and breast health problems were studied. In this study, higher educational level of the mothers was found to be associated with a higher rate of exclusive replacement feeding. Results further attributed: advice from health workers, maternal illness and the HIV-positive status of the mother as main reasons for stopping breastfeeding (Fadnes et al. 2009).

2.2.5 Appropriate Social Marketing of Formula

Social marketing of formula by manufacturers of baby foods as modern and superior, negatively affects adherence to the EBF option in the general population and among HIV infected mothers. Where formula is appropriately marketed, mothers including HIV positive mothers do adhere to the EBF option (Mojab 2000).

2.3 Gaps in Literature

There is valuable information in support of EBF option in significantly lowering the risk of MTCT of HIV infection and infant and child mortality. Nonetheless, data on determinants of adherence to the option among HIV infected mothers in Lusaka district is limited. The study therefore, examined the determinants of adherence to the exclusive breastfeeding option among HIV positive mothers with infants aged 0 to 12 months in eight selected health centres namely Chawama, Chipata, George, Kanyama and Mtendere high density centres and Chelstone, Kabwata and Railway facilities medium density centres.

CHAPTER THREE: STUDY QUESTIONS AND OBJECTIVES

3.1 Research Question

What are the determinants of adherence to the exclusive breastfeeding option among HIV positive mothers?

Hypothesis

In view of the above research question, it was hypothesized that:

- Socio-demographic characteristics influence adherence to the exclusive breastfeeding option
- Cultural beliefs influence adherence to the exclusive breastfeeding option
- Service characteristics influence adherence to the exclusive breastfeeding option
- Mother related characteristics influence adherence to the exclusive breastfeeding option

3.2 Objectives

3.2.1 Overall Objectives

To study determinants of adherence to the exclusive breastfeeding option among HIV infected mothers in eight selected health centres in Lusaka district.

3.2.2 Specific Objectives

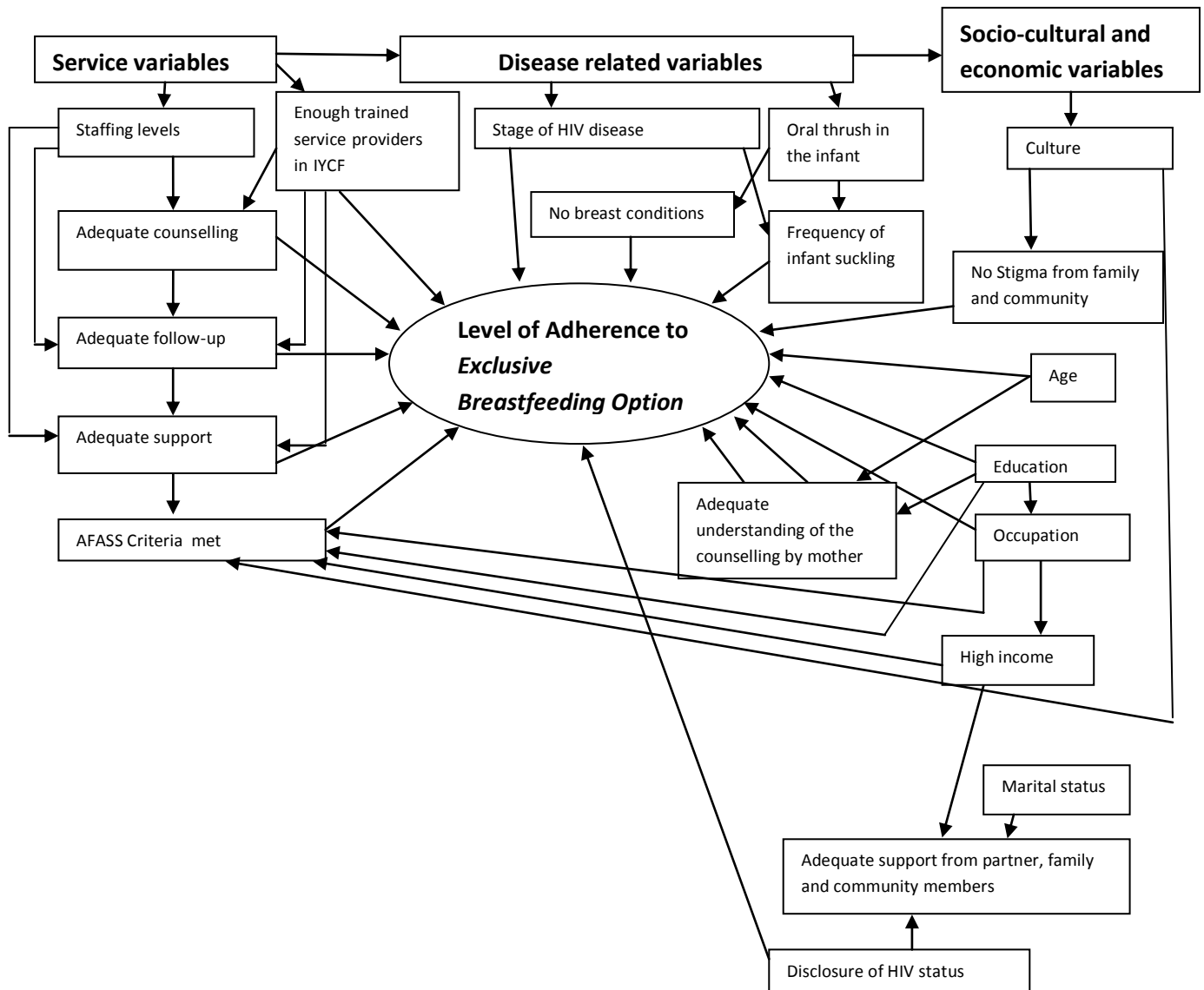
- To determine the proportion to which HIV infected mothers adhere to exclusive breastfeeding option
- To assess and describe socio-demographic characteristics influencing adherence to exclusive breastfeeding option
- To identify cultural beliefs influencing adherence to exclusive breastfeeding option
- To describe service-related characteristics influencing adherence to exclusive breastfeeding option
- To describe mother and infant related characteristics influencing adherence to the exclusive breastfeeding option

CHAPTER FOUR: METHODOLOGY

4.1 Introduction

This section describes the research methodology of the study on determinants of adherence to the EBF option among HIV positive women in Lusaka district. It includes the conceptual framework on relationship between independent and dependent variables (Figure 4.1), definitions of variables (Table 4.1) and information on the following: the research design, research setting, study population, sample sizes and sampling methods, data collection and techniques, data processing and analysis, data quality control and ethical considerations.

Figure 4.1: Conceptual Framework on Determinants of Adherence to Exclusive Breastfeeding Option among HIV Positive Mothers



From the above conceptual framework, the dependent and independent variables were derived. The table below comprises operational definitions of the dependent and independent variables including their indicators.

Table 4.1: Dependent and Independent Variables for The Study on Determinants of Adherence to Exclusive Breastfeeding among HIV Positive Women

Variable Type	Operational Definitions	Indicator
Dependent variable: <ul style="list-style-type: none"> • Level of adherence to exclusive breastfeeding: 	<ul style="list-style-type: none"> • Giving of breast milk only, no liquids or solids to infants for the first six months of life unless medically indicated (MOH & NFNC 2008) 	<ul style="list-style-type: none"> • Proportion of infants exclusively breastfed for the first six months of life
Independent variable: <ul style="list-style-type: none"> • Cultural belief systems: 	<ul style="list-style-type: none"> • These are the cultural values and norms related to breastfeeding 	<ul style="list-style-type: none"> • Types and reasons for breastfeeding taboos • Reaction to breastfeeding taboos • Processes and reasons for breastfeeding
<ul style="list-style-type: none"> ▪ Stigma: 	<ul style="list-style-type: none"> • “Convergence of interrelated components which include labelling of human differences; linking of labelled persons to undesirable characteristics; labelled persons are placed in distinct categories and labelled persons experience status loss and discrimination that lead to unequal outcomes which include disapproval, rejection, exclusion and discrimination” (Link & Phelan 2001). 	<ul style="list-style-type: none"> • Type and reason for stigma • Reaction to type of stigma
<ul style="list-style-type: none"> ▪ Status Disclosure: 	<ul style="list-style-type: none"> • Informed someone about their HIV positive status (MOH & NFNC 2008). 	<ul style="list-style-type: none"> • Number of HIV infected mothers who have disclosed their HIV status to someone
Service-related characteristics: <ul style="list-style-type: none"> ▪ Counselling: 	<ul style="list-style-type: none"> • Process that focuses on helping a person understand their issues and make effective decisions affecting their life (MOH & NFNC 2008). 	<ul style="list-style-type: none"> • Proportion of mothers who were counselled • Type, timing, reaction to, reasons for counselling • Provider of counselling

<ul style="list-style-type: none"> ▪ Follow-up support : 	<ul style="list-style-type: none"> • Skilled support provided to mothers to help them initiate and sustain appropriate feeding practices and to prevent difficulties and overcome them when they occur. It includes demonstration of how to carry out a feeding option; referral to the community support system and getting feedback on how feeding practices are going on in reality (MOH & NFNC 2008). 	<ul style="list-style-type: none"> • Proportion of mothers who received follow-up support • Type, timing, reasons for, reaction to follow-up support • Provider of follow up support
<ul style="list-style-type: none"> ▪ AFASS criteria 	<ul style="list-style-type: none"> • Acceptable, feasible, affordability, sustainability and safe criteria which is used by a health worker to help a mother determine an infant feeding option for her infant (WHO 2007). 	<ul style="list-style-type: none"> • Proportion of mothers who attained AFASS criteria
<ul style="list-style-type: none"> • Socio-demographic characteristics <ul style="list-style-type: none"> ▪ Age: 	<ul style="list-style-type: none"> • Age of the mother in completed years at time of interview • Age of infant in months at the time of interview 	<ul style="list-style-type: none"> • Age as stated in years • Age as stated in months
<ul style="list-style-type: none"> ▪ Gender: 	<ul style="list-style-type: none"> • Female or male infant 	<ul style="list-style-type: none"> • Female • Male
<ul style="list-style-type: none"> ▪ Educational level: 	<ul style="list-style-type: none"> • Highest level of education attained at the time of interview 	<ul style="list-style-type: none"> • Proportion of HIV infected mothers with no education; attained primary, junior and senior secondary and tertiary levels
<ul style="list-style-type: none"> ▪ Marital status: 	<ul style="list-style-type: none"> • Mother's marital status at time of interview 	<ul style="list-style-type: none"> • Single, married, widowed, divorced/separated
<ul style="list-style-type: none"> ▪ Residence: 	<ul style="list-style-type: none"> • Type of health centre from where mothers receive health services at time of interview 	<ul style="list-style-type: none"> • Medium • High
<ul style="list-style-type: none"> ▪ Occupation: 	<ul style="list-style-type: none"> • Mother's occupational class at the time of interview 	<ul style="list-style-type: none"> • Managerial • White collar • Blue collar
<ul style="list-style-type: none"> ▪ Income : 	<ul style="list-style-type: none"> • Personal earning at the time of interview 	<ul style="list-style-type: none"> • 0-600000 (Low) • 600,001-1,235,000 (Middle) • 1,235,001-4000,000 (Middle)

		<ul style="list-style-type: none"> • Above 4000,000 (High)
<ul style="list-style-type: none"> • Mother related characteristic: 		
<ul style="list-style-type: none"> • Breastfeeding initiation 	<ul style="list-style-type: none"> • Time it takes the mother to initiate breastfeeding after birth (Ten steps to successful breastfeeding) 	<ul style="list-style-type: none"> • Within one hour • After one hour
<ul style="list-style-type: none"> • Breast condition: 	<ul style="list-style-type: none"> • Suffering any form of breast condition 	<ul style="list-style-type: none"> • Suffered breast condition • Type of breast condition suffered

4.2 Research Design

The design was a cross-sectional study. The inclusion criteria were all HIV positive women aged 18 to 49 years with live infants aged 0 to 12 months and consented to be enrolled in the study. Women were followed up at any one of the PMTCT services. Those that did not meet these criteria were excluded.

4.3 Research Setting

The research was undertaken in Lusaka district which has an estimated population of 3, 100, 000. The district is centrally located. The total area is 70 km² and has a density of 44, 285.7/km² (Wikipedia 2010). There are 24 health centres in the district, however, this study was only conducted in eight centres namely Kanyama, Mtendere, Chawama, Chipata, George, Railway, Chelstone and Kabwata. The process used to select the eight health centres is described in sub-section 4.5.2.1.0.

All the health centres offer PMTCT services which include testing for HIV infection among pregnant women, ARV prophylaxis and counselling on infant feeding in the context of HIV. The overall population of women who are HIV positive in Lusaka province is 22.4%. The national total fertility rate is 6.2 births per woman, but for Lusaka province, it is 4.1 births per woman (CSO 2009). The HIV prevalence by marital status is 14.7% for the married, 28.8% for the divorced and 52.5% for widows. As at September 30th 2008, 1287 ante-natal pregnant

mothers tested HIV positive (HMIS 2008). Other services offered include early diagnosis for HIV infection among HIV exposed infants as early as six weeks and provision of anti-retroviral therapy to HIV infected mothers, infants and young children.

4.4 Study Population

The study population included all HIV infected women aged 18 to 49 years with infants aged 0 to 12 months who were receiving antenatal services from the 24 health centres in Lusaka district.

4.5 Sample Sizes and Sampling Methods

Probability sampling method and in particular cluster sampling was employed. Eight out of the 24 health centres in Lusaka district were selected and each one was considered a cluster. This section explains how the sample sizes for both quantitative and qualitative data were determined and how the study units were selected.

4.5.1 Sample Size Determination

a) Sample Size for Quantitative Data

With the problem at hand, the sample size was determined using the formula below:

$$n_1 = z^2 pq/d^2$$

Where:

Z=desired confidence interval of 95%

P=estimate of the proportion of the population with the characteristic of interest was 35% from literature review, but proportion of 50% was used in this research to provide maximum variability.

q=1-p

d=margin of error

Procedure:

Step 1: Calculated initial sample size (n_1) with use of the above formula

Assumptions: true population proportion should be within ± 0.1 of estimated proportion

The interval $p \pm 0.10$ is a 95% CI

Cluster sampling was used

Response rate of 90% was expected

$$\begin{aligned}n_1 &= z^2 pq/d^2 \\&= \frac{(1.96)(0.5)(0.5)}{(0.10)^2} \\&= \frac{(3.8416)(0.5)(0.5)}{(0.01)} \\&= 96.04\end{aligned}$$

Step 2: Calculate modified sample size (n_2) to take into account population size

$$\begin{aligned}n_2 &= n_1 (N/N + n_1) \\&= 96.04 (1287/1287 + 96.04) \\&= 89.4\end{aligned}$$

Step 3: Adjust (n_3) for the design effect

$$n_3 = B n_2$$

B= is the design effect inflation factor ($B > 1$ for cluster of multi-stage sampling designs, for HIV well designed research, it ranges between one and three, but can also be higher, therefore, for this study, B was four (Shackman 2001).

$$n_3 = 89.4 \times 4 = 357.6$$

Step 4: Adjust for non-response to determine final sample size (n)

$$\begin{aligned}n &= \frac{n_3}{r_1} \\&= \frac{357.6}{0.90} \\&= 397.3 \\&= 400\end{aligned}$$

From the above procedure, the sample size for the quantitative data was 397.3 but was rounded off to 400 HIV infected mothers.

b) Sample Size for Qualitative Data

Four groups of HIV infected women comprising six to ten women from six of the selected centres were identified to form part of the Focus Group Discussions (FGDs). One FGD was conducted in each of the four high density centres and one in each of the two medium density centres. In-Depth Interviews (IDIs) were also undertaken with one member of staff dealing with issues of PMTCT from each selected health centre.

4.5.2 Sampling Methods

4.5.2.1 Sampling Methods for Quantitative data

4.5.2.1.0 Sampling of Health Centres

Simple random sampling was employed. First, all health centres were stratified into high and medium densities (Table 4.2). Mechanical procedure was used to select the eight health centres by lottery method. The first five were randomly selected from the high density centres, whereas, the first three from the medium density centres. Table 4.2 below depicts the details.

