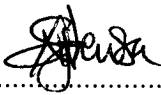


I, ELIZABETH TAMARA NYIRENDA hereby declare that this dissertation;

- (a) Represents my work;
- (b) Has not previously been submitted for a degree at this or any other University; and;
- (c) Does not incorporate any published work or material from another dissertation.

Signed.....

Date.....22/04/13.....

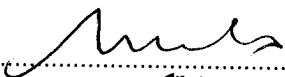

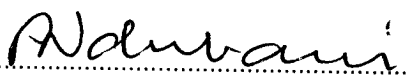
All rights reserved. No part of this dissertation may be reproduced or stored in any form or by any means without prior permission in writing from the author or the University of Zambia.

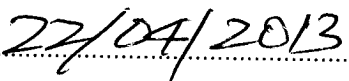
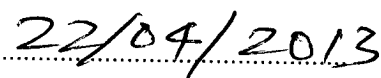
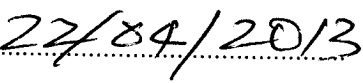
APPROVAL

The dissertation of **ELIZABETH TAMARA NYIRENDA** is approved as fulfilling part of the requirements for the award of the degree of **Master of Arts in Population Studies** by the University of Zambia.

Signed:

Date:

1. 
2. 
3. 

- 
- 
- 

ABSTRACT

Research has shown that exclusively breastfed HIV exposed infants have lower mortality and morbidity. It is against this background that the United Nations World Health Organisation (WHO) recommended that infants born to HIV positive women should be exclusively breastfed until replacement feeding is Acceptable, Feasible, Affordable, Sustainable and Safe (AFASS). Infant and Young Child Feeding (IYCF) is a critical issue that needs to be addressed with utmost attention if we are to ensure an HIV free generation. Appropriate interventions should be taken especially with regard to breastfeeding because UNAIDS estimates that in the absence of intervention to prevent transmission of HIV from mother- to - child, 25 to 45 percent of HIV infected mothers will pass the virus to their infants. The purpose of this study was to investigate awareness, attitudes, intentions and practices towards breastfeeding and infant feeding in the era of HIV and how expert recommendations on infant feeding have reached the target population and the extent to which they have been adhered to.

The study was carried out in two urban districts of Zambia and a non- intervention exploratory study design was employed. A questionnaire was used to collect data from a total of 500 women aged 16-49 conveniently selected from 10 randomly selected clinics in Lusaka and Kitwe. Data were entered using Census and Survey Processing System (CsPro version 4.1) and analysed using Statistical Package for Social Sciences (SPSS version 16). Bi-variate analysis was used to determine the existence of relationships between variables.

Overall, breastfeeding prevalence among mothers was high and women were highly aware of the benefits of breastfeeding and mother- to -child transmission of HIV through breastfeeding. Most women were aware that HIV positive women can breastfeed their infants; however they, stated that they would not be comfortable breastfeeding their infants if they were found HIV positive. Forty three percent (43.2%) of the respondents knew of HIV positive women who were breastfeeding in their communities. Most women (69.7%) preferred commercial infant formula as the best alternative for feeding HIV exposed infants. Women (90.4%) considered wet nursing as taboo and alien. Expressed Heat Treated (EHT) breast milk was known only to few mothers (18.4%) and, very few mothers (9.6%) knew that wet nursing was an option for feeding infants born to HIV positive mothers.

In conclusion, the dilemma between exclusive breastfeeding and replacement feeding continues to be a daunting task not only for mothers but also for the health workers, policy makers and the nation at large. The findings have shown that fear to transmit HIV to infants during breastfeeding and stigma are the major deterrents to exclusive breastfeeding resulting in most women resorting to formula feeding even when AFASS criteria were not met. Lack of proper information compounds this problem and lack of full community support, also as a result of the former, continues not only to put infants at high risk of mortality and morbidity but also negates the effort of virtual elimination of mother to child transmission by 2015.

To my loving parents Conwell and Josephine.

ACKNOWLEDGEMENTS

No success is ever accomplished in isolation; it is the unwavering support, counsel and guidance of the people around us that enables us to achieve even the impossible. It was a long road but the unwavering love, support and encouragement of people around me enabled me achieve this goal. I am forever indebted to all for being there for me always and in all ways.

I would like to acknowledge the hard work and dedication of my supervisor, Dr. Augustus Kapungwe who has relentlessly guided me from the inception of this research. I am grateful for his insights, expert advice and mentorship to which I have been exposed during the entire period of my research. I would also like to acknowledge the support and guidance of the members of staff at the Department of Population Studies.

Special thanks go to UNFPA and Staff Development Office for the financial assistance rendered for my research. I am extremely grateful for their continued desire to invest in human capacity to enhance the delivery of service, innovation and development in our country.

Special thanks to the Lusaka District Health Office and the Kitwe District Health Office for allowing me to use their facilities for my study. Special thanks to the research assistants who helped me collect and enter data.

Also, special thanks go to my family for their constant encouragement and support; may God richly bless them.

Table of Contents

Declaration.....i

Copyright.....ii

Approval.....iii

Abstract.....iv

Dedication.....v

Acknowledgements.....vi

List of figures.....x

List of tables.....xi

List of boxes.....xii

Appendix.....xiv

Acronyms.....xv

CHAPTER 1: BACKGROUND1

 1.1 Introduction.....1

 1.2 Problem Statement.....4

 1.3 Objectives.....5

 1.3.1 General objective.....5

 1.3.2 Specific objectives.....5

 1.4 Research questions.....6

 1.5 Statement of Hypotheses.....6

 1.5 Significance of the study.....6

CHAPTER 2: LITERATURE8

 2 .1 Observational studies.....8

 2.2 Theoretical Framework.....14

CHAPTER 3: STUDY METHODOLOGY.....18

3.1 Study design.....18

3.2 Study sites.....18

3.3 Sampling Procedure.....18

3.4 Collection of Data.....19

3.5 Data Processing and Analysis.....19

3.6 Ethical Considerations.....20

3.7 Study Limitations.....20

CHAPTER 4: FINDING.....22

4.1 Characteristics of respondents.....22

4.1.1 Age.....22

4.1.2 Marital status.....23

4.1.3 Religious Denomination.....23

4.1.4 Main source of livelihood.....24

4.1.5 Parity.....24

4.2 INFANT FEEDING PRACTICES.....25

4.2.1 Prevalence of breastfeeding among women.....25

4.2.2 Infant feeding types.....27

4.2.3 Breastfeeding decision.....29

4.2.4 Breastfeeding Initiation.....29

4.2.5 Breastfeeding Cessation.....31

4.3 AWARENESS, ATTITUDES AND PERCEPTIONS OF MOTHER TO CHILD
TRANSMISSION OF HIV (MTCT) THROUGH BREASTFEEDING.....32

4.3.1 Awareness of benefits of breastfeeding.....32

4.3.2 Awareness of the link between breastfeeding and HIV transmission.....34

4. 3.3 Attitudes and perceptions towards mother-to- child transmission (MTCT) of HIV through breast milk.....36

4. 3.3.1 Perception of MTCT of HIV36

4.3.3.2 Perception of extent of vulnerability of own children to HIV Infection through breast milk.....39

4.3.4 Awareness that HIV positive mothers are supposed to breastfeed.....40

Box 4: Reasons why HIV positive women should breastfeed.....41

4.3.5 Awareness of HIV positive mothers who were breastfeeding.....41

4.3.6 Willingness to breastfeed among mothers even when found HIV positive.....42

4.3.7 Sources of breastfeeding information (Cues to action).....44

4.4 AWARENESS OF OTHER INFANT FEEDING OPTIONS FOR HIV-POSITIVE MOTHERS.....47

4.4.1 Wet Nursing.....48

4.4.2 Expressed Heat Treated breast milk.....49

4.4.3 Modified breastfeeding.....52

4. 4.4 Modified animal milk.....52

4.4.5 Formula feeding.....53

4.5 BARRIERS IN IMPLEMENTING EXCLUSIVE BREASTFEEDING.....55

4.6 HYPOTHESIS TESTING.....57

CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATIONS.....61

5.1 Discussion.....61

5.2 Conclusion.....67

5.3 Recommendations.....68

List of Figures

Figure 2.2.1: Health Belief Model Framework..... 16

Figure 4.3.1. Percent distribution of respondents by awareness of benefits of breastfeeding..... 33

Figure 4.3.5: Percent distribution of respondents by awareness of breastfeeding among HIV positive women..... 42

Figure 4.3.7 Percent distribution of respondents by community support for breastfeeding by HIV positivemothers..... 44