Table 4.2: Stratification of Health Centres

No	HIGH DENSITY HEALTH CENTRES	MEDIUM DENSITY HEALTH CENTRES
1	*Chawama	15. Makeni
2	*Kanyama	16. Lilayi
3	Matero main	17. Kamwala
4	Matero reference	18. *Kabwata
5	*George	19. Civic centre
6	*Chipata	20. Chilenje
7	Chazanga	21. State lodge
8	Mandevu	22. *Railway
9	Kalingalinga	23. *Chelstone
10	*Mtendere	24. Chainama
11	Chainda	
12	Kaunda Square	
13	Ngombe	
14	Bauleni	

*Selected health centres

4.5.2.1.1 Sampling of Respondents

4.5.2.1.1 Sampling of Respondents

Probability proportion to size sampling method was used to select study elements from each centre due to variation in population sizes. Table 4.3 indicates how the number of respondents was calculated for each health centre.

Table 4.3: Calculation of Respondents Included in Sample from Each Health Centre

a. Centre	b. # HIV tested new	c. # HIV tested positive	d. Sampling fraction # tested +ve in each centre / total # tested +ve in all selected centres x 100	e. No. included in the sample d/100 x sample size (400)
Chawama	578	131	20.4	82
Mtendere	242	42	6.5	26
Kanyama	641	137	21.3	85
George	461	66	10.3	41
Chipata	468	97	15.1	60
Kabwata	211	53	8.2	33
Railway	261	69	10.7	43
Chelstone	231	48	7.5	30
Total	1264	643	100.0	400

A sampling frame was organised by listing of all the names of HIV infected mothers according to study population requirements. Simple random sampling was employed to select respondents by use of computer based software to generate a series of random numbers. This procedure was done for each health centre's sampling frame. The first required numbers were selected for each health centre to form part of sample.

Respondents were informed of their inclusion in the study by focal persons. The focal persons were health workers identified from each health centre tasked to explain the purpose of the study and ensure that all appointments were organised according to schedule.

4.5.2.2 Sampling Methods for Qualitative Data

HIV infected mothers who were left out in the random sample were included in the FGDs to avoid bias. The same method used to select respondents for quantitative data also applied for the qualitative data. The first eight HIV infected mothers were randomly selected. One health

worker involved in issues of infant and young child feeding or the equivalent was recruited from each selected health centre to participate in the IDIs.

4.6 Data Collection Techniques and Tools

For quantitative data, interview data collection technique was employed whereas for qualitative data, FGDs and IDIs were employed. A questionnaire was used to collect quantitative data whereas a questionnaire guide was used for qualitative data.

4.7. Data Processing and Analysis

4.7.1 Quantitative Data Analysis

EpiData was used for data entry and Statistical Package for Social Sciences (SPSS) for analysis. The following steps were undertaken:

4.7.1.1 Data Editing

The first step was raw data editing to ensure accuracy, consistency, uniformity, completeness and arranged to simplify coding and tabulation. Editing was performed by the principle investigator.

4.7.1.2 Data Coding

Closed ended questions were pre-coded whereas open ended questions were coded after data collection. A codebook which contains each variable in the study with specific application of coding rules to the variable was constructed (annex 5c).

4.7.1.3 Data Entry

Coded data entered into EpiData was exported to the SPSS spreadsheet.

4.7.1.4 Statistical Measures

Descriptive statistical measures were used to depict the mean and standard deviation. Chi square test was done to identify relationships between categorical variables. The data was also examined for the presence of an association between the dependent variable and different independent variables.

Following statistical tests for association, logistic regression was employed. Statistically significant associations were used in the logistic regression as predictors. To reduce on statistical errors, responses without the variable of interest were used as referent groups whereas for questions with more than two responses, the less prevalent ones were used as referent groups (Pallant 2005). All statistical values with P-values < 0.05 were taken to be statistically significant (Barley et al. 2005). Hypotheses set at the beginning were tested against the generated P-values from the statistical analysis.

4.7.2 Qualitative Data Analysis

The framework analysis, which involves a number of distinct, highly interconnected stages (Ritchie & Spencer 1994) was used to analyse data. The analysis started with transcription of the recorded interviews during which all the information from FGDs and IDIs was written verbatim. This was followed by data organisation. Each interview was given a unique code for easy identification.

Code numbers were used to specify themes. For example, socio-economic factor specifically affordability factor was assigned 1.0; service factors were assigned 2.0, but within service factors, health education was assigned 2.1; understanding counselling was assigned 2.3; follow-up support was assigned 2.4; health worker advice was assigned 2.5. Breast conditions were assigned 3.0; caring practices, 4.0 and cultural factors 5.0. Under each major theme were code numbers to specify sub-themes. Then data were numbered line by line for the purpose of tracing back to the original context of the text used.

Familiarisation was done by listening to tapes, reading, re-reading the data and making summaries before the formal analysis began. After familiarisation, a priori concepts

identified from literature as determining adherence to the EBF Option were listed. These were socio-economic, service, cultural and maternal related factors. Other categories were emergent for example, child caring. Each of these were assigned a numerical code. Data from FGDs with mothers and IDIs with programme coordinators were searched for material that could be coded under each category.

Mapping and interpretation of data was done under the first six of the seven established criteria framework (Kruger 1994): These were word; context; internal consistency; frequency and extensiveness of comments; specificity of comments; intensity of comments and big ideas.

4.8 Data Quality Control

A number of activities were undertaken. The first was training of research assistants. The training involved imparting knowledge on IYCF in the context of HIV. This helped them understand the meanings of important terms. Cultural, disease, service and mother related issues were also highlighted in the training. During training the questionnaire was reviewed question by question so as to have a uniform understanding prior to commencement of data collection. Training also included imparting skill on how to collect data through FGDs to include ways of asking questions, further probing for issues that were not clear, skill of involving all participants actively and how to record all the participant's responses.

After training, pre-testing of questionnaire and questionnaire guide was undertaken. The pre-test was done in the same health centres with HIV infected mothers of infants aged 0 up to 12 months who were not part of the actual sample. The pre-test helped ensure that the questions were systematic and that there was uniformity in understanding the meaning of each question by all the research assistants. After the pre-test, the required changes were done before the actual field work.

During field work, the principle investigator ensured that all questionnaires were checked and edited every evening for completeness.

4.9 Ethical Considerations

Approval of the study was sought from the Research Ethics Committee of the University of Zambia (Annex 3). In addition, permission to undertake the study in selected health centres was also sought from the District Health Office through the Ministry of Health (Annexes 2 and 1).

The information sheet which contained details of benefits, participant rights and protections was read to those who could not read. Those who could read were asked to read. Thereafter, informed consent or refusal to participate in the study was obtained from participants by signing or thumb print (Annex 4 b).

Chapter FIVE: FINDINGS

The chapter presents the study findings, divided in two parts. The first part presents findings on quantitative data which includes description of sociodemographic, service, cultural and mother related characteristics; prevalence of adherence to the EBF option; associations between the dependent and independent variables as well as logistic regression findings. The second part presents qualitative findings, representing a combined conclusion for both quantitative and qualitative results.

Part One: Quantitative Findings

5.1 Description of Sample by Socio-Demographic, Service, Cultural and Mother Related Characteristics

The sample included a total of 400 HIV positive mothers aged between 18 and 43 years with a mean age of 27.9 (Standard Deviation 5.31). Information on socio-demographic characteristics of respondents namely age of mother, mothers by infant's age, marital status, educational level, occupational status and income levels was collected. Additionally, service variables associated with adherence were also examined. These included selected health centre and type; antenatal attendance during pregnancy; place of delivery; help rendered to mothers on breastfeeding following delivery; HIV test; counselling and type of counselling provided as well as support and type of support provided to the mother. Cultural related characteristics including experiencing stigma resulting from the mother's infant feeding practice (EBF or ERF) and HIV status disclosure as they relate to adherence were also studied. In addition to the aforementioned characteristics, mother related variables, including suffering from some form of breast condition including type and time of breastfeeding initiation soon after delivery was also studied. Table 4.1a and 4.1b indicate the results.

Table 5.1a: Description of Sample by Socio-Demographic Characteristics

Socio-demographic characteristics:		Frequency	Percent
Age of mother (years):	18	18	4.5
	20-24	97	24.3
	25-29	135	33.8
	30-34	104	26.0
	35-39	35	8.8
	40-44	11	2.8
	Total	400	100
Mean age:	27.9		
Standard deviation:	5.307		
Mothers by infants age (months):	0-5	294	73.5
	6-11	97	24.3
	12 +	9	2.3
	Total	400	100
Marital status:	Single	32	8.0
	Married	337	84.3
	Divorced/Separated	16	4.0
	Widowed	15	3.8
	Total	400	100
Educational level:	None	19	4.8
	Primary	209	52.3
	Junior Secondary	107	26.8
	Senior Secondary	56	14.0
	Tertiary	9	2.3
	Total	400	100
Occupational status:	Unemployed	268	67.0
	Employed	32	8.0
	Self employed	100	25.0
	Total	400	100
Income levels:	K0-600,000.00 (low)	284	71.0
	K600,001-1,200,000 (Medium1)	64	16.0
	K1,200,001-5,200,000 (Medium2)	17	4.3
	Above K5,200,000 (High)	7	1.8
	Don't Know	28	7.0
	Total	400	100.0

Mother's Age

The results showed that more mothers (33.8%, n=135) included in the study were aged between 25 and 29 years of age, whereas few were in the age range of 40 to 44 years (Table 5.1a).

Mothers by Infant's Age Group

One of the inclusion criteria in the sample was mother with an infant in the 0 to 12 months age group. More mothers included in the sample were of infants aged between zero and six months (73.5%, n=294) (Table 5.1a).

Marital Status

Results showed that there were more married mothers in the sample (84.3%, n= 337) compared to those who were single, divorced or widowed (Table 5.1a).

Educational Level

With regards the level of education attained, results revealed that about half of the mothers (52.3%, n=209) had attained primary education, while a few 2.3% (n=9) had attained tertiary education (Table 5.1a).

Occupational Status

In terms of the mothers' current occupational status at the time of the study, the majority of mothers were unemployed (67%, n=268) and only a few were in employment (Table 5.1a).

Income Levels

Of the mothers included in the sample, more than half (71.0%, n=284) were of low income brackets whereas a few were of high income brackets. About 7% (n=28) of the mothers did not know their income brackets (Table 5.1a).

Table 5.1b: Description of Sample by Service Characteristics

Service characteristics:		Frequency	Percent
Selected health centres:	Chawama	82	20.5
	Chelstone	30	7.5
	Chipata	60	15
	George	41	10.3
	Kabwata	33	8.3
	Kanyama	85	21.3
	Mtendere	26	6.5
	Railway	43	10.8
	Total	400	100
Type of facility:	High	294	73.5
	Medium	106	26.5
	Total	400	100
Antenatal services:	Yes	393	98.3
	No	7	1.8
	Total	400	100
Place of Delivery:	Health Facility	367	91.8
	Home	33	8.3
	Total	400	100
Received Help on Breastfeeding:	Yes	314	78.5
	No	86	21.5
	Total	400	100
*Provider of Help:	Health worker	209	74.8
	Community Volunteer	102	32.5
	Family member	11	3.5
Time of mother's test:	Before pregnancy	93	23.3
	During pregnancy	300	75
	During labour	1	0.3
	After delivery	6	1.5
	Total	400	100
Received Counsel:	Yes	344	86
	No	56	14
	Total	400	100

*Multiple responses

Selected Health Centres

Results also revealed that majority of the mothers interviewed (21.3%, n= 85) were from Kanyama health centre, while the least, (6.5%, n=26), were from Mtendere health centres. Furthermore, results indicated that most mothers in the sample (73.5%, n=294) were receiving health services from high density health centres (Table 5.1b).

Antenatal Services

Regarding other assessed service characteristics, results revealed that majority of the mothers included in the study received antenatal services during their last pregnancy (Table 5.1b).

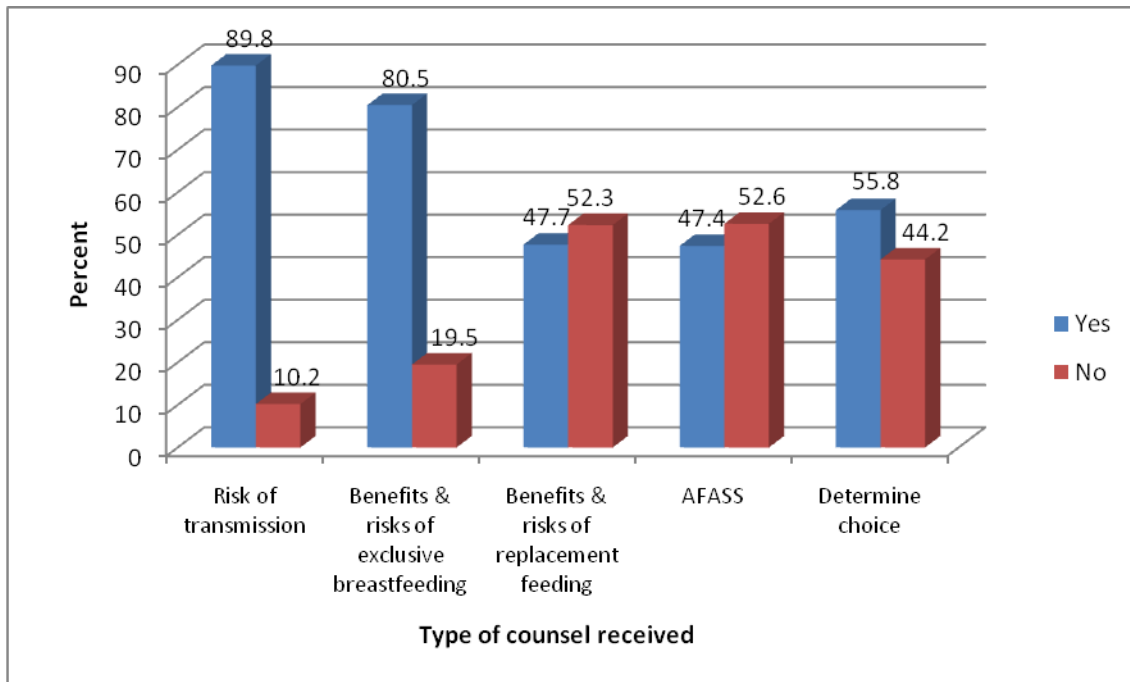
Place of Delivery

Results also indicated that most of the mothers delivered at a health centre.

Counselling

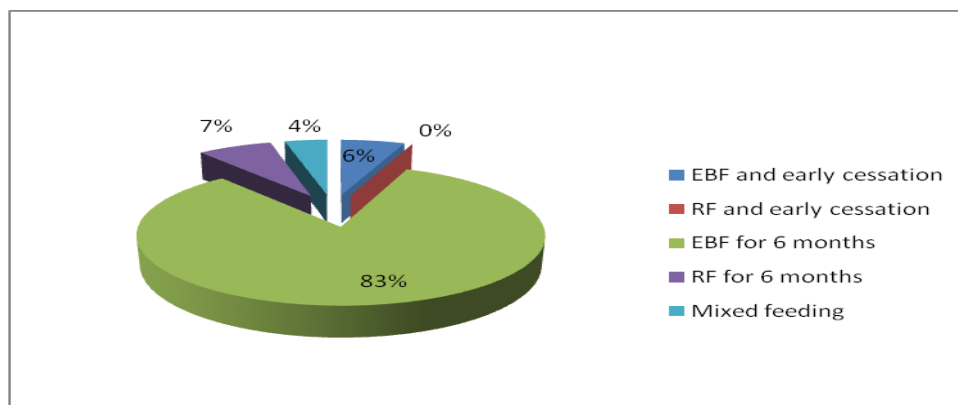
Results further revealed that most of the mothers received counselling on IYCF in the context of HIV. Mothers who stated having received counselling were further asked a multiple response question on the type of counselling received.

Figure 5.1: Type of Counselling Provided to Mothers During A Counselling Session



Results in Figure 5.1 indicate that majority of the mothers reported having been counselled on the risk of MTCT of HIV followed by benefits and risks of exclusive breastfeeding. At a scale of five, most of them (30.0%, n=101), reported having been counselled on all the sections of the counselling content, while 22.0%, (n=74) reported two, 21.4% (n=72) reported three, 14.5% (49) reported five whereas 12.2% (n=41) reported one. Mothers who were helped to determine a feeding option for their infants were asked to state the type of feeding option for their infants.

Figure 5.2: Type of Infant Feeding Option Chosen Following Counselling



Results in Figure 5.2 revealed that most of them (83%, n=286) chose exclusive breastfeeding option for the first six months of their infant’s life.

5.2 Description of Sample by Cultural Characteristics

Cultural characteristics including their influence on infant feeding particularly breastfeeding were also assessed. Table 5.1c depicts the results.