List of Tables

Table 4.1.1: Count and Percent distribution of respondents by age22

Table 4.1.2: Count and Percent distribution of respondents by marital status.....23

Table 4.1.3: Count and Percent distribution of respondents by religious denomination.....24

Table 4.1.4: Count and Percent distribution of respondents by Parity disaggregated by district.25

Table 4.2.1: Count and Percent distribution of respondents by breastfeeding status by distri....26

Table 4.2.2: Count and percent distribution of respondents by breastfeeding prevalence by age of child by district.....27

Table 4.2.2: Count and percent distribution of respondents by type of infant feeding disaggregated by district.....28

Table 4.2.3: Count and Percent distribution of respondents by who decided that the child is breastfed disaggregated by district.....29

Table 4.2.4.: Count and Percent distribution of respondents by breastfeeding initiation disaggregated by district.....30

Table 4.2.5: Count and percent distribution of respondents by when they plan to wean their child.....31

Table 4.3.1: Count and percent distribution of respondents knowledge of benefits of breastfeeding by selected background characteristics.....32

Table 4.3.2: Count and Percent distribution of respondents reporting awareness of MTCT of HIV by selected background characteristics.....35

Table 4.3.3.1: Count and percent distribution of respondents who believe that HIV can be transmitted through breast milk by selected demographic characteristics.....37

Table 4.3.3.2: Count and percent distribution of respondents by perceived degree of seriousness of MTCT of HIV by residence, age and marital status.....38

Table 4.3.3.3: Count and Percent distribution of respondents by perception of the extent of vulnerability of their infants to HIV transmission through breast milk by selected backgroundcharacteristic.....39

Table 4.3.4: Count and percent distribution of respondents aware that HIV positive mothers are suppose to breastfeed by age.....40

Table 4.3.6: Count and Percent distribution of respondents by how comfortable they would be breastfeeding if they were found HIV positive by district.....42

Table 4.3.7: Count and percent distribution of respondents in support of breastfeeding by HIV positive mothers.....43

Table 4.3.7.: Count and Percent distribution of respondents by sources of breastfeeding information by distric.....45

Table 4.4.1 Count and percent distribution of respondents by preference for other infant feeding options for HIV positive mothers by district.....48

Table 4.4.2: Count and Percent distribution of respondents reporting ever having heard of expressing breast milk and practice of expressed breast milk.....50

Table 4.6.1: Awareness of benefits of breastfeeding and breastfeeding if found HIV positive.....58

Table 4.6.2: Awareness of MTCT of HIV and breastfeeding if found HIV positive.....59

Table 4.6.3: Awareness of breastfeeding for HIV positive women and breastfeeding if found HIV positive.....60

List of Boxes

Box 1: Reasons for not breastfeeding.....27

Box 2. Reasons for initiating breastfeeding in the first hour.....30

Box 3 : How is mother to child transmission possible.....36

Box 4: Reasons why HIV positive women should breastfeed.....41

Box 5: Reasons why breastfeeding is not encouraged among HIV positive women.....43

Box 6: Reasons for trusting ANC.....46

Box 7: Reasons why women do not prefer wet nursing as an infant feeding option for HIV
positive mothers.....49

Box 8: Circumstances under which expressing milk was necessary.....51

Box 9: Reasons for not preferring expressed breast milk.....51

Box 10. Challenges of Formula feeding.....54

Box 11: Benefits of Formula feeding.....55

Box 12: Barriers in implementing exclusive breastfeeding among HIV positive mothers.....55

APPENDICES

Appendix 1----- Questionnaire

LIST OF ACRONYMS

AFASS-----	Acceptable, Feasible, Affordable, Sustainable and Safe
ANC-----	Antenatal Care
AIDS-----	Acquired Immune Deficiency Syndrome
ART-----	Antiretroviral Therapy
ARV-----	Antiretroviral
CSO-----	Central Statistical Office
EBF-----	Exclusive Breastfeeding
HAART-----	Highly Active Anti-retroviral Therapy
HBM-----	Health Belief Model
HIV-----	Human Immunodeficiency Virus
IATT-----	Inter Agency Task Team
ILCA-----	International Lactation Consultation Association
IYCF-----	Infant and Young Child Feeding
MTCT-----	Mother-to- Child Transmission
PMTCT-----	Prevention of Mother- To -Child Transmission
PNC-----	Post Natal Care
PNT-----	Post Natal Transmission
SIDS-----	Sudden Infant Death Syndrome
SPSS-----	Statistical Package for Social Sciences
TRA-----	Theory of Reasoned Action
UNAIDS-----	United Nations joint programme on AIDS
UNICEF-----	United Nations International Children Education Fund
WHO-----	World Health Organisation
ZEBS-----	Zambia Exclusive Breastfeeding Survey
ZDHS-----	Zambia Demographic and Health Survey