Table 5.1c: Description of Sample by Cultural Characteristics

Cultural characteristics:		Frequency	Percent
Experienced stigma due to EBF or ERF	Yes	18	4.5
	No	382	95.5
Total		400	100
HIV Status Disclosure:	Yes	330	82.5
	No	70	17.5
Total		400	100

Experienced Stigma Due to Exclusive Breastfeeding or Exclusive Replacement Feeding

Results on cultural information showed that majority of the mothers (95.5%, n=382) had not experienced any form of stigma resulting from either EBF or ERF practice (Table 5.1c).

HIV Status Disclosure

With regards to the HIV status disclosure, findings showed that most of the mothers (82.5%, n=330) had informed someone about their HIV status (Table 5.2a).

Results on mother related characteristics are in Table 5.2b.

Table 5.2b: Description of Sample by Mother’s Related Characteristics

Mother related characteristics:		Frequency	Percent
Suffered breast condition:	Yes	23	5.8
	No	377	94.3
	Total	400	100
*Type of Breast condition suffered:			
*Mastitis:	Yes	3	13
	No	20	87
	Total	23	100
*Breast abscess:	Yes	5	21.7
	No	18	78.3
	Total	23	100
*Cracked nipples:	Yes	12	52.2
	No	11	47.8
	Total	23	100
Time of initiation of Breastfeeding:			
	After 1 hour	65	17.6
	Within 1 hour	309	82.6
	Total	374	100

**Multiple response*

Results in Table 5.2b indicated that majority of the mothers included in the study reported having not suffered from any form of breast condition. Results further revealed that most of the mothers initiated breastfeeding within one hour of birth.

5.3 Prevalence of Adherence to the Exclusive Breastfeeding Option by Association with Selected Socio-Demographic, Service, Cultural and Mother Related Characteristics

The prevalence of adherence to the exclusive breastfeeding option among HIV positive mothers was determined. In addition, the chi-square test was used to examine the presence of an association between the dependent variable (adherence to the exclusive breastfeeding option among HIV infected mothers) and the different selected independent variables which included socio-demographic, service, cultural and mother related characteristics.

Table 5.3a Prevalence of Adherence to the Exclusive Breastfeeding Option by Infant’s Age Category

Age category:	Adherence to EBF Option among HIV Positive Mothers		Total	P-value
	Yes % (n)	No % (n)		
Below 6 months	76.9 (226)	23.1 (68)	294	0.029
6 months and above	66.0 (70)	34.0 (36)	106	
Total	(74.0) 296	(26.0) 104	400	

Results in Table 5.3a revealed an overall prevalence of adherence to the exclusive breastfeeding option among HIV positive mothers of 74.0% (n=296). Furthermore, results showed that the majority of mothers for both infants’ age categories reported adherence to the exclusive breastfeeding option. An association between adherence to the exclusive breastfeeding option and age was also revealed (p-value = 0.029).

Table 5.3b: Prevalence of Adherence to the Exclusive Breastfeeding Option by Marital Status

Socio-demographic characteristic:		Adherence to the EBF Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Marital status:	Single	55.6 (35)	16.4 (28)	63	<0.001
	Married	77.4 (261)	22.6 (176)	337	
Total		296	104	400	

When further associated with independent variables, results indicated an association between adherence to the exclusive breastfeeding option and marital status (p value < 0.001) (Table 5.3b). This shows that married women were likely to report adherence to the exclusive breastfeeding option than their single counterparts.

Table 5.3c: Prevalence of Adherence to the Exclusive Breastfeeding Option by Age of Mother

Socio-demographic characteristic type:		Adherence to the EBF Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Age of mother:	18 to 29	78.0 (195)	22.0 (55)	250	0.019
	30 to 44	67.3(101)	32.7 (49)	150	
	Total	296	104	400	

Results also showed an association between adherence to the exclusive breastfeeding option and age of the mother (Table 5.3c). Although results indicate that in both age categories some mothers adhered to the exclusive breastfeeding option while others did not, younger mothers aged 18 to 29, were more likely to report adherence to the exclusive breastfeeding option than the older ones.

Table 5.3d: Prevalence of Adherence to the Exclusive Breastfeeding Option by Income Level

Socio-demographic characteristic type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Income level:	Below 600,000	76.4 (217)	23.6 (67)	284	0.050
	Above 600,000	65.9 (58)	34.1 (30)	88	
	Total	275	97	400	

Results did not show any association between adherence to the exclusive breastfeeding option and the level of income (p value = 0.050) (Table 5.3d).

Table 5.3e: Prevalence of Adherence to the Exclusive Breastfeeding Option by Educational Level

Socio-demographic characteristic type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Educational level:	Primary & below	75.9 (173)	24.1 (55)	228	0.324
	Secondary & above	71.5 (123)	28.5 (49)	172	
	Total	296	104	400	

Results did not also indicate associations between adherence to the exclusive breastfeeding option and educational level (P value = 0.324) (Table 5.3e).

Table 5.3 f: Prevalence of Adherence to the Exclusive Breastfeeding Option by Occupational Status

Socio-demographic characteristic type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Occupational status:	Employed	68.2 (90)	31.8 (4)	132	0.068
	Unemployed	76.9 (206)	23.1 (62)	268	
	Total	296	104	400	

According to the results, there was no association between adherence to the exclusive breastfeeding option and occupational status (P value = 0.068) (Table 5.3f).

Table 5.3 g: Prevalence of Adherence to the Exclusive Breastfeeding Option by Type of Health Centre

Service type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Type of health centre:	Medium	66.0 (70)	34.0 (36)	106	0.029
	High	76.9 (226)	23.1 (68)	294	
	Total	296	104	400	

With regards to service characteristics and adherence, results indicated an association between adherence to the exclusive breastfeeding option and type of health centre from where mothers received antenatal services during pregnancy (P value = 0.029) (Table 5.3 g).

Table 5.3h: Prevalence of Adherence to the Exclusive Breastfeeding Option by Antenatal Services Received

Service type:		Adherence to the exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Received antenatal service:	Yes	73.8 (290)	26.2 (103)	393	0.476
	No	85.7 (6)	14.3 (1)	7	
	Total	296	104	400	

There was an association between adherence and antenatal services received (P value = 0.476) (Table 5.3h).

Table 5.3i: Prevalence of Adherence to the Exclusive Breastfeeding Option by Place of Delivery

Service type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Delivery place:	Centre	74.9 (275)	25.1 (92)	367	0.156
	Home	63.6 (21)	36.4 (12)	33	
	Total	296	104	400	

Results did not also show an association between adherence to the exclusive breastfeeding option and place of delivery (P value = 0.156) (Table 5.3i)

Table 5.3j: Prevalence of Adherence to the Exclusive Breastfeeding Option by Receipt of Counsel or Not

Service type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Received counsel:	Yes	75.6 (260)	24.4 (84)	344	0.074
	No	64.3 (36)	35.7 (20)	56	
	Total	296	104	400	

Results did not indicate an association between adherence to the exclusive breastfeeding option and receiving counsel (P value = 0.074) (Table 5.3j).

Table 5.3k: Prevalence of Adherence to the Exclusive Breastfeeding Option by Support Services Received

Service type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Support received on how to breastfeed successfully:	Yes	75.3 (213)	24.7 (70)	283	0.370
	No	70.9 (83)	29.1 (34)	117	
	Total	296	104	400	

Regarding support services received during pregnancy and after delivery, results did not indicate any association between adherence to the exclusive breastfeeding option and support services received on how to breastfeed successfully (P value = 0.370) (Table 5.3k).

Table 5.3l: Prevalence of Adherence to the Exclusive Breastfeeding Option by Experiencing Stigma or Not

Cultural characteristic:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Experienced stigma due to EBF or ERF:	Yes	44.4 (8)	55.6 (10)	18	0.006
	No	75.4 (288)	24.6 (94)	382	
	Total	296	104	400	

Results revealed an association between adherence to the exclusive breastfeeding option and experiencing stigma due to type of infant feeding choice (EBF or ERF) (P value = 0.006) (Table 5.3l).

Table 5.3m: Prevalence of Adherence to the Exclusive Breastfeeding Option by HIV Status Disclosure

Cultural characteristic type:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Status disclosure:	Yes	71.8 (237)	28.2 (93)	330	0.031
	No	84.3 (59)	15.7 (11)	70	
	Total	296	104	400	

According to the results, an association was found between adherence to the exclusive breastfeeding option and HIV status disclosure (P value = 0.031) (Table 5.3m).

Table 5.3n: Prevalence of Adherence to the Exclusive Breastfeeding Option by Breast Condition

Mother related characteristic:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Suffered breast condition:	Yes	39.1 (9)	60.9 (14)	23	<0.001
	No	76.1 (287)	23.9 (90)	377	
	Total	296	104	400	

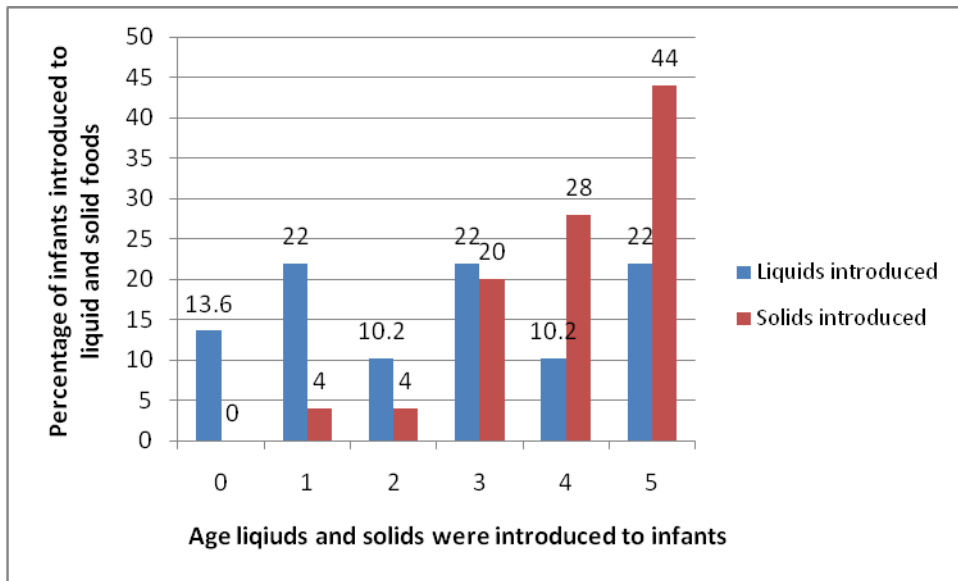
Mother related characteristics were also assessed to determine an association. Results indicated a high association between adherence to the exclusive breastfeeding option and suffering some form of breast condition (P value < 0.001) (Table 5.3n).

Table 5.3o: Prevalence of Adherence to the Exclusive Breastfeeding Option by Time of Initiation of Breastfeeding

Mother related characteristic:		Adherence to the Exclusive Breastfeeding Option among HIV Positive Mothers		Total	P-value
		Yes	No		
		% (n)	% (n)		
Time of breastfeeding initiation:	After one hour	67.7 (44)	32.3 (21)	65	0.018
	Within one hour	80.9 (250)	19.1 (59)	309	
	Total	294	80	400	

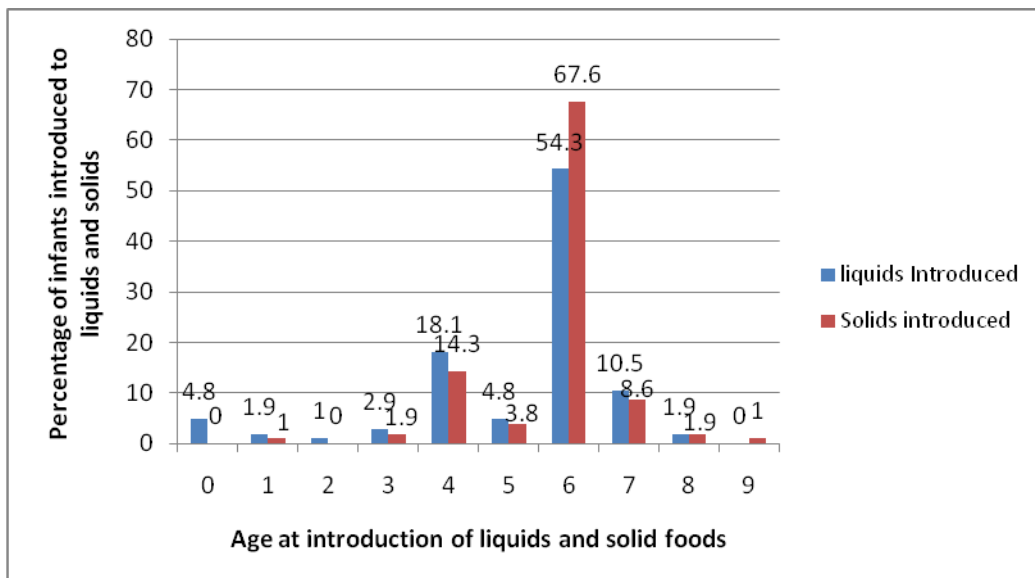
Furthermore, results showed an association between adherence to the exclusive breastfeeding option and time of breastfeeding initiation following delivery (p value = 0.018) (Table 5.3o). In relation to the level of adherence to the exclusive breastfeeding option, the age of introduction of liquid and solid foods among infants was also studied.

Figure 5.3: Age at Which Infants Less Than Six Months were Introduced to Liquid and Solid Foods



The majority of infants less than six months were introduced to liquid and solid foods at about five months of age (Figure 5.3).

Figure 5.4: Age at Which Infants Above Six Months were Introduced to Liquid and Solid Foods



Most of the infants above six months of age were introduced to liquid and solid foods at the age of six months (Figure 5.4).

5.4 Logistic Regression Results

Having computed the prevalence and associations, the significant variables namely type of health centre by density, time of initiation of breastfeeding soon after birth, marital status, suffered some form of breast condition, experienced stigma due to type of infant feeding and HIV status disclosure were also used in the logistic univariate regression as predictors of adherence to the exclusive breastfeeding option. In addition, the following variables, age of mother, mother's income level and receiving counsel on infant feeding in the context of HIV were also used as they were deemed important. The variables found significant in the multivariate regression analysis namely marital status and suffered from some form of breast condition, including income levels and receiving counsel were further adjusted for age and the educational level of the mothers.

According to the Omnibus tests of coefficients ($\chi^2=31.657$; $df=9$; $p<0.001$), the overall model performed well. The Hosmer and Lemeshow test ($\chi^2=7.662$; $df=7$; $p=0.363$) supported the model. The Cox & Snell R Square and the Nagelkerke R Square values suggested that between 8.5% and 13.2% variability in the dependent variable was explained by the variables in the model.

Table 5.4: Logistic Regression by Adherence and Type of Health Centre, Age of Mother, Marital Status, Income Levels, Counselling in the Context of HIV, Status Disclosure, Experiencing Stigma and Time of Breastfeeding Initiation

Characteristics		Prevalence	Crude	P-value	Adjusted	P-value
		% (n)	OR (95% CI)		OR (95% CI)	
Residence:	Medium	26.5 (106)	1		1	
	High	73.5 (294)	1.70 (1.05, 2.77)	0.03	1.14 (0.61, 2.14)	0.676
Mother's age (yrs):	30-44	37.5 (150)	1		1	
	18-29	62.5 (250)	1.72 (1.09, 2.70)	0.019	1.32 (0.76, 2.30)	0.312
Marital Status:	Single	15.8 (63)	1		1	
	Married	84.3 (337)	2.74(1.57, 4.80)	<0.001	2.88 (1.45, 5.71)	0.002
Income levels:	Above K600,000	23.7 (88)	1		1	
	Below K600,000	76.3 (284)	1.67 (0.99, 2.81)	0.051	1.36 (0.71, 2.62)	0.346
Counselled:	No	14.0 (56)	1		1	
	Yes	86.0 (344)	1.72 (0.94, 3.13)	0.076	1.50 (0.71, 3.20)	0.284
Status disclosure:	No	17.5 (70)	1		1	
	Yes	82.5 (382)	0.47 (0.23, 0.94)	0.034	0.80 (0.37, 1.72)	0.580
Experienced stigma:	Yes	4.5 (18)	1		1	
	No	95.4 (382)	3.83 (1.46, 9.98)	0.006	2.27 (0.70, 7.27)	0.167
Breast condition:	Yes	5.8 (23)	1		1	
	No	94.3 (377)	4.96 (2.07, 11.8)	<0.001	5.34 (2.08, 13.7)	<0.001
Time of breastfeeding initiation:	After 1 hour	17.4 (65)	1		1	
	Within 1 hour	82.6 (309)	2.02 (1.11, 3.65)	0.020	1.17 (0.58, 2.36)	0.654

Note: n=400; variables entered in the model: type of health centre by density; marital status; income levels; counselled or not; status disclosure; experienced stigma; suffered some breast condition; time of breastfeeding initiation following delivery and age of mother

According to the logistic regression computation, the univariate results revealed that most of the variables entered in the regression were found to associated with adherence to the exclusive breastfeeding option except for income levels (p value = 0.051) and receiving counselling on infant feeding in the context of HIV (p value = 0.076). However, the multivariate results indicated that only being married (p value = 0.002) and not suffering from any form of breast condition (p value < 0.001) were associated with adherence to the exclusive breastfeeding option. With regards to marital status, married mothers were 2.88 times more likely to report adherence than those who were single. Results also revealed that mothers who did not suffer some form of breast condition were 5.34 times more likely to report adherence than those who suffered some form of breast condition (Table 5.4). Furthermore, marital status and not suffering from any form of breast condition including income levels and receiving counselling were adjusted for age and educational level.