CHAPTER ONE

BACKGROUND

1.1 Introduction

Human beings, like all mammals, feed their young until they are able to fend for themselves. Human beings take care of their young longer than any other creature, specific times of critical care being during pregnancy and the first few years of their offspring's life. One important aspect of that care is feeding their offspring. Breastfeeding, like many other aspects of human life, has been routine, and is without question the most ideal mode of feeding infants, more so exclusive breastfeeding.

The benefits of exclusive breastfeeding in the first six months of the infant are that: firstly, breast milk is the only food perfectly designed for human consumption, easily digestible, always at the right temperature, hygienic, and available at no cost to the mother. Secondly, breast milk contains important immunological components that help protect against pathogens resulting in fewer deaths and illnesses among exclusively breastfed infants. Thirdly, breastfeeding for the first six months of an infant's life promotes maturation of the intestines and prevents damage to the lining of the intestines. Breastfeeding also nurtures the development of microflora that lower intestinal pH which prevents the growth of pathogens (Davis .M.K, 2001). Other benefits of breastfeeding for the infant include: protection from Sudden Infant Death Syndrome (SIDS), higher intelligence, less diabetes, less childhood obesity, less tendency to develop allergic diseases and less necrotizing enterocolitis* in premature infants

*Necrotizing enterocolitis (NEC) is a medical condition primarily seen in premature infants, where portions of the bowel undergo necrosis (tissue death). Initial symptoms include feeding intolerance, increased gastric residuals, abdominal distention and bloody stools (Piazza et.al 2007).

Benefits for the mother include hormone release, weight loss, natural post-partum infertility and other long term health effects. Additionally, in the mother, exclusive breastfeeding promotes

successful milk production, which reduces breast inflammation and may also decrease HIV transmission. Exclusive breastfeeding is a feasible and effective public health solution-one controlled by mothers (Moland et.al, 2010).

A healthy start in life is the most precious gift one can give to a new born child. Breast milk can make the difference between healthy growth and malnutrition as well as between life and death. When it comes to nutrition, the best food for babies is breast milk (Singh, B.1998). According to UNICEF, between 3000 and 4000 infants die of diarrhea and acute respiratory infection everyday because of inadequate breast milk given to them (UNICEF,1992). This realization made UNICEF and WHO recommend that infants be breastfed for the first 4 -6 months of life and continue breastfeeding together with weaning food up to and beyond the second year of life.

The discovery of HIV in breast milk brought with it a turnaround of events. Generally, it meant that the breast milk which was trusted for centuries untold was no longer safe for infant consumption. In 2009, about 1,000 babies were infected with HIV everyday during pregnancy, birth or breastfeeding (UNICEF, 2011). With these developments, amidst increasing fertility and an inbuilt momentum for even higher population in our country, the infant feeding dilemma was not only a problem to breastfeeding mothers but a national crisis.

The benefits of breastfeeding were too many to be forfeited but the risk of the infant being infected if breastfed was also great to overlook. Thus, it called for collaborative work to find solutions to the problems this dilemma presented. Given the essential role of breastfeeding in promoting infant survival, health and nutrition, finding ways to make it safe for HIV positive women was and continues to be essential (Moland, et.al 2010). UNAIDS estimates that in the absence of intervention to prevent transmission of HIV from mother to child, 25 to 45 percent of HIV infected untreated mothers will pass the virus to their infant. WHO, UNICEF and UNAIDS, in line with advances in knowledge and technology, have on several occasions issued recommendations on infant feeding for women in different resource settings. In the initial phase of the epidemic, breastfeeding by biological mother was recommended to be the feeding method of choice irrespective of HIV status in economically disadvantaged settings. In 1992, a WHO consultation concluded that 'where infectious diseases and malnutrition are the main cause of infant deaths and the infant mortality rate is high, breastfeeding should be the usual advice given to pregnant women, including those who are HIV infected. In 1997-98 ,WHO published new infant feeding guidelines that all mothers should be counseled about possible feeding options and thus be allowed to make their own decision about infant feeding.