Table 5.5: Age and Educational Level Adjusted OR of Adherence for Marital Status, Income Level, Counsel Received or Not and Suffered Some Form of Breast Condition or Not

Age	Characteristics		Prev.	A OR (95% CI)	P-value	Age	AOR (95% CI)	P-value
18-29			% (n)			30-44		
	Marital status:	Single	15.8 (63)	1			1	
		Married	84.3. (337)	3.28 (1.44, 7.45)	0.004		2.77 (1.03, 7.41)	0.042
	Income:	Above K600,000	23.7 (88)	1			1	
		Below K600,000	76.3 (284)	1.40 (0.66, 2.98)	0.378		2.71 (1.20, 6.15)	0.017
	Counselled:	No	14.0 (56)	1			1	
		Yes	86.0 (344)	2.29 (0.94, 5.54)	0.065		0.85 (0.28, 2.53)	0.779
	Breast condition:	Yes	5.8 (23)	1			1	
		No	94.3 (377)	2.28 (0.50, 10.3)	0.285		6.28 (1.74, 22.6)	0.005
Ed. Level	Characteristics:					Ed. level		
Pri. & below	Marital status:	Single	15.8 (63)	1		Sec. & above	1	
		Married	84.3. (337)	2.06(0.83, 5.08)	0.115		4.41 (1.76, 11.0)	0.002
	Income:	Above K600,000	23.7 (88)	1			1	
		Below K600,000	76.3 (284)	1.37(0.57, 3.27)	0.474		2.44(1.14, 5.23)	0.021
	Counselled:	No	14.0 (56)	1			1	
		Yes	86.0 (344)	2.11 (0.90, 4.94)	0.085		0.99 (0.31, 3.12)	0.991
	Breast condition:	Yes	5.8 (23)	1			1	
		No	94.3 (377)	5.64(1.48, 21.5)	0.011		3.72 (1.01, 13.6)	0.048

Note: n=400; Variables entered in the model: marital status; income level, counselled or not and suffered from some form of breast condition

When adjusted for age and educational level, results revealed that mothers in the 18 to 29 years age group were 3.28 times more likely to report adherence than those in the 30 to 44 years age group. Results also showed that mothers of incomes below six hundred thousand kwacha (K600, 000.00) in the 30 to 44 years age group were 2.71 times more likely to report adherence than those of incomes above six hundred thousand kwacha in the same age category. Furthermore, results revealed that mothers who did not suffer any form of breast condition in the 30 to 44 years age group were 6.28 more likely to report adherence than those who suffered some form of breast condition in the same age group.

Results also showed that married mothers with education level of secondary and/or beyond in the 30 to 44 years age group were 4.41 times likely to report adherence than single mothers with the same level of education and same age group. Furthermore, results showed that mothers of incomes below six hundred thousand kwacha in the 30 to 44 years age group were 2.44 likely to report adherence than single mothers of the same level of education but with incomes above six hundred thousand kwacha. Results also showed that mothers with primary and lower educational level who did not suffer some form of breast condition were 5.64 times more likely to report adherence than those of the same level of education who suffered some form of breast condition. Mothers with secondary and/or beyond level of education who did not suffer some form of breast condition were 3.72 times more likely to report adherence than those of the same level of education who suffered some form of breast condition.

Part Two: Findings for Qualitative Data

This section describes the qualitative findings of the study. These include the FGDs and IDI results.

Background Characteristics of Respondents

The minimum number of mothers in each FGD was six, whereas the maximum was 10. The actual numbers of mothers from each health centre were as follows: Chawama six; Chelstone ten; Chipata six; Kabwata six; Kanyama six and Railway eight. The mean and median ages for mothers included in the FGDs were 27 and 28 respectively. There were more married HIV positive mothers than single ones. In terms of educational level, more mothers attained primary level and of those who managed to reach secondary level, only a few managed to complete grade 12. Table 5.6 shows details of the background information of mothers included in the FGDs.

Table 5.6. Background Information of Mothers Included in the Focus Group Discussions

Background information:		Frequency
# of infants:	<6 months	21
	>6 months	23
	Total	44
Marital status:	Single	4
	Married	39
	Divorced/separated	1
	Total	44
Educational level:		
	Primary	32
	Junior secondary	10
	Senior secondary	2
	Total	44

The in-depth discussions comprised eight nurses drawn from each of the selected eight health centres. Seven of them were IYCF programme coordinators, while one was not. Of the eight health workers involved in the in-depth interviews, two were sister-in-charges, two were Maternal and Child Health Coordinators whereas the rest were ordinary nurses.

Level of Adherence to the Exclusive Breastfeeding Option Among Respondents

Of the mothers included in the FGDs, the majority (n=34) stated that they adhered to the exclusive breastfeeding option, while a few (n=10) did not adhere. Three were from Chelstone, one from Chawama, two from Kabwata, two from Kanyama and two from Railway.

Table 5.7: Determinants Influencing Adherence and Non Adherence to the Exclusive Breastfeeding Option

Category of informants	Characteristics:	Adherence	Non-adherence
Women (mixed groups of younger and older ones):	Socio-economic:	<ul style="list-style-type: none"> Non-availability of resources to sustain replacement feeding for the recommended period (10 responses) 	<ul style="list-style-type: none"> Enough resources to sustain replacement feeding for the recommended period (3 responses)
	Service:	<ul style="list-style-type: none"> Nutrition education (17 responses) 	<ul style="list-style-type: none"> Fear of infecting baby through breast milk due to counselling (6 responses)
		<ul style="list-style-type: none"> Mothers understood that mixed feeding facilitates transmission of MTCT of HIV due to counselling received (10 responses) 	<ul style="list-style-type: none"> Health worker's advice not to breastfeed due to infant's negative test result (2 responses)
		<ul style="list-style-type: none"> Received support when encountered a breastfeeding problem (2 response) 	
	Mother related:	<ul style="list-style-type: none"> Acceptance of the positive HIV status (1 response) 	<ul style="list-style-type: none"> Fear of infecting baby through teething (3 responses)
		<ul style="list-style-type: none"> Care to ensure that the child does not get the HIV virus 	
	Baby related:		<ul style="list-style-type: none"> Infant's HIV negative status (1 response)
Key-informants:	Service:	<ul style="list-style-type: none"> Counselling on benefits and risks of breastfeeding in the context of HIV (7 responses) 	<ul style="list-style-type: none"> Fear of infecting the baby through breast milk due to counselling received (2 responses)
		<ul style="list-style-type: none"> Understanding that Exclusive breastfeeding reduces MTCT due to counselling received (1) 	<ul style="list-style-type: none"> Inadequate information on the consequences of mixed feeding (3 responses)
	Cultural:	<ul style="list-style-type: none"> Fear of being stigmatised when not breastfeeding (3 responses) 	<ul style="list-style-type: none"> Mother-in-law's influence (3 responses)
		<ul style="list-style-type: none"> Non-disclosure of the HIV status (6 responses) 	
		<ul style="list-style-type: none"> Accepted cultural norm that every mother need to breastfeed (2 responses) 	
	Socio-economic:	<ul style="list-style-type: none"> Non-availability of resources to sustain replacement feeding for the recommended period (4 responses) 	<ul style="list-style-type: none"> Enough resources to sustain replacement feeding for the recommended period (2 responses)
	Mother related:		<ul style="list-style-type: none"> Breast condition which can be a route for HIV transmission (2 responses)
			<ul style="list-style-type: none"> Fear of infecting the baby through breastfeeding while teething (1 response)
	Baby related:		<ul style="list-style-type: none"> Infant's HIV negative status (1 response)
			<ul style="list-style-type: none"> Sores in baby's mouth which can be a route of HIV transmission (1 response)

Determinants of Adherence to the Exclusive Breastfeeding Option

From discussions with the mothers, table 5.7 shows that the main determinants to the EBF option brought out were service and socio-economic related. In terms of service related factors, understanding counselling (specifically counselling associated with scientific benefit of prevention of the HIV transmission from the mother to the infant through appropriate practicing of EBF) and health education were cited as major factors. For example, some mothers indicated that mixed feeding facilitated MTCT of HIV. Below is an excerpt to support the above assertion: *'...because when she is fed while breastfeeding, the lining can be scratched and the child can get the infection'* [Mothers from all health facilities].

Mothers expressed knowledge of breast milk as a mode of MTCT of HIV which can be avoided by ERF. Nevertheless, discussions further revealed that mothers breastfeed exclusively due to financial constraint which hinder them from meeting the expense of replacement feeding for the first six months of the baby's life. Below is one of the excerpts from the focus group discussions in support of the above statement: *'...it's a risk, it's not 100%, that's why those who have money these days they don't breastfeed their children'* [Mother of 1 from Kabwata health facility].

Unlike FGDs with mothers, the major determinant of adherence to the EBF option brought out during in-depth interviews was cultural. This was followed by service and then socio-economic factors. With regards cultural characteristics, non-disclosure of the HIV status was mentioned by most of the coordinators as a major factor. The reason behind it was that a mother's decision not to breastfeed, was an indication to other community members of her HIV positive status. The other cultural issue mentioned was related to issues of stigma whereby mothers opted to breastfeed so as to avoid being stigmatised. It was further mentioned that breastfeeding was a cultural norm and that every mother was expected to breastfeed their infants.

With regards service characteristics, in-depth interviews revealed that mother's understanding of the benefits of breast milk in the prevention of malnutrition as compared to replacement feeding played a critical role in adhering to the EBF option. Like the FGDs with mothers, coordinators also mentioned lack of money as another determinant of adherence to the EBF option.

Both the FGDs and the IDIs further revealed that some of the mothers do not breastfeed their infants as it is associated with transmission through breast milk and during teething. It was brought out that teething can result in nipple biting which may result in cracked nipples. Cracked nipples were identified as a route for MTCT. This therefore, results in non-adherence to the EBF option. The other factor mentioned by both groups was that related to the baby's condition. It was explained that infants may develop sores in the mouth, which mothers may not be aware of. Therefore, MTCT may result unknowingly through breastfeeding. Both groups mentioned that a negative HIV status for the baby also demoralised mothers from adhering to the EBF option. In addition, mothers also mentioned that health workers advise them to stop breastfeeding once the infant tests negative for HIV. Furthermore, it was brought out by both groups that those with the ability to afford replacement feeding with formula do not even breastfeed. From the in-depth interviews, it was mentioned that mother related factors in particular suffering from some form of breast condition, prevented mothers from adhering to the exclusive breastfeeding option.

Traditional influence from the mother-in-law was also cited as a factor that hinder adherence to the exclusive breastfeeding option. For example one of the coordinators had this to say:

“Traditionally when a mother gives birth, is supposed to breastfeed, but when the mother in law comes to visit, the mother will remove the breast and start to feed the baby, then that feeding come in causing the baby to acquire the HIV” [health worker].

Other factors mentioned during in-depth interviews included inadequate information on the consequences of mixed feeding. In addition, wrong information from some of the community members that those who are positive should not even breastfeed, influence HIV infected mothers not to adhere.

Frequency and Extensiveness of Factors Associated with Exclusive Breastfeeding

From the discussions, service and socio-economic factors were mentioned by most of the participants as main factors influencing adherence to the exclusive breastfeeding option (Table 5.6). In terms of service factors, the mostly referred to issues were those related to

counselling on infant feeding in the context of HIV, followed by health education and then follow-up support.

Mothers Feelings about Exclusive Breastfeeding

From the FGDs and in-depth interviews, it appeared that the EBF option has been generally well received. Although mothers do practice EBF and are expected to do so by its proponents, both mothers and health workers expressed fear that HIV infection can be transmitted to the infant through breast milk. This was brought out when both groups were asked about reactions HIV positive mothers have putting their infants to the breast and how best they feel HIV infected mothers should feed their babies. Below are excerpts from mothers and health workers indicating their feelings:

“We get worried that the child can get infected. These days, just what they say that breastfeeding is not 100% free of the HIV virus, there is a risk of the baby getting the infection” [Mothers from all health facilities]. Another quote is indicated below:

“... For those who are able to sustain replacement feeding, I think it’s better for them not to breastfeed their babies, because that way the baby is almost 100% assured of not getting infected through breast milk ... ”[health worker].

Although the discussion brought out service and socio-economic factors as being responsible for adherence to the exclusive breastfeeding option, levels of adherence were different. Mothers who spoke in favour of adherence based their favour and adherence on an understanding that transmission of the HIV infection to the infant was non-existent or was reduced. Those who did not favour or adhere to the option based it on their experience of loss of their previous child. The loss was attributed to the HIV infection through breast milk which subsequently resulted in poor health. Therefore, non-adherence to the option was done on the premise that they were protecting their infants from contracting the infection which was associated with poor health and ultimate death in most of the recruited mothers.

In terms of support as a service factor to the mothers on infant and young child feeding in the context of HIV, there was a variation in perception of the support rendered by the health workers. It was generally agreed by most of the mothers that the major support being rendered was health education received during antenatal clinics which basically promoted exclusive breastfeeding for the first six months of life, beyond that most of the mothers mentioned having not received any form of support. The few mothers who acknowledged having been provided with any form of support were mainly those who practically requested for it. However, support through antiretroviral therapy which has kept them in good health, was greatly appreciated by most of them. Nevertheless, most of them felt that they should have been supported materially by being provided with infant formula for their babies to avoid HIV transmission through breast milk or for themselves to aid in more milk production for their infants as they practice exclusive breastfeeding.

On the part of health workers, most of them acknowledged that the only form of support rendered to mothers was information provision through health education and nothing more. According to the health workers, it was difficult for them to provide any other support beyond health education due to time constraint and low staffing levels.

Although most of the mothers expressed knowledge about exclusive breastfeeding option, some of them indicated that they did not practice the option correctly. The following excerpt from one of the mothers has been provided to support the assertion: '*... Like the way my child is 4 months, I breastfeed and give porridge, they do not allow*' [Mother].

Conclusion of the Findings

The findings revealed 74.0% (n=296) as a total prevalence of adherence to the EBF option (Table 5.3). The following socio-demographic characteristics namely age category of the infant; being married and age of mother in the range of 30 to 44 years, were found to be closely associated with adherence to the EBF option (Tables 5.3, 5.3a and b). Results further revealed statistical association between adherence to the EBF option and culture as well as mother related characteristics (Table 5.3I). However, none of the service characteristics studied apart from type of health centre from which mothers received health services showed some statistical significance with adherence to the EBF option.

With regards univariate regression results, type of health facility, mother's age, income level, status disclosure, experienced stigma due to type of infant feeding (EBF or ERF), suffering from some form of breast condition and initiation of breastfeeding within one hour of birth were found to be significant (Table 5.4). In the multivariate results, only marital status and suffering from some form of breast condition were found to be statistically significant (Table 5.4). When further adjusted for age, marital status in both age groups still remained significant whereas, suffering from some form of breast condition was only significant in the older age group. When further adjusted for educational level, suffering some form of breast condition was found to be significant in those who attained primary level education whereas among those who attained secondary education and beyond, results showed a significant association between adherence to the EBF option and marital status, income levels of below six hundred thousand kwacha (k600,000.00) and suffering from some form of breast condition (Table 5.5).

Unlike quantitative findings, qualitative results revealed that mothers adhered to the EBF option due to service characteristics. Examples of service characteristics cited were those related to counselling on the benefits and risks of appropriate practice of EBF option by HIV infected women. Other factors brought out included socio-economic and mother related factors.