With the rapidly emerging evidence of the challenges of replacement feeding in low income contexts, WHO, in 2001, accommodated the possibility that exclusive breastfeeding could be safer than mixed feeding and that replacement feeding represented a risk to child health and survival (Moland et.al, 2010). In 2006, AFASS criteria were emphasized and exclusive breastfeeding was recommended for HIV – infected mothers

for the first six months of life unless replacement feeding is AFASS for them and their infants before that time; when replacement feeding is AFASS avoidance of breastfeeding by HIV– infected mothers is recommended (Moland et.al, 2010).

In 2009, WHO launched the rapid advice built on the evidence of HIV free infant survival and on new research showing that ARV intervention for HIV infected mothers or HIV exposed- infants can significantly reduce the risk of transmission of HIV through breast milk. The rapid advice was followed by 2010 HIV and infant feeding guidelines. The concrete recommendations in the recent guidelines include the following: mothers known to be HIV- infected should exclusively breastfeed their infants for the first six months of life, introducing appropriate complementary food thereafter, and continue breastfeeding for the first 12 months of life. Mothers who decide to stop breastfeeding should stop gradually within 1 month; stopping breastfeeding abruptly is not advisable; mothers known to be HIV – infected should only give commercial infant formula milk as a replacement feed to their HIV uninfected infants or infants who are of unknown status, when specific conditions are met (referred to as “AFASS”); mothers known to be HIV- infected should be provided with lifelong antiretroviral therapy or antiretroviral prophylaxis interventions.

1.2 Problem Statement

From the initial phases of the pandemic, WHO and UNICEF have issued recommendations on infant feeding. The latest recommendations were issued in 2010 and exclusive breastfeeding was recommended as the best infant feeding option for mothers who are HIV positive, negative and of unknown status.

Mothers who may not be able to exclusively breastfeed for the first six months of life can use other recommended feeding options (EHT breast milk, wet nursing, modified animal milk, commercial infant formula) provided they meet the AFASS criteria.

Despite the availability of the afore mentioned expert recommendations on infant feeding in the era of HIV, we do not know the extent to which the recommendations have reached mothers as well as the extent to which the mothers have adhered to the recommendations. Hence, this study was conceived to address this gap in knowledge.

1.3 Objectives

1.3.1 General objective

To determine knowledge, awareness, attitude, and practices regarding breastfeeding and infant feeding in the era of HIV/AIDS.

1.3.2 Specific objectives

1. To determine the prevalence and types of breastfeeding among women.
2. To assess women's awareness of the benefits of breastfeeding.
3. To ascertain awareness on the link between breastfeeding and HIV transmission.
4. To assess women's knowledge and attitudes towards other infant feeding options other than breastfeeding.
5. To assess mothers practices towards breastfeeding in the era of HIV.
6. To examine the barriers that women face or expect to face in implementing breastfeeding.

1.4 Research questions

1. What is the prevalence and types of breastfeeding among mothers?
2. Are women aware of the benefits of breastfeeding?
3. Are women aware of the link between breastfeeding and HIV transmission?
4. Are women aware of other Infant feeding options other than breastfeeding and what are their attitudes towards them?
5. What are mother's practices towards breastfeeding in the era of HIV?
6. What barriers do women face when implementing breastfeeding?

1.5 Statement of Hypotheses

1. Women who know the benefits of breastfeeding are more likely to breastfeed even when they are HIV positive than women who do not know the benefits.
2. Women who are aware of the possibility of mother to child transmission are less likely to breastfeed their infants than women who are not aware.
3. Women who are aware that HIV positive women are supposed to breastfeed their children would be more comfortable breastfeeding their children than women who do not know.

1.5 Significance of the study

This study was highly significant as it focused on a core human survival issue of breastfeeding and infant feeding. This study revealed the knowledge, attitudes and practices that women have towards infant feeding recommendations for women who are HIV positive. It brought to light infant feeding recommendations that are AFASS and acceptable in our cultural setting. It also revealed the challenges faced by HIV positive women which may inform programmes and policies in terms of areas of intervention to improve delivery of PMTCT services. The findings may help realign

strategies to provide supportive mechanisms to help HIV positive women have healthy HIV free infants.

This study may also raise awareness among mothers on the correct infant feeding options for mothers of different HIV statuses and hence avoid spillover effect*.

The study will also contribute to the existing body of knowledge with regard to; what is known about breastfeeding and infant feeding in the era of HIV, the extent to which infant feeding recommendations have reached women and the extent to which mothers adhere to the recommendations. The findings from this study may also encourage further research and may ultimately lead to a reduction in infant morbidity and mortality associated with various practices of infant feeding in the era of HIV/AIDS.

*Spillover effect occurs when women whose HIV status is negative or unknown decide not to breastfeed due to fear or misinformation about HIV transmission (ILCA, 2006).

CHAPTER TWO

LITERATURE REVIEW

2.1 Observational studies

Most of the half-million children worldwide who died from AIDS in 1999 were infected by their

HIV-positive mothers during pregnancy, delivery, or breastfeeding (UNAIDS, 2000). In Zambia, mother- to- child transmission of HIV accounts for 90% of HIV infection in children aged 0-14 years (ZDHS, 2007). The infections are expected to increase if appropriate measures are not taken, because, it is estimated that for every two people on treatment, 5 more are newly infected of whom three are women (NAC, 2010). Given that HIV prevalence among women is high (16%) (ZDHS, 2007) and infections among women are increasing; and, women being the ones who breastfeed, mother- to- child transmission of HIV will continue to increase especially through breastfeeding.

Given the dilemma of competing risks between Mother- to- Child Transmission of HIV through breastfeeding and the risk of morbidity and mortality associated with mixed feeding and replacement feeding; Donald Thea and Louise Kuhn were prompted to conduct a study and concluded that breastfeeding should be strongly encouraged among mothers of infants and young children who are known to be HIV infected. The findings that informed this conclusion were that; among infants who were still being breast-fed and were not infected with HIV at 4 months, there was no significant difference between the groups in HIV survival at 24 months (83.9% and 80.7% in the intervention and control groups respectively). Children who were infected with HIV by 4 months had

higher mortality by 24 months if they had been assigned to the intervention group than if they had been assigned to the control group (73.6% and 54.8% respectively).

Donald Thea and Loiuse Kuhn's study was conducted between May 2001 and June 2007 and their main objective was to determine which of the competing risks was great: breast milk transmission of HIV in the case of exclusive breastfeeding or the non-HIV mortality associated with mixed (non- exclusive) or replacement feeding.

The goals and objectives of the study were to quantify benefits (decreased postnatal HIV transmission) and risks (increased non-HIV morbidity and mortality) of early breastfeeding cessation versus prolonged breastfeeding and to assess the efficacy of exclusive breastfeeding to minimize breast milk transmission of HIV.

The study enrolled 958 HIV- infected women and their infants in Lusaka, Zambia. All the women planned to breastfeed exclusively to 4 months; 481(Control group), were randomly assigned to a counseling programme that encouraged abrupt weaning at four months and 477 (Intervention group) to a programme that encouraged continued breastfeeding for as long as women chose.

The policy and programmatic impacts of this study involved the inclusion of the findings into the 2006 revision of the WHO Interagency Task Team (IATT) on HIV and infant feeding on prevention of HIV infections in pregnant women, mothers and their infants. Recommendations included firstly, exclusive breastfeeding for infants of HIV- infected mothers for the first six months of life unless replacement feeding is Affordable, Feasible, Appropriate, Sustainable and Safe (AFASS) for them and their infants before that time. Secondly, if replacement feeding was still not affordable, Feasible, Appropriate, Sustainable and Safe at six months continuation of breastfeeding with

complementary additional foods was recommended. Thirdly, breastfeeding should be strongly encouraged among mothers of infants and young children who are known to be HIV infected (Thea, D, 2007).

Furthermore, in order to assess the risk of HIV transmission through breastfeeding, Coovadia H. conducted a study in 2007 on mother –to –child transmission of HIV-1 infection during exclusive breastfeeding in the first six months of life. Coovadia et. al found that; there was a much higher risk of transmission with maternal CD4+ counts below 200cell/ μ L. Mixed feeding was also associated with a significantly higher risk of HIV infection (hazard ratio 10.87; $P=0.018$). Infants given replacement feeds had a higher risk of mortality at 3 months (15.5% vs 6.1% in exclusive breast feeders).