The aforementioned factors were not different from those highlighted by health workers. However, it is worth noting that from the in-depth interview analysis, cultural factors

emerged to be the major determinants of adherence to the exclusive breastfeeding option. This was in addition to the service and socio-economic characteristics. Mother and baby related characteristics were also mentioned although at a small scale.

CHAPTER SIX: DISCUSSION

The study was conducted among HIV positive mothers in eight selected health centres in Lusaka district. The objectives of the study were fivefold: to determine the proportion to which HIV infected mothers adhered to the EBF option, to assess and describe socio-demographic characteristics, to identify cultural beliefs, to describe service-related characteristics, maternal and infant related characteristics and how these influence adherence to the EBF option. The study also tested the hypotheses that socio-demographic, service, cultural and maternal related characteristics influence adherence to the EBF option.

6.0 Level of Adherence to the EBF Option

With regard to the first stated objective, results revealed that 74.0% of the HIV positive mothers included in the study adhered to the EBF option (Table 5.3).

6.1 Socio-Demographic Characteristics

In relation to the objective on assessment of socio-demographic characteristics influencing adherence to the EBF option, the logistic multivariate analysis results showed that married women were 2.88 times more likely to report adherence to the EBF option compared to the single mothers (Table 5.4). This finding is in agreement with that of Doherty et al. (2006) who examined challenges which HIV-positive women face at different stages of early infant feeding and identified characteristics of women and their environments that contributed to success in maintaining exclusivity of their infant feeding practices. The research findings revealed that: ‘of the women who maintained EBF from birth to four or six weeks, majority had a husband or partner who was supportive of their feeding choice.’

Further stratification of the marital status variable, (being married or being single) by age, still revealed that married mothers were more likely to adhere to the EBF option than single mothers in both age categories. However, married mothers aged between 18-29 years were

more likely to report adherence to the EBF option than those aged between 30-44 years (Table 5.5).

Results also revealed that mothers who belonged to an income level of below six hundred thousand kwacha (K600,000.00) in the age category of 30-44 years were also more likely to report adherence to the EBF option than those who belonged to the income level of above K600,000.00. For mothers aged between 18 to 29 years, there was no difference between mothers of either income levels in reporting adherence to the EBF option (Table 5.5).

Further stratification of the variable entered into the logistic multivariate regression with the mothers' educational level yielded similar results with those of age stratification. Results showed that married mothers and mothers of income levels below K600,000.00 of secondary educational level and/or beyond were more likely to report adherence to the EBF option compared to those who were single and those whose income levels were above K600,000.00 (Table 5.5).

Unlike being married and belonging to an income level below K600,000.00, mothers who did not suffer from any form of breast condition belonging to either category of educational level, were more likely to report adherence to the EBF option than those who suffered from any form of breast condition (Table 5.5). It is convincing, therefore, that higher educational level may have a positive impact on mother's level of adherence to the EBF option. However, regardless of the level of education, mothers who did not suffer from any form of breast condition were more likely to adhere to the EBF option as revealed by the current findings (Table 5.5). Breast conditions, increase the chances of MTCT of HIV through breastmilk and therefore, HIV positive mothers with breast conditions, may not wish to breastfeed their babies to avoid the risk of transmission.

The AFASS criteria, particularly, the affordability aspect, was also indicated as a major determinant of adherence to the EBF option during FGDs with mothers and IDIs with health workers (Table 5.7). It is not surprising that affordability in the AFASS criteria stood out as a determinant. This is in light of the fact that to sustain replacement feeding for the whole recommended period of six months, it has been estimated that forty tins of 500g formula milk are required (WHO 2006). It has been further determined that approximately one million,

two hundred thousand kwacha (K1, 200, 000.00), is required to purchase and sustain replenishment of the formula for the whole period (MOH & NFNC 2008).

It has been earlier stated that if any one component of AFASS is not attained, such as affordability as revealed in this study, ERF becomes untenable, leaving a mother with no better option but EBF. EBF is not only important for the general population because of its scientific benefits, but more especially in the context of HIV as a strategy for child survival. Therefore, concerning the income levels of mothers included in this study, it made social and economical sense to have opted to exclusively breastfeed their infants for the recommended period.

The finding that mothers of low income level (below K600,000.00) were more likely to report adherence to the EBF option is in agreement with the study findings by Fadnes et. al. (2009). The study revealed that better off HIV positive mothers opted for exclusive replacement feeding more often than their poorer peers. The implication is that those who were poorer could have settled for EBF. However, this finding is at variance with a prospective cohort study by Doherty and others (2006) conducted in three PMTCT sites in South Africa. Results showed that the infant feeding intentions (that is, how they planned to feed their infant following counselling) of women enrolled in the study differed greatly between the sites and did not reflect what would be expected for the socio-economic or geographic region, that is, more women in the rural Rietvlei site chose to formula feed. According to the study's results about 18% of rural women chose formula feeding against 12% and 8% in Umlazi and Paarl respectively who were socio-economically better off.

Further associations between quantitative and qualitative data regarding level of education were revealed. For example, quantitative findings revealed that higher level of education among married mothers and mothers of higher levels of income was associated with reporting adherence to the EBF option as compared to mothers of lower educational levels. This was complemented by qualitative findings from both FGDs with mothers and IDIs with key informants. The FGDs and IDIs revealed that mothers who received nutrition education and counselling on mixed feeding as a route of MTCT of HIV and benefits and risks of breastfeeding in the context of HIV were able to report adherence to the EBF option. It is convincing that higher level of education is important in the implementation of improved

feeding practices among mothers, but also specific nutrition education as highlighted during FGDs with mothers and IDIs with key informants is also valuable for successful improved infant feeding practices among mothers.

6.2 Mother Related Characteristics

Regarding the objective on describing mother related characteristics influencing EBF option, logistic multivariate results revealed that mothers who did not suffer from any form of breast condition were 5.34 times more likely to report adherence to the EBF option compared to those who suffered from some form of breast condition (Table 5.4). The quantitative finding in relation to suffering from any form of breast condition and the unlikelihood of reporting adherence to the EBF option (Table 5.6) was complemented by the qualitative finding in which key informants revealed that mothers do not adhere to the exclusive breastfeeding option due to suffering from some form of breast condition as it can be a route of MTCT of HIV (Table 5.6).

It is surprising that in this study, initiating breastfeeding within the first hour of birth did not emerge as a determinant of adherence to the EBF option. This is in disagreement with other findings which have established that “time to initiation of breastfeeding is one of the key factors that have consistent influence on the overall breastfeeding practices irrespective of socio-cultural settings” (Baker et al. 2006). According to these findings, initiation of breastfeeding was associated with successful breastfeeding including EBF. Early initiation of breastfeeding provides quick learning suckling skills necessary for successful breastfeeding. It also prevents low blood sugar levels in the infant and the mild laxative effect of the colostrums helps in the passage of the meconium-the first blackish stool (Lisa 2007). Early initiation of breastfeeding within the first hour of birth has been also found to be strongly associated with the reduction by 22% of all deaths among children within one month of birth, thereby reducing infant mortality rate (Huffman 2001).

6.3 Cultural Related Characteristics

In terms of cultural related characteristics, none of the logistic multivariate analysis results emerged statistically significant (Table 5.4). However, from the qualitative results, cultural

factor was also mentioned as a determinant of adherence to the EBF option during in-depth interviews. This was in context of non-disclosure of HIV status in particular to the partner for fear of being divorced or losing a stable relationship. The other aspect of the cultural context was fear of being stigmatised as being HIV positive once they decided not to breastfeed. This was due to the fact that breastfeeding is still considered a cultural norm for providing nourishment to the infant. Avoiding breastfeeding, therefore, creates suspicion that a mother is HIV positive.

However, the fact that most of the mothers interviewed in this study had disclosed their HIV status is a positive finding despite the fact that status disclosure was not statistically significant as a determinant of adherence to the EBF option. The qualitative findings that mixed feeding is culturally accepted and the idea that HIV positive mothers should not even breastfeed as they can automatically transmit the infection to their infants is worrying. The finding from in-depth interviews that mothers-in-laws influence how their daughters-in-laws should feed their babies is equally worrying. This is because their support was not found beneficial as it did not adhere to the governments' set standard regarding IYCF in the context of HIV, thereby undermining the full benefits of EBF for both the mother and the infant.

The qualitative finding that non-disclosure of the HIV status to others contributed to mothers adhering to the EBF option is in agreement with the exploratory descriptive study which was a combination of a hospital community based phase designed to study participants for eight to nine months conducted in Northern Tanzania. The aim of this study was to examine the infant feeding experiences of HIV-positive mothers. Results revealed that 13 women who chose exclusive breastfeeding had not disclosed their HIV status to their partner or to anyone else. Nine of them were living in an extended family and none were formerly employed. Fear of disclosure of HIV-positive status, purchasing power and social pressure were major concerns conditioning choice, as was the strong cultural position of breastfeeding as the only acceptable infant feeding method and the only way to fulfil ideals of being a good mother (Leshabari et al. 2007). The result is further in agreement with a prospective cohort study by Doherty and others (2006) conducted in three PMTCT sites in South Africa. The purpose was to investigate infant feeding choice and practices among HIV positive women. The home circumstances of women choosing to breastfeed and women choosing to formula feed were similar in terms of access to piped water, a sustainable source of cooking fuel,

household income and use of a fridge. There were, however, higher rates of disclosure of HIV status amongst women who chose to formula feed. According to the same study, mothers who never disclosed their status found it difficult to explain to family members why EBF was important. They also feared negative consequences of disclosure such as less help from the family in looking after their children including unknown reaction which could be divorce or loss of a partner. None status disclosure in relation to exclusive breastfeeding should not be encouraged as it may breed mixed feeding. Mixed feeding increases the risk of MTCT of HIV.

6.4 Service Related Characteristics

None of the logistic multivariate results regarding service characteristics came out statistically significant in association with adherence to the EBF option by mothers (Table 5.4). Qualitative results, however, showed that service factors in particular counselling on the benefits of exclusive breastfeeding in the context of HIV and nutrition education enabled mothers to adhere to the EBF option (Table 5.7). This finding is in agreement with that of the population council's operations report on empowering communities to respond to HIV/AIDS, a Ndola demonstration project on maternal and child health (Population Council 2003).

Nevertheless, it is important to note that, there were varied views among health workers regarding IYCF information provided to HIV positive mothers. For example, some of the health workers promoted adherence to the EBF option while others discouraged HIV positive mothers to breastfeed exclusively. This finding is in agreement with that of Doherty (2006), which stated that some of the mothers included in the study were encouraged to breastfeed exclusively by a certain group of health workers while others were hindered by another group. In this study, the advice against EBF was based on the assumption that mothers were being helped to avoid MTCT of HIV through breast milk. This was in circumstances where an infant's test result was negative or an infant was teething (Table 5.6).

The qualitative findings further revealed that service factors in particular counselling on the benefits of exclusive breastfeeding in the context of HIV and nutrition education enabled

mothers to adhere to the EBF option confirming the findings of Kuhn et al. (2007) and Doherty (2006). According to these research findings, increased uptake of EBF was associated with proper counselling and nutrition education through which mothers were made to understand the benefits of EBF in the context of HIV. However, the finding that those who were more educated were more likely to report adherence to the EBF option is at variance with the study by Fadnes and others (2009). In this study higher education level of the mothers was found to be associated with a higher rate of exclusive replacement feeding among the HIV-positive mothers. The results were also in agreement with a study funded by the Wellcome Trust on the risk of postnatal MTCH transmission of HIV. In addition to trained lay workers offered counselling to HIV-infected mothers to improve exclusive breastfeeding practices. As a result, they were able to achieve a much higher rate of EBF than previously reported in similar communities.

6.5 Hypotheses Testing

With regard to the testing of the hypotheses, the results showed that only socio-demographic and mother related characteristics, in particular being married and not suffering from any form of breast condition were associated with reporting adherence to the EBF option (Table 5.4).

6.6 Strengths and Limitations

Strengths

The study exhibited both strengths and limitations. The major strength was in the study design with specific emphasis on sample size and sampling. The sample size was large enough to give the study enough statistical power and precision. The other strength was the random sampling of the study sites and the study elements. Therefore, the study findings can be inferred to the population from which the sample was drawn since it was assumed that those who were included in the study were not different from those who were not. Mixed methods which included both quantitative and qualitative data, were an additional strength.

Limitations

Nonetheless, the study was not without limitations which included aspects related to the design, recall bias, reporting bias and confounding. Design associated dynamics and recall bias could have led to an over estimation of the level of adherence to the EBF option. Furthermore, the actual determinants of EBF which may have resulted from differences in accuracy or completeness of recall of past experiences particularly for mothers of infants who were six months of age and above may not have been accurately reported. Reporting bias could have also led to the provision of desired answers. To minimise the above mentioned limitations, a number of measures were undertaken. First, interviewers were trained to ask questions in the same way. Since it was not easy to blind the study participants, the research topic was not revealed in an exact way, but it was only explained to participants that the purpose was to learn from them on infant feeding in the context of HIV. The other limitation was the fact that the study elements were not randomised to those who breastfed exclusively and to those who did not right at the start of the study, which could have introduced confounding. To control for this, statistical modelling in particular logistic regression was employed to adjust for all confounding variables at the analysis stage.

6.7 Implications of Research Findings

The findings that being married, not suffering any form of breast condition, not meeting the AFASS criterion in particular affordability, understanding the benefits of EBF in the context of HIV have both immediate and long term implications. It is further noted that provision of mixed messages regarding EBF to mothers by health workers also has implications on WHO's recommendation to promote, protect and support breastfeeding. Health workers are believed to be the custodian of accurate information pertaining to IYCF in the context of HIV. Therefore, uniformity in the provision of information concerning IYCF in particular EBF in the context of HIV is important for the purpose of promoting, protecting and supporting EBF and ultimate child survival. This is more of a challenge for HIV positive mothers who live in resource poor settings as mixed messages may result in poor feeding practices such as mixed feeding or complete breastfeeding cessation for infants who may benefit enormously from the protective benefits of EBF against various infections such as

diarrhoea to which they are already exposed. The fact that mothers may be influenced to feed inappropriately by others such as mothers-in-laws as mentioned during in-depth interviews has implications on the feeding practices of HIV positive mothers. This is depending on the level of information that those who have influence possess regarding appropriate IYCF practices.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

The study set out to determine the proportion to which HIV infected mothers adhered to the exclusive breastfeeding option; assess and describe socio-demographic characteristics; identify cultural beliefs; describe service-related characteristics and mother and infant related characteristics and how these influenced mother's level of adherence to the EBF option. The study also tested the hypotheses that socio-demographic; service, cultural and mother related characteristics influence adherence to the EBF option.

Results in Table 5.3 revealed that 74.0% of HIV positive mothers who were included in the study adhered to the option. Results in Table 5.5 suggest that socio-demographic characteristics in particular being married and mother-related issues associated with not suffering from any form of breast condition have a higher chance of reporting adherence to the exclusive breastfeeding option. This is in comparison with those who were single and those who reported having suffered from some form of breast condition. The finding remained the same even after further stratification of variables that were statistically significant in the multivariate results namely marital status and breast condition status including those which were deemed important despite not being significant namely income level and counselling with age and educational level. Table 5.7 also suggests that service characteristics related to understanding the benefits of EBF through counselling or nutrition education and not meeting the AFASS criteria with particular reference to affordability could be associated with increased level of adherence to the EBF option among HIV infected mothers. However, the quantitative results showed that regardless of the educational level, mothers who suffered some form of breast condition were unlikely to adhere to the exclusive breastfeeding option. Additionally, provision of mixed messages by health workers on exclusive breastfeeding may impact on the level of adherence either negatively or positively.

It is therefore, noteworthy to mention that being married, not suffering from some form of breast condition, understanding the benefits of avoiding mixed feeding as a mode that facilitates HIV transmission from mother to the baby, have both immediate and long term implications. For example, in the immediate, married women may adhere to the exclusive

breastfeeding option which is beneficial to the infant in terms of meeting the nutrient requirements whereas in the long term the baby may acquire the HIV infection through breast milk, especially if the mother and baby are not on HAART as per WHO 2010 recommendations. The other implications of the findings is that mixed messages by health workers on how women should feed their babies may also introduce a dilemma to women on the correct way of feeding the baby and thereby end up feeding the baby wrongly. For example, depending on whether mothers are advised not to breastfeed so that they can prevent their baby from acquiring the infection, mothers may end up not breastfeeding even though they can not afford the replacement feed. This may bring about malnutrition and eventual death of the baby.