This conclusion was reached by conducting an intervention cohort study carried out in South Africa. The study was highly successful in achieving good adherence to exclusive breastfeeding by intensive behavioural counseling. Infant –feeding counselors visited mothers at home three to four times in the first 2 weeks and every 2 weeks thereafter through 6 months. The counselors supported the mother's individual choices of exclusive breastfeeding or replacement feeding. Eighty three percent of infants born to HIV –infected mothers were exclusively breastfed for a median of 159 days (5-6 months). The only anti-retroviral intervention was maternal- infant single-dose nevirapine at delivery. At 6 weeks, 14.1% of infants were infected, and at 6 months, 19.5% were infected. The study was limited by the small sample of women who chose to replacement feed; the investigators attributed this pattern of choice to the effectiveness of good counseling regarding the risks and benefits of exclusive breastfeeding, which resulted in women choosing breastfeeding.

In order to find solutions to breastfeeding in the era of HIV and, to explore the factors associated with exclusive breastfeeding especially in the presence of HIV/AIDS; De Paoli (2010) conducted a study on breastfeeding in the era of AIDS. This study found that; Among the 309 mothers having previously breast fed, 85% had initiated breastfeeding within the first few hours postpartum and 18% received some pro-lacteal food. Mean duration of breastfeeding was 23.7 months, but 46% of the mothers had introduced other fluids early. Knowledge of HIV transmission through breastfeeding was not associated with breastfeeding practices. Married women (odds ratio (OR) = 0.09, 95% confidence interval (CI) =0.04-0.24) and those having knowledge of exclusive breastfeeding (OR=0.08, 95% CI=0.02-0.31) were the least likely to end exclusive breastfeeding early (Paoli, D. et.al, 2002:217). These results were obtained from a cross sectional interview survey of 500 pregnant women conducted in the Kilimanjaro region, supplemented by focus group discussions with pregnant women.

Scientific studies have shown that breastfeeding has a lot of benefits to both the infant and the mother. About 80% of the cells in breast milk are macrophages, cells that kill bacteria, fungi and viruses. Breast-fed babies are protected in varying degrees, from a number of illnesses such as pneumonia, botulism, bronchitis, staphy loccocal infection, influenza, ear infection and german measles. Furthermore, a mother produces antibodies to whatever disease is present in their environment, making their milk custom designed to fight disease their babies are exposed to as well (Singh, B. 2010). A breast-fed baby's digestive tract contains large amounts of lactobacillus bifidus, beneficial bacteria that prevent the growth of harmful organisms. Sucking at the breast promotes good jaw development as well. Breastfeeding also has psychological benefits for the infants, creating an easy attachment between mother and child and is also nature's contraceptive.

Frequent breastfeeding suppresses ovulation and also stimulates the uterus to contract back to its original size (Singh, B. 2010).

However, one benefit of exclusive breastfeeding that is not known by most mothers and even health workers is that exclusive breastfeeding actually reduces risk of postnatal HIV transmission and increases HIV-1 free infant survival. Illif Peter et. al (2005) conducted a study on early exclusive breastfeeding and risk of postnatal HIV-1 transmission and HIV-free survival. The study's main objective was to promote exclusive breastfeeding (EBF) as a way to reduce the postnatal transmission (PNT) of HIV. The study concluded that, EBF may substantially reduce breastfeeding-associated HIV transmission. The study concluded that, EBF may substantially reduce breastfeeding-associated HIV transmission.

Using the context of a trial of postpartum vitamin A supplementation, the researcher provided education and counseling about infant feeding and HIV, prospectively collected information on infant feeding practices, and measured associated infant infections and deaths.

A total of 14110 mother-newborn pairs were enrolled, randomly assigned to vitamin A treatment group after delivery, and followed for 2 years. At baseline, 6 weeks and 3 months, mothers were asked whether they were still breastfeeding, and whether any liquids or foods had been given to the infant. Breastfed infants were classified as exclusive, predominant, or mixed breastfed.