Findings suggest that partners have a role in promoting adherence to the EBF option among the HIV positive mothers. Findings further suggest that not suffering from any breast condition and understanding the benefits of EBF have a similar effect. Additionally, consistent and accurate information from health workers on infant feeding with specific reference to feeding practices of the HIV positive mothers is important for promoting adherence to the exclusive breastfeeding option.

Nonetheless, these findings are limited by the design associated dynamics which could have led to an over estimation of the level of adherence to the EBF option among the HIV positive mothers especially those of infants above the age of six months. In this regard, there is need for a prospective study involving follow-up of women from birth up to the age of six months. The implications of these results for practice are that the information which was generated from this study could be used to develop targeted interventions aimed at promoting EBF option for HIV positive mothers who will opt to breastfeed exclusively.

In light of the above findings and implications, the following are recommended:

1. Government/Ministry of Health

The government of Zambia through the Ministry of Health should increase funding towards the review and up-date of pre and in-service curricula to include IYCF topics in the context of

HIV with particular emphasis on strengthening male involvement, health centre and community support systems.

2. District Health Management Team (DHMT)

The DHMT should undertake the following activities: build health workers' counselling skills in areas of IYCF practices in the context of HIV to ensure consistent and accurate dissemination of information to the mothers regarding the subject. The DHMT should also up-date and develop specific Job aids for health workers to use during counselling to strengthen dissemination of consistent messages among HIV positive mothers. They should also strengthen male involvement in the on-going IYCF activities in the context of HIV in the general population and in all districts and strategic delivery points. This will serve as an opportunity for increasing the level of adherence to the EBF option if mothers receive support from their male counterparts. The DHMT should further strengthen community support systems, including empowering those that have greater influence such as mothers-in-law and neighbours as well as all community members regarding issues of IYCF in the context of HIV. This will also increase the level of adherence to the EBF option among HIV positive mothers as they will be assured of receiving support and encouragement from others.

3. Researchers

Researchers should undertake a prospective study in which infant and HIV positive mother pairs will be followed up from birth up to six months, to systematically learn and observe the actual IYCF practices. Researchers should also investigate the effect of HAART on breastfeeding mothers and their infants in relation to the MTCT of HIV. They should also investigate whether being on HAART by both the mother and infant, promote adherence to the EBF.

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ANNEXIES

Annex 1: Permission from the Ministry of Health to collect data

All Correspondence should be addressed to the
Permanent Secretary
Telephone: +260 211 253040 5
Fax: +260 211 253344



REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH

In reply please quote:

No.

NDEKE HOUSE
P. O. BOX 30205
LUSAKA

MH/ 101 / 14 / 1,

29th June 2009,

The MPH Co-ordinator,
University of Zambia,
School of Medicine,
P.O. Box 50110,
LUSAKA.

Dear Dr. Mutale,

RE: **REQUEST FOR PERMISSION FOR MPH STUDENT TO COLLECT
INFORMATION FOR RESEARCH.**

Reference is made to your letter dated 20th May 2009 in which you requested for permission for Ms Chisela Kalwile a MPH student to collect information from health facilities.

Ministry of Health has no objection with your request. However, I wish to advise that the student should work closely with the District Director of Health – Lusaka District Health Management Team.

It is my sincere hope that the findings of the study will be shared with the Ministry of Health.

Yours faithfully,


Dr. V. Mtonga,
ACTING PERMANENT SECRETARY,
MINISTRY OF HEALTH

c.c. Director – Public Health and Research

c.c. District Director of Health – Lusaka DHMT

Annex 2: Permission from Lusaka District Health Management Team to collect data

P.O. Box 50827
Lusaka
Tel: +260 - 211- 235554
Fax: +260 - 211- 236429



Republic of Zambia

*In reply please quote
No.*



MINISTRY OF HEALTH LUSAKA DISTRICT HEALTH MANAGEMENT TEAM

7th August, 2009

Ms. Chisela Kaliwile
National Food and Nutrition Commission
P.o Box 3669
LUSAKA.

Dear Madam,

RE: PERMISSION TO COLLECT DATA IN SOME HEALTH FACILITIES

Reference is made to your letter dated 4th August, 2009 regarding the above subject.

Be informed that permission has been granted for you to collect data on 'Determinants of adherence to exclusive breast feeding among HIV infected mothers and interviewing health workers dealing with issues of Infant and Young Child Feeding in the context of HIV in Lusaka District' in the following Health Centres;

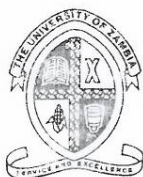
1. Kanjama
2. Chawama
3. Chipata
4. George
5. Railway
6. Mtendere
7. Chelstone
8. Kabwata

It shall be appreciated if the District Office is given feedback.

Yours Faithfully,

DR. M.KABASO
CLINICAL CARE EXPERT
FOR/DISTRICT MEDICAL OFFICER

Annex 3: Approval from Research and Ethics Committee, UNZA



THE UNIVERSITY OF ZAMBIA

BIOMEDICAL RESEARCH ETHICS COMMITTEE

Telephone: 260-1-256067
Telegrams: UNZA, LUSAKA
Telex: UNZALU ZA 44370
Fax: + 260-1-250753
E-mail: unzarec@unza.zm or unzarec@zamtel.zm
Assurance No. FWA00000338
IRB00001131 of IORG0000774

Ridgeway Campus
P.O. Box 50110
Lusaka, Zambia

4 December, 2009
Ref: 007-07-09

Ms Chisela Kaliwile
Department of Community Medicine
School of Medicine
P.O. Box 50110
LUSAKA

Dear Ms Kaliwile,

RE: SUBMITTED RESEARCH PROPOSAL: "DETERMINANTS OF ADHERENCE TO THE EXCLUSIVE BREASTFEEDING OPTION AMONG HIV INFECTED MOTHERS IN LUSAKA DISTRICT"

The above-mentioned research proposal was presented to the Biomedical Research Ethics Committee meeting on 23 October, 2009 where changes were recommended. We acknowledge receipt of the revised proposal with corrections/clarifications. The proposal is approved.

CONDITIONS:

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.
- If you have need for further clarification please consult this office. Please note that it is mandatory that you submit a detailed progress report of your study to this Committee every six months and a final copy of your report at the end of the study.
- Any serious adverse events must be reported at once to this Committee.
- Please note that when your approval expires you may need to request for renewal. The request should be accompanied by a Progress Report (Progress Report Forms can be obtained from the Secretariat).
- Ensure that a copy of final results of the study is submitted to this Committee.

Yours sincerely,

Dr James Muthali
A/CHAIRPERSON

Date of approval: 4 December, 2009

Date of expiry: 3 December, 2010

Annex 4: DETERMINANTS OF -ADHERENCE TO EXCLUSIVE BREASTFEEDING OPTION AMONG HIV-INFECTED WOMEN IN LUSAKA DISTRICT

a) Information Sheet

Hello. My name is Chisela Kaliwile. I am conducting a study on Infant feeding in the context of HIV in 8 selected health facilities in Lusaka district namely Kanyama, Chawama, George, Chipata, Mtedere, Kabwata, Railway and Chelstone.

Purpose of the study

The purpose of the study is to gain an in-depth understanding of the determinants of adherence to Exclusive Breastfeeding Option in the context of HIV among HIV infected mothers so that the information generated from it can be used for programme improvement. The generated information will also be used in the overall planning of IYCF programmes in the context of HIV. The study is being conducted as a partial fulfilment of the requirement for a Master's degree in Public Health. I would like to ask you some questions related to the feeding practices for your child. This is likely to take about 30 to 45 minutes of your time.

Benefits

The benefits of participating are that the information that will be generated from this study will be used to understand the IYCF programme in the context of HIV well and make improvements to the programme if there will be need. This will contribute to the prevention of infant and young child malnutrition and preventable deaths resulting from inappropriate feeding practices.

Confidentiality

The information of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a participant.

Your decision whether or not to participate in this study will not negatively affect you in any way. If you decide to participate in this study, you have a right not to answer any question you deem sensitive and to withdraw at any time for any reason without affecting your treatment.

Voluntarism

The above information will help you decide whether or not to take part in the research.

If you will have any questions or concerns about how you will be treated as a participant in this research study, please contact Chisela Kaliwile on 0977367946, email chiselakaliwile@yahoo.com Department of Community Medicine, UNZA School of Medicine, Lusaka/ National Food and Nutrition Commission, P.O Box 32669, Lusaka or the University of Zambia Research Ethics Committee Chairperson on 260-1-256067; email unzarec@zamtel.zm or Ridgeway Campus, P.O Box, 50110, Lusaka.

You will be given a copy of this form to keep for your records.

b) Informed Consent form

The information about the proposed research study and consent has been explained to me by:

Name of Principal Investigator Signature of Principal Investigator

By signing this form, I agree that I understand the above description of this research. I also agree that my questions have been answered and that I want to take part in this research study.

Signature/or thumb print of Participant

Date

Signature or thumb print of Witness

Date

Annex 5a: DETERMINANTS OF ADHERENCE TO EXCLUSIVE BREASTFEEDING AMONG HIV INFECTED WOMEN AGED 18 YEARS AND ABOVE QUESTIONNAIRE

Questionnaire number { } { } { } { }
 Identification of interviewer

Interviewer's Name: Date of interviews: { } { } { } { } { } { } { } { } { } <div style="text-align: center; margin-left: 100px;"> Day Month Year </div>	
Identification of Respondents	Codes
Province: District: Name of health facility: 1. Chawama 2. Chelstone 3. Chipata 4. George 5. Kabwata 6. Kanyama 7. Mtendere 8. Railway Residence: 1. High density 2. Medium density Age in completed years: { } { } Sex: 1. Female Marital status: 1. Single 2. Married 3. Divorced/separated 4. Widowed Education: 1. None 2. Primary 3. Junior secondary 4. Senior secondary 5. Tertiary	
	{ } { } { } { } { } { } { }

Q No.		Codes
PART 1: Socio-demographic characteristics		
1	What is your occupational status? 1. Unemployed 2. Employed 3. Self employed	{ }
2	Is your baby below 12 months? 1. Yes 2. No (tick whichever is applicable)	{ }
3	Have you ever breastfed your baby? Yes No (tick whichever is applicable)	{ }
4	Are you still breastfeeding your baby? Yes No (tick whichever is applicable)	{ }
5	Has your baby been tested for HIV? Yes No (tick whichever is applicable)	{ }
6	What was your infant's test result? 1. Negative	{ }

	2. Positive 3. Indeterminate 4. Pending result (tick whichever is applicable)	
7	What PMTCT service/s are you receiving? Cotrimoxazole for infant Cotrimoxazole for mother Art for infant Art for mother Infant feeding counselling Any other, specify..... (tick all that apply)	{ } { } { } { } { } { }
8	What do you do for a living?..... (Write in the provided space what the respondent does)	

Q No.		Codes
9	How much income do you earn per month? K 0-600000(low) K 600001-1200000(Medium) K 1200000-5200000(Medium) K Above 5200000 (High) (tick whichever is applicable)	{ }
10	Did you attend antenatal clinic when you were pregnant with your last child? Yes No (tick whichever is applicable)	{ }
11	Where did you deliver from? Health facility Home (tick whichever is applicable)	{ }
PART 2: Level of adherence to exclusive breastfeeding option. I will now ask you questions on the feeding practices for your infant from birth up to now		
12	Following the birth of your baby, did you receive help on breastfeeding? Yes No skip to Q 14 (tick whichever is applicable)	{ }
13	Who provided assistance for breastfeeding? Health worker Community volunteer Family member Others, specify..... (tick all that apply)	{ } { } { } { }

Q No.		Codes
14	How soon after birth was the baby put to the breast? Immediately after birth Within an hour of birth After one day Others, specify..... (tick whichever is applicable)	{ }
15	Did you give (mention baby's name) anything else before the first breastfeed?	

	Yes No skip to Q 18 (tick all that apply)	{ }
16	What did you give the baby? Water Gripe water Cow's milk from store Other animal milk Infant formula Medicine syrups Purees Commercial porridge Mealie meal porridge Nshima Relish Fruits/vegetables Others, specify (tick all that apply)	{ } { } { } { } { } { } { } { } { } { } { } { }
Q No.		Codes
17	Why did you give the liquids or solid foods in Q 13? Non-disclosure of HIV status Fear of being stigmatised Advice from a health worker Breast condition Mother's HIV Positive status Pressure from others -Family member -Community member -Manufacturer and distributor of baby foods 7. Infant's negative HIV status 8. Others, specify (tick all that apply)	{ } { } { } { } { } { } { } { } { } { } { }
18	(For infants less than 6 months) Have you introduced other liquids to your baby? Yes No skip to Q 23 (tick the one that apply)	{ }
19	Why have you introduced other liquids to your baby? (state reasons as given by the mother in the provided spaces)	
20	Did you give any liquids to your baby in the last 24 hours? 1. Yes 2. No Skip to 23	{ }

Q No.		Codes
21	What liquids did you give to (mention name of baby) in the last 24 hours? Breast milk only Water Gripe water Cow's milk from store	{ } { } { } { }

	Other animal milk Infant formula Medicine syrups Others, specify (tick all that apply)	{ } { } { }
22	What are your reasons for giving the liquid(s) in 18? Non-disclosure of HIV status Fear of being stigmatised Advice from a health worker Breastfeeding condition HIV Positive status Pressure from others i)Family member ii)Community member iii)Manufacturer and distributor of baby foods (tick all that apply under 6) Infant's negative HIV status Others, specify..... (tick all that apply)	{ } { } { } { } { } { } { } { } { }
23	Have you introduced solid foods to your baby? Yes No skip to Q 28 (tick the one that apply)	
24	Why have you introduced solid foods to your baby? (state reasons as given by the mother in the provided spaces)	
Q No.		Codes
25	Did you give any solid food to your baby in the last 24 hours? Yes No Skip to 28	{ }
26	What foods did you give to (mention name of baby) in the last 24 hours? Commercial porridge Mealie meal porridge Nshima Relish Fruits/vegetables Puree Others, specify..... (tick all that apply)	{ } { } { } { } { } { }
27	What are your reasons for giving the food(s) in 26? Non-disclosure of HIV status Fear of being stigmatised Advice from a health worker Breast condition My HIV positive status Infant's negative HIV status Pressure from others i)Family member ii)Community member iii)Manufacturer and distributor of baby foods (tick all that apply under 7) 8. Others, specify..... (tick all that apply)	{ } { } { } { } { } { } { } { } { } { }

Q No.		Codes
28	(for infants above 6 months) At what age did you start giving liquids to your baby? { } { } (State age in months)	
29	What were the reasons for introducing liquids at that age? (State the reason as given by mother in the spaces provided)	
30	At what age did you start giving solid foods to your baby? { } { } (State age in months)	
31	What were the reasons for introducing solid foods at that age? (State the reasons as given by mother in the spaces provided)	
PART 3: Cultural characteristics		
32	What are the existing cultural norms that are related to breastfeeding of infants and young children in the community? (enter responses as given by respondent in the spaces provided)	

Q No.		Codes
33	Have you experienced any of the negative cultural norms due to the type of infant feeding option for your infant? Yes No→ 36 (tick whichever is applicable)	{ }
34	What type of negative cultural norm did you receive? (enter answers as given by respondent in spaces provided)	
35	What was the type of infant feeding? (Enter answer as given by the respondent in space provided)	
36	Have you informed anyone about your HIV status? Yes No→skip to 38 (tick whichever is applicable)	{ }
37	Whom have you informed? Husband Mother Sister/brother Friend Others, specify..... (tick all that apply)	{ } { } { } { } { }

PART 4: Service related characteristics		
38	When did you get tested for HIV? Before pregnancy During pregnancy	{ }

	During labour After delivery (tick whichever is applicable)	
39	Did you have a discussion with a health worker for the purpose of making a decision on how to feed (mention name of the baby)? Yes 2. No Skip to 44 (tick whichever is applicable)	{ }
40	When did the discussion take place? Before pregnancy During pregnancy During labour After delivery i)Before discharge ii)During first postnatal visit (6 days) iii)During second postnatal visit (At six weeks) iv)Following infant diagnosis for HIV v)At six months when reconsidering how to feed my baby vi)During children's clinic (tick all that apply including all that apply under 4)	{ }
41	What was involved in the discussion? Risk of HIV transmission through breast milk Benefits and disadvantages of exclusive breastfeeding Benefits and disadvantages of exclusive replacement feeding Acceptability, feasibility, affordability, sustainability and safety of exclusive replacement feeding Helping me determine a feeding option for my baby Any other, specify..... (tick all that apply)	{ } { } { } { } { }

Q No.		Codes
42	What was your feeding choice? (Enter answer in space provided)	
43	What made you choose this feeding option? (Enter answer in space provided)	
44	Have you received any support on infant feeding option? Yes No→skip to 48	{ }
45	What type of support? How to position and attach my baby to the breast How to express breast milk How to prepare a replacement feed To decide on the infant feeding option How to transition from breastfeeding to replacement feeding How to breastfeed successfully Any other, specify.....	{ } { } { } { } { } { }
46	Who provided this support? Health worker Community volunteer Family member Others, specify.....	{ } { } { } { }

Q No.		Codes
47	When was the support rendered? During pregnancy Soon after birth During first week (post natal) During second postnatal Following infant diagnosis for HIV At six months when considering how to feed my baby When I had breast conditions When my baby was sick Others, specify:	{ } { } { } { } { } { } { } { }
Part 5: Disease characteristics		
48	Have you suffered from any breastfeeding related condition? Yes No → end interview and thank respondent for their time (tick whichever is applicable)	{ } { }
49	What condition(s) did you suffer from? Mastitis Breast abscess Cracked nipples Other, specify:..... (tick whichever is applicable)	{ } { } { } { }
50	Did the breastfeeding condition affect the type of feeding for (mention name of baby)? Yes No (tick whichever is applicable)	{ }
51	How did it affect the type of feeding? Explain (enter answers as given by respondent in provided space)	
Interviewer thank the respondent for her time and end interview		

ANNEX 5b: FOCUS GROUP DISCUSSION QUESTIONNAIRE GUIDE

Introduction

Hallo my name is Chisela Kaliwile and my colleague is We are here from the University of Zambia to learn about Infant feeding practices in the context of HIV. We would like to hear your views about the feeding practices for HIV infected mothers, cultural related practices related to infant feeding in particular stigma and non-disclosure of HIV status, service related characteristics associated with counselling and follow-up support and disease related characteristics related to mastitis and breast abscesses. Please feel free as all your answers will be kept extremely confidential. However, you have a right to withdrawal from the study at any time.

Feeding practices for HIV infected mothers

-What reactions do mothers with the HIV infection have on putting their infants to the breast soon after birth?

-What are your views on the way women with the HIV infection feed their babies?

-According your opinion, how best do you think infants born from women with the infection should be fed?

2. Cultural characteristics

-How are the cultural beliefs related to breastfeeding affecting the way infants born to HIV infected mothers feed their babies?

-How do HIV infected mothers react to some of the negative reactions from some of the community members?

-How do HIV infected mothers disclose their HIV status to their family members or friends?

-How do you feel the negative cultural beliefs that affect the feeding infants born from HIV infected mothers should be dealt with?

3. Service related characteristics

-How are HIV infected mothers being supported in their feeding choice for their infants?

-How and when do mothers access services related to feeding of their infants?

-What are the reactions of HIV infected mothers to the services they receive?

-How do you look at the services women with the HIV infection receive, are they adequate?

4. Disease related characteristics

-How are women with the infection who develop breast conditions such as mastitis and breast abscess feed their infants?

-What time following birth do these conditions develop?

- In your own views, what do you think is the main cause of these breast conditions?

Annex 5c: Translated version of the instruments

Annex 5c i. Zoonjezero 1: ZOONETSA KUTI AZIMAI AMENE ALI NDI HIV MU LUSAKA DISTRICT AMAYAMWITSA CABE ANA AO.

Cibvomerezo

Dzikomo.

Dzina langa ndine Ine ndiri kufufuza pa zimene anthu adyetsa ana ang'ono kapena bafana panthawi zino za matenda a HIV. Ndizafufuza mumalo osankhidwa monga zipatala izi: Kanyama, Chawama, Kwa George, Chipata, Mtendere, Kabwata, Railway ndi Chelstone. Colinga ca kufufuza uku ndikuti timvetsetse kweni-kweni zinthu zimene zingatithandize kuti azimai akwaniritse kupatsa ana ao mkaka wa mawere kapena maziba cabe, osampatsa cakudya cina ciriconse. Tikhulupilira kuti zimene tizapeza pano zizatithandiza kuti tipeze njira zopititsira patsogolo kupatsa ana mkaka wa maziba. Cinanso, zimene tidzapeza mu kufufuza kwathu kudzathandizanso pamene tikonza mapulani a IYCF maka-maka pokhuza matenda a HIV. Kufufuza uku kuthandizanso pa maphunziro a Master's degree mu Public Health, pankhani za umoyo. Ndifuna kuti ndikufunseni mafunso pa za mumene mudyetsera mwana wanu. Izi zidzatitengera 30 minutes kapena 45 minutes.

Ubwino wake wotengako mbali pakuyankha mafunso awa ndi wakuti , monga tanenera kale, tingaone mumene tingakonzere bwino ma pulogaramu a IYCF, ngati ndi kofunika. Izi zizathandiza kucepetsa matenda amene abwera cifukwa ca kusadya bwino ndi kucepetsa imfa za ana zimene zibwera cifukwa ca ana ngati sakudya bwino.

Zonse zimene tizakambirana zidzakhala za cinsinsi, za secret. Mu lipoti lililonse limene tidzalemba, sitidzaikamo nkhani zakuti ena angathe kudziwa kuti ndinu amene mwanena izi. Muli ndi ufulu wakutengako mbali mu kufufuza uku kapena okana kutengako mbali kopanda zotsatira zirizonse. Ngati mufuna kulekezera panjira kukambirana uku, ndinu womasuka kuthetsa kukambiranaku nthawi iriyonse.

Ngati muli ndi funso kapena cobvuta ciriconse cimene mufuna kudziwa pa kufufuza uku, mungakambirane ndi a Chisela Kaliwile pa Foni nambala: 0977367946, email chiselakaliwile@yahoo.com . Mungakambiranenso ndi a Kumpando (Chairperson) a Kabungwe la Kufufuza ka University of Zambia Research Ethincs, pa Foni: 260-1-256067; email unzarec@zamtel.zm

Mudzapatsidwa kopi la Fomu iyi ngati mufuna kusunga.

Cibvomerezo:

Zonse za kufufuza kwa nkhani iyi kwafotokozedwa kwa inu ndi:

Dzina la mwini-kufufuza

Siginecha ya wofufuza

Pakusaina cikalata ici, ndibvomereza kuti ndamvetsa kufotokoza kwa kufufuza uku. Ndbvomeraso kuti mafunso anga ayankhidwa ndipo ndifuna kutengako mbali mu kufufuza uku.

Siginecha ya Wotengako mbali

Tsiku la (date)

Fomu yofufuza nambala:

Za oyankha	Zidziwitso
Province (Dera):	
District:.....	
Dzina la cipatala: 1. Chawama 2. Chelstone 3. Chipata 4. George 5. kabwata 6. Kanyama 7. Mtendere 8. Raiway	
Kumalo amene mukhala: 1. Komboni kumene kuli anthu ambiri	
2. Kumene kukhala anthu ocepa.....	
Zaka zakubandwa { }{ }	{ }
1. Mkazi 2. Mwamuna	{ }
1. Osakwatiwa. 2. okwatiwa 3. kutha cikwati 4. ofedwa	{ }
Maphunziro: 1. Osaphunzira konse 2. Primary 3. Geredi 9	{ }
4.. Geredi 10 kufika 12. 5. Koleji	
Nchito: 1. Sindigwira nchito 2. Ndigwira nchito 3. ndizisewenzera	{ }
Mwana ndi wocepera caka cimodzi cakubadwa: 1. Inde 2. Yai.	{ }
Kodi mwana anayamwapo maziwa? 1. Inde 2. Yai.	{ }
Kodi mwana akali kuyamwa? 1. Inde 2. Yai.	{ }
Kodi mwana anapimidwa HIV? 1. Inde 2. Yai	{ }
Zotuluka mucipimo: 1. Alibe HIV (Negative) 2. Positive (Ali ndi HIV) 3. Sidzikudziwika	{ }
bwino 4. Tikali kuyembekeza zotuluka (Results)	
Thandizo limene munalandira: 1. Cotrimoxamoxazole for infant	{ }
2. Contrimoxazole ya mai wa mwana; 3. ART (Thandizo la mwana);	
4. Thandizo la mai wa mwana 5. Maphunziro ya kadyetsedwe ka mwana	
Zina zace, nenani:	{ }

Dzina La wafufuza.....

Tsiku lofufuzira: { } { } { } { } { } { }

Day Month Year

Q No.		Codes
	Cigawo coyamba: Za umoyo wanu	
1.	Muli ndi zaka zobadwa zingati? (Lembani zaka zimene muli nazo).	{ } { }
2.	Pamene munaperera maphunziro anu: 1. Simunapiteko kusukulu 2. primary 3. Geredi 9 4. Geredi 10-12 5. Koleji 6. Ena (Nenani) (Congani yankho yimene mwasankha).	{ }
3.	Kodi ndimwe wokwatiwa kapena yai? 1. Osakwatira 2. Okwatira 3. kutha cikwati 4. Ofedwa (Congani yankho yimene mwasankha).	{ }
4	Kodi mucita ciani pa umoyo wanu? (Lembani yankho lanu pamwambapa.)	
5	Kodi mulandira ndalama zingati pa mwezi? 1. K0 – 600000 (Zocepa) 2. K600001 - K1 200 000 (Pakati) 3. K120000 – 5 200 000 (pakati) 4. Kupitirira K5 200 000 (Pamwamba) (Congani yankho limene mwasankha)	{ }
6	Kodi munali kupita kucipatala ca ante-netal pamene munali kuyembekezera mwana uyu? 1. Inde 2. Yayi (Congani yankho limene mwasankha)	{ }
7	Kodi munabalira kuti? 1. Kucipatala 2. Kunyumba (Congani yankho limene mwasankha)	{ }

QNo.		Codes
Cigawo caciwiri: Ngati akwanitsa kuyamwitsa cabe. Tsopano ndidzakufunsani mafunso pa mumene mumadyetsera mwana wanu kucokera pamene anabadwa kufikira tsopano.		
8.	Mwana atabadwa, kodi mulandirako thandizo lililonse pa kayamwitsidwe ka mwana? 1. Inde 2. Yayi (ngati yankho lanu ndi yayi, tsopano pitani ku funso la Nambala. 10. (Congani yankho limene mwasankha).	{ }
9	Kodi ndani anamthandizani kuyamwitsa mwana? 1. Wanchito za umoyo	{ }

	2. Wodzipereka kumalo amene mukhala 3. Wacibale (wacibululu) 4. Wina wace (Nenani) (Congani yankho limene mwasankha).	
10	Kodi panapita nthawi yotani musanayambe kuyamwitsa mwana wanu? 1. Atangobadwa 2. Patapita ola limodzi (one hour) 3. Patapita tsiku limodzi 4. Zina zake (nenani) (Congani yankho limene mwasankha)	{ }
11	Kodi pali ciriconse cymene munapatsa mwana (kapena dzina) musanayambe kumuyamwitsa mwana? 1. Inde 2. Yayi . (pitani ku Funso nambala 14.) (Congani yankho limene mwasankha)	{ }
12	Kodi mwana munampatsa ciani? 1. Madzi 2. Giripu water 3. Mkaka wa ng'ombe umene munasunga. 4. Mkaka wa nyama zina 5. mkaka ochedwa infanti fomular. 6. sirapu ya mankhwala 7. Zipatso ndi mavegitebulo oponda 8. Phala logula lochedwa commercial porridge. 9. Phala la unga 10. nsima 11. ndiyo 12. Zipatso 9furuti ndi vegetebulo 13. Zina zace (nenani.) (Congani yankho limene mwasankha)	{ } { } { } { } { } { } { }

Q No.		Codes
13	Kodi ndi cifukwa ciani mwana munampatsa zakudya za madzi kapena zolimba/zokosa?(Onani Funso 13) 1. Kuopa kuulula ngati ali ndi HIV kapena yayi. 2. Kuopa kusankhidwa/kupatulidwa ndi anthu 3. Ndi mwamene anakambira a nchito za umoyo. 4. Kuona mwamene analiri mawere./maziwa. 5. Mai wake anali wa HIV 6. kukakamizidwa ndi - acibale (acibululu) - wodzipereka kuthandizira kwamene tikhala - Zimene anakamba opanga ndiponso ogulitsa zakudya za ana. 7. Popeza mwana analibe HIV 8. Zina (Nenani). (Congani yankho limene mwasankha)	{ } { } { } { } { }
14	(Mafunso okhudza ana osafika miyezi sikisi) Kodi mwana munamuyambitsa zakumwa zina? 1. Inde. 2. Yayi. (Pitani ku Funso 22) (Congani yankho limene mwasankha)	{ }
15	Ciifukwa ndi ciyani mwana munamuyambitsa zakumwa zina? (Nenani zifukwa monga anenera mai wa mwana pamwambapa)	
16	Kodi mwana mwamupatsako zakumwa zina ziri zonse mahola 24 amene apita? 1. Inde 2. Yayi (Pitani ku Funso 19) (Congani yankho limene mwasankha)	{ }
17	Kodi (dzina la mwana) munamupatsa zakumwa zotani maola 24 amene apita?	

	<ol style="list-style-type: none"> 1. Mkaka wa maziwa cabe. 2. Madzi 3. Giripu water. 4. Mkaka wa ng'ombe ogula 5. Mkaka wa nyama zina 6. Zakudya zochedwa infanti fomular. 7. Sirapu ya mankhwala 8. Zina (nenani) (Congani yankho limene mwasankha)	{ } { } { } { }
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QNo.		Codes
18	Kodi muli ndi zifukwa zotani zimene mwana wanu munamupatsira zakudya za madzi (Mufunso 17) <ol style="list-style-type: none"> 1. Kuopa kuulula ngati ali ndi HIV kapena yayi. 2. Kuopa kusankhidwa/kupatulidwa ndi anthu 3. Ndi mwamene anakambira a nchito za umoyo. 4. Kuona mwamene analiri mawere./maziwa. 5. Mai wake anali wa HIV 6. kukakamizidwa ndi <ol style="list-style-type: none"> a. acibale (acibululu) b. wodzipereka kuthandizira kwamene tikhala c. Zimene anakamba opanga ndiponso ogulitsa zakudya za ana. 7. Popeza mwana analibe HIV 8. Zina (Nenani). (Congani yankho limene mwasankha)	{ } { } { } { } { } { }
19	Kodi mwana munamuyambitsa zakudya zolimba/zokosa? <ol style="list-style-type: none"> 1. Inde 2. Yayi (ngati yankho lanu ndi yayi, pitani ku funso 19.) (Congani yankho limene mwasankha)	{ }
20	Kodi cifukwa ndi ciyani munamuyambitsa zakudya zokosa? (Perekani zifukwa monga mwamene akambira mai wa mwana)	
21	Kodi mwamupatsako cakudya cokosa mwana maola 24 apitawa? <ol style="list-style-type: none"> 1. Inde. 2. Yayi ((Pitani ku funso 24.) (Congani yankho limene mwasankha)	{ }
22	Kodi (Dzina la mwana) mwamupatsa zakudya zotani mahola 24 apitawa? <ol style="list-style-type: none"> 1. Phala logula 2. Phala la unga 3. nsima 4. ndiyo 5. zipatso (furuti) ndi ma vegitebulo ndiyo za masamba. 6. Zipatso/mavegitebulo oponda 7. Zina (Nenani) (Congani yankho limene mwasankha)	{ } { } { } { }

Q. No.		
23	Kodi muli ndi zifukwa zotani zimene mwana wanu munamupatsira zakudya za madzi (Mufunso 17) <ol style="list-style-type: none"> 1. Kuopa kuulula ngati ali ndi HIV kapena yayi. 2. Kuopa kusankhidwa/kupatulidwa ndi anthu 3. Ndi mwamene anakambira a nchito za umoyo. 4. Kuona mwamene analiri mawere./maziwa. 5. Mai wake anali wa HIV 6. kukakamizidwa ndi <ol style="list-style-type: none"> a. acibale (acibululu) b. wodzipereka kuthandizira kwamene tikhala c. Zimene anakamba opanga ndiponso ogulitsa 	{ } { } { } { } { } { }

	<p>zakudya za ana.</p> <p>7. Popeza mwana analibe HIV</p> <p>8. Zina (Nenani).</p> <p>(Congani yankho limene mwasankha)</p>	
24	<p>(Mafunso okhudza ana opitilira minyezi 6)</p> <p>Kodi mwana wanu anali ndi minyezi ingati pamene munayamba kumupatsa zakumwa?</p> <p>{ } { }</p>	
25	<p>Kodi munali ndi zifukwa zotani zomuyambitsira zakumwa pa musinkhu uwu?(minyezi iyi?)</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>(Nenani zifukwa monga wanenera mai wake pamwambapa)</p>	
26	<p>Kodi mwana munayamba kumudyetsa zakudya zokosa pamene anali ndi miyezi ingati?</p>	
27	<p>Kodi munali ndi zifukwa zotani zimene munayambitsira mwana kudya zakudya zokosa?</p> <p>.....</p> <p>.....</p> <p>(Patsani zifukwa monga mai wake wanenera.)</p>	

Q No.		Codes
CIGAWO CACITATU - Za miyambo		
28	<p>Kodi pali miyambo yotani panthawi ino imene ikhudzana ndi nkhani ya kuyamwitsa ana ang'ono-ang'ono kumalo anu?</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>(Lembani mayankho monga mumene wanenera mai wake mumalo amene apatsidwa)</p>	
29	<p>Kodi mwaonapo cina ciriconse coipa cocitika kapena cokambidwa kwa imwe cokhudza mwambo cifukwa ca mwamene mudyetsera mwana wanu?</p> <p>1. Inde.</p> <p>2. Yayi.</p> <p>(Congani yankho limene mwasankha)</p>	{ }
30	<p>Kodi munalandira zokambidwa kapena zocitika zotani zokhudzana ndi mwambo?</p> <p>.....</p> <p>.....</p> <p>(Lembani mayankho mwamene oyankha anenera)</p>	
31	<p>Kodi aka kanali kadyetsedwe katani?</p> <p>.....</p> <p>(Lembani yankho mumene anenera oyankha pamwambapa)</p>	
32.	<p>Kodi munauzako wina aliyense za nkhani yanu ya HIV?</p> <p>1. Inde.</p> <p>2. Yayi. (ngati mwayankha yayi, pitani ku Funso 34.)</p> <p>(Congani yankho limene mwasankha)</p>	{ }
33	<p>Kodi mwauzako ndani?</p> <p>1. Mwamuna wanu</p> <p>2. Amai anu</p> <p>3. Mulongo kapena mukulu/mung'ono wanu</p> <p>4. Bwenzi lanu</p> <p>5. Ena (Nenani)</p> <p>(Congani yankho limene mwasankha)</p>	<p>{ }</p> <p>{ }</p> <p>{ }</p>

Q No.		Codes
CIGAWO CACINAI - Zokhudza thandizo		
34	Kodi munapimidwa liti pa nkhani ya HIV?	

	<ol style="list-style-type: none"> 1. Musanakhale ndi mimba 2. Pamene munali ndi mimba 3. Nthawi yobala mwana 4. Mutabala mwana (Congani yankho limene mwasankha)	{ } { } { }
35	Kodi munakambiranapo ndi a nchito za umoyo pa mumene munali kufunira kudyetsera (Dzina la mwana)? <ol style="list-style-type: none"> 1. Inde 2. Yayi (Ngati mwayankha yayi, pitani ku Funso 39.) (Congani yankho limene mwasankha)	{ }
36	Kodi ndi liti pamene munakambirana zimenezi? <ol style="list-style-type: none"> 1. Musanakhale ndi mimba 2. Pamene munali ndi mimba 3. Nthawi yobala mwana 4. Mutabala mwana <ol style="list-style-type: none"> i. Musanacotse cibalilo ii. Pamene munapita kucipatala koyamba pambuyo pakubala mwana. (Patapita masiku 6) iii. Paulendo waciwiri kucipatala (patapita masabata 6) iv. Mwana atamupeza kuti ali ndi HIV. v. Patapita minyezi 6 pamene ndinali kuganizira mwamene ndigadyetsere mwana wanga vi. Pamene ndinapita kucipatala ca ana. (Congani yankho limene mwasankha ndi zonse zimene ayankha pa funso 4).	{ } { } { } { } { } { } { } { } { } { }
37	Kodi munakambirana zotani munkhani zanu? <ol style="list-style-type: none"> 1. Ciopsyezo ca mwana kutenga HIV pamene ayamwa mkaka wa maziwa. 2. Ubwino ndi kuipa kwake kwa kupatsa mwana mkaka wa mawere. 3. Ubwino ndi kuipa kwake kwa kulekerathu kupatsa mwana mukaka wa mawere. 4. Kubvomereza, kucitika, kukwaniritsa, kupitiriza ndi ubwino wake wa kudyetsa mwana zinthu zina kucotsapo kupatsa mwana mkaka wa mawere. 5. Kundithandiza kumanga mfundo ya mwamene ndingadyetsere mwana wanga. 6. Zina zace : nenani (Congani yankho limene mwasankha)	{ } { } { } { } { } { }

Q No.		Codes.
38	Kodi munasankha kuti mwana azidya bwanji kapena motani? (Lembani yankho pamwambapa)	
39.	Cifukwa ndi ciyani munasankha tere? (Congani yankho limene mwasankha)	
40.	Kodi mwalandirapo thandizo liri lonse pa njira zina zodyetsera ana? <ol style="list-style-type: none"> 1. Inde. 2. Yayi (Ngati mwasankha yayi, pitani ku funso 44.) (Congani yankho limene mwasankha)	{ }
41.	Munalandira thandizo lotani? <ol style="list-style-type: none"> 1. Mumene ndingaikire mwana kumaziwa. 2. Mumene ndingacotsere mkaka wa maziwa. 3. Mumene ndingakonzero zakudya zina zotenga malo a mkaka wa maziwa. 4. Kupanga mfundo za cakudya cina ca mwana. 5. Mumene ndingacitire kucokera pa kupatsa mwana mkaka cabe ndi kuyamba kumudyetsa bwino. 	{ } { } { } { } { }

	6. Mumene ndingakwanitsire kupatsa mkaka munjira yabwino. 7. Zina zonse, nenani..... (Congani yankho limene mwasankha)	
42	Kodi ndi ndani amene anamuthandizani? 1. Wanchito za umoyo. 2. Odzipereka mumalo amene tikhala. 3. Wacibanja (wacibululu) Wina wace. Nenani	{ } { } { }
43	Kodi thandizoli linaperekedwa liti? 1. Pamene ndinali ndi mimba 2. Nthawi yocepa pamene ndinabala 3. Sabata yoyamba mwata atabadwa. 4. Pamene ndinapita kucipatala kaciwiri pambuyo pakubala mwana 5. Pamene mwana anamupeza kuti ali ndi HIV. 6. Patapita minyezi 6 pamene ndinali kuganizira mumene ndingadyetsere mwana wanga. 7. Pamene ndinali ndi zobvuta za kumawere. 8. Pamene mwana wanga anadwala. 9. Zina, nenani	{ } { } { } { } { } { } { } { }

QNo.		Codes
CIGAWO CACISANU: Zokhudza matenda		
44	Kodi munadwalapo matenda okhudzana ndi kuyamwitsa mwana? Inde Yayi. ((Lembani mayankho mwamene woyankha wayankhira pamwambapa.)	{ }
45	Kodi munabvutika/ kapena munadwala ciyani? Maziwa kuvimba Cipute kumawere Nsonga ya mawere kung'ambika. Ena , nenani (Congani yankho limene mwasankha)	{ } { } { }
46	Kodi mabvuto amenewa (pa 45) anamukhudza kapena kumubvutitsa bwanji (dzina la mwana) pa kadyetsedwe kake/ kapena mwamene anali kudyera? Inde. Yayi. (Congani yankho limene mwasankha)	{ }
47	Kodi imakhudza bwanji pa mumene anali kudyera? Fotokozani. (Lembani mayankho mwamene woyankha wayankhira pamwambapa.)	
	Wofunsa athokoze/akambe dzikomo kwa woyankha mafunso pakuwapatsa nthawi kukamba nao.	

ANNEX 5c ii: MAFUNSO A ZOKAMBIRANA MUMAGULU

Mau oyamba

Dzikomo, dzina langa ndine ndipo m'nzanga amene ndiri naye ndi
Tacokera ku University of Zambia ndipo tabwera kuti tiphunzireko za mwamene azimai amene ali ndi HIV amadyetsera ana ao. Tifunanso kumva maganizo anu pa nkhani iyi, ndi za nkhani ya mwambo ndiponso nkhani ya kapatulula kapena kusankhana cifukwa wina ali ndi HIV, ndiponso pa nkhani ya kusaulula kuti wina ali ndi HIV, thandizo limene anthu angapeze pankhani ya uphungu kapena kanselling ndi thandizo limene litsatira ngati munthu atupa kapena wavimba mawere/ maziwa ndiponso zipute za kumawere.
Conde, khalani omasuka, popeza kuti mayankho anu onse adzakhala acinsinsi. Koma ziwani kuti ndinu womasuka kucokamu mu kukambirana uku nthawi iriyonse.

Mwamene azimai amene ali ndi HIV amadyetsera ana ao.

Kodi azimai a HIV amamva bwanji ngati aika mwana wao kumawere kapena ngati ayamwitsa mwana kumawere atangobadwa?

Kodi muganizapo bwanji pa mwamene azimai a HIV amadyetsera ana ao?

Kodi mwamene muganizira inu, kodi ana amene abadwa kwa muzimai amene ali ndi kalombo angadyetsedwe bwanji?

Nkhani zokhudzana ndi mwambo

Kodi nkhani za mwambo ndi zimene anthu akhulupilira zikhudza bwanji ana obadwa kwa azimai amene ali ndi HIV?

Kodi azimai amene ali ndi HIV amacita bwanji ngati akomana ndi zonena kapena zocita zoipa kucokera kwa anthu amene akhala nao?

Kodi azimai amene ali ndi HIV amaulula bwanji kuti ali ndi HIV kwa acibale kapena acibululu kapena abwenzi ao.?

Kodi muganiza kuti tingacite ciyani ndi miambo ndi zokhulupilira zimene zikhudza kadyetsedwe ka ana obadwa kwa azimai amene ali ndi HIV?

Zokhudza thandizo

Kodi azimai a ana amene ali ndi HIV angathandizidwe motani pa nkhani ya kasankhidwe ka cakudya ca ana ao?

Kodi ndi nthawi yiti ndiponso ndi munjira yotani imene azimai amapeza thandizo pa za mwamene angadyetsere ana ao?

Kodi azimai amene ali ndi HIV amalandira bwanji thandizo limene apeza?

Kodi mwamene muonera inu, munganene kuti thandizo limene azimai amene ali ndi HIV alandira ndi lokwanira?

Zokhudza matenda

Kodi azimai amene ali ndi HIV amadyetsa bwanji ana ao ngati ali ndi zipute kumawere kapena ngati mawere ao ndi ovimba kapena kutupa?

Kodi izi zimayamba pakapita nthawi bwanji mwana atabadwa?

Mumaganizo anu, ndi ciyani cimene cibweretsa zobvuta izi za kumawere?

Annex 5c iii: Codebook of Questionnaire items

Question No.	Variable number	Code description	Variable name
	1	Facility number	FACNUM
	2	Interviewer's name	INTNAME
	3	Respondent's number	RESID
	4	Baby's data of birth	BIRTH
1	5	Age of mother Age of infant	MOYEARS INFAGE
2	6	Gender for caregiver Female Gender for infant Male Female	Gender1 Gender2
3	7	Highest level of education attained None Primary Junior secondary Senior secondary Tertiary	EDUCAT

Question No.	Variable number	Code description	Variable name
4	8	Marital status Single Married Divorced/separated Widowed	Marital
5	9	Occupation	
6	10	Income level 0-600000 (low) 600001-1200000 (Medium) 1200001-5200000 (Medium) Above 5200000 (High)	INCOMLEV
7	11	Residence Urban Peri-urban	RESTYPE
8	12	Antenatal services attended Yes No	ANTENAT
9	13	Delivery place Health facility Home	DELPLAC
10	14	Breastfeeding help received Yes No	FEEDHELP

Question No.	Variable number	Code description	Variable name
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11	15	Provider of breastfeeding assistance Health worker Community volunteer Family member Others, specify	PROVIDER
12	16	Breastfeeding initiation following birth Immediately after birth Within an hour of birth After one day Others, specify	INITIATE
13	17	Other feeds within the first hour of birth Yes No	PRELACTEAL
14	18	Type of feed given Water Gripe water Cow's milk from store Other animal milk Infant formula Medicine syrup Purees Commercial porridge Mealie meal porridge Nshima Relish Fruits/vegetables	PRETYPE

Question No.	Variable number	Code description	Variable name
15	19	Reason for prelacteal feeds Non-disclosure of HIV status Fear of being stigmatised Advice from a health worker Breastfeeding condition HIV positive status Pressure from others Family member Community member Manufacturer and distributor of baby foods Others, specify	REASFEED
16	20	Age complementary foods introduced (infants above age 6 months) Age in months	AGECF
17	21	Reason for introducing complementary foods	REASCF
18	22	Age complementary started (infants less than 6 months of age) Age in months	LIFOINTRO
19	23	Reason for introducing other liquids and foods	REASINLIFO
20	24	Liquids given in the last 24 hours (infants less than 6 months) Breast milk only Water Gripe water	LIQBDHRS

		Cow's milk from store Other animal milk Infant formula Medicine syrups Purees	
Question No.	Variable number	Code description	Variable name
21	25	Reasons for giving liquids Non-disclosure of HIV status Fear of being stigmatised Advice from a health worker Breastfeeding condition HIV positive status Pressure from others Family member Community member Manufacturer and distributor of baby foods Infant's negative HIV status Other's specify	REASLIQBDHRS
22	26	Foods given in the last 24 hours Commercial porridge Mealie-meal porridge Nshima Relish Fruits/vegetables	FOBDHRS
23	27	Reasons for giving foods Non-disclosure of HIV status Fear of being stigmatised Advice from a health worker Breastfeeding condition HIV positive status Pressure from others Family member Community member Manufacturer and distributor of baby foods Infant's negative HIV status Other's specify	REASFOHRS
Question No.	Variable number	Code description	Variable name
24	28	Cultural norms related to breastfeeding	CULTURE
25	29	Negative cultural norms associated with breastfeeding Yes No	NEGCULTURE
26	30	Types of negative cultural norms	SPENECULT
27	31	Experienced negative cultural norms due to type of infant feeding option Yes No	TYPNECULTURE
28	32	Type of negative cultural norm experienced	TYPREC
29	33	Type of infant feeding	TYPINFE
30	34	HIV status disclosure Yes	STATUSDSCL

		No	
31	35	Who was informed Husband Mother Sister/brother Friend Others, specify	WHOMINF
32	36	HIV test during pregnancy or after delivery Yes No	HIVTEST

Question	Variable number	Code description	Variable name
33	37	Received counselling on infant feeding options Yes No	COUNSEL
34	38	AFASS criteria used Yes No	AFASS
35	39	Information discussed during counselling Risk of HIV transmission through breast milk Benefits and disadvantages of exclusive replacement feeding Acceptability, feasibility, affordability, sustainability and safety of exclusive replacement feeding Helping me determine a feeding option for my baby	ADRECEIV
36	40	Choice of feeding Exclusive breastfeeding Exclusive replacement feeding	FEEDCHOICE
37	41	Reason for feeding option	REASFEOPT
38	42	Support received on infant feeding option	SUPREC
39	43	Type of support How to position and attach the baby to the breast How to express breast milk How to prepare a replacement feed To decide on infant feeding option How to transition from breastfeeding to replacement feeding	

Question No.	Variable number	Code description	Variable name
40	44	Support provider Health worker Community volunteer Family member Others, specify	SUPPROVID
41	45	When support rendered During pregnancy Soon after birth During first week (post natal) During second postnatal At six weeks following infant diagnosis for HIV	SUTIMING

		At six months when considering how to feed my baby When I had breast conditions When my baby was sick Others, specify.....	
42	46	Suffered from any breastfeeding condition Yes No	BREASTCOND
43	47	Breast condition suffered Mastitis Breast abscess Others, specify	CONDSUF
44	48	Breastfeeding condition affected type of feeding option Yes No	FEEDAFEC
45	49	How feeding option was affected	EFFECTONFED

Annex 6: Proportion of counselling received by mothers by type

Type of counsel received	Yes	No	Total	%	
				Yes	% No
Risk of transmission	309	35	344	89.8	10.2
Benefits of exclusive breastfeeding	277	67	344	80.5	19.5
Benefits of replacement feeding	164	180	344	47.7	52.3
AFASS	163	181	344	47.4	52.6
Determine choice	192	152	344	55.8	44.2