A total of 4495 mothers tested HIV positive at baseline; 2060 of their babies were alive, Polymerase Chain Reaction (PCR) negative at 6 weeks, and provided complete feeding

information. Overall PNT (defined by a positive HIV test after the 6-week negative test) was 12.1%, 68.2% of which occurred after 6 months. Compared with EBF, early mixed breastfeeding was associated with a 4.03 (95% CI 0.98, 16.61), 3.79 (95% CI 1.40-10.29), and 2.60 (95% CI 1.21-5.55) greater risk of PNT at 6, 12, and 18 months, respectively. Predominant breastfeeding was associated with a 2.63 (95% CI 0.59-11.67), 2.69 (95% CI 0.95-7.63) and 1.61 (95% CI 0.72-3.64) trend towards greater PNT risk at 6, 12, and 18 months, compared with EBF.

Findings from the above and other studies have informed policy and programmatic changes. It is such findings that have informed WHO's recommendation that infants should be exclusively breastfeed for the first 6 months of life regardless of the mother's HIV status unless replacement feeding is AFASS. Zambia's high fertility rate (TFR 6.2) (ZDHS, 2007) and high breastfeeding prevalence (98%) (ZDHS, 2007) coupled with high HIV prevalence (16%) (ZDHS, 2007) and high infection rates among women aged 15-49 presents a high risk of MTCT of HIV and makes Infant and Young Child feeding an immediate health concern. Infant and Young child feeding is not only key in PMTCT but also key in reduction of morbidity and mortality among infants and young children. Zambia is alive to these challenges and has in its 2010 PMTCT protocol guidelines recommended Exclusive Breastfeeding with ARV prophylaxis to the baby, exclusive replacement feeding and wet nursing as feeding options for HIV positive mothers. Zambia is also in a process of rolling out PMTCT option B+ (Lifelong ART for all pregnant and breastfeeding HIV positive women regardless of CD4 count) in line with UNICEF's strong recommendation of rolling out option B+. Option B+ is a PMTCT programme informed by studies such as the ones described earlier.

2.2 Theoretical Framework

The study was guided by two theoretical frameworks; the Health Belief Model and the Theory of Reasoned Action.

2.2.1 Health Belief Model

The Health Belief Model (HBM) is the most widely used conceptual framework for understanding health behaviour. It was first developed in the 1950s to promote health seeking behaviour. Health Belief Model is based on the understanding that a person will take a health related action if that person: feels that the negative health condition can be avoided, has a positive expectation that by taking a recommended action, he/ she will avoid a negative health condition and if he/she believes that he/she can successfully take a recommended health action.

The Health Belief Model is a framework for motivating people to take positive health action that uses the desire to avoid a negative health consequence as a prime motivation. The Health Belief Model is based on six key concepts: the first concept is perceived susceptibility, which is one's belief of getting the condition.

The second concept is the perceived severity, which is defined as how serious the condition and its consequences are (Becker, 1974). The third concept is the perceived benefits, which are defined as one's action to reduce risk or seriousness of impact. The fourth key concept is the perceived barriers, which are what a person identifies as personal barriers to health seeking behavior. The fifth concept is the cues concept; these are events, either personal or environmental that motivate people to take action. The sixth and last concept is self efficacy, which is the belief in being able to successfully execute the behavior required to produce the desired outcomes.

This investigator incorporated the concepts of the Health Belief Model in order to find out the factors that influence breastfeeding in the era of HIV. The investigator asked mothers to rate how vulnerable their infants were to HIV infection through breast milk in order to find out mothers perceived susceptibility of their infants to HIV infection through breast milk. To find out mothers perceived severity of Mother-to-child transmission of HIV, the mothers were asked to rate the seriousness of mother-to child-transmission of HIV through breastfeeding. The investigator also wanted to find out mothers perceived benefits of breastfeeding, therefore, mothers were asked if they knew the benefits of breastfeeding. They were also asked to state the benefits of breastfeeding and further asked to identify the benefits that they were aware of. In addition, the investigator wanted to find out mothers perceived barriers to exclusive breastfeeding, which are personal barriers to exclusive breastfeeding. The mothers were asked to state the barriers that HIV positive women face in implementing breastfeeding. With regard to events either personal or environmental that motivate people to breastfeed, the mothers were asked about antenatal care attendance, the services provided at ANC and the information given at ANC with regard to breastfeeding and HIV transmission and community support for breastfeeding among HIV positive mothers. On the aspect of self efficacy, mothers were asked who decided that they breastfed and, how comfortable they would feel breastfeeding if they were found HIV positive. Socioeconomic and demographic variables such as age, marital status, source of livelihood and residence influence a person's infant feeding option as they are significant determinants of which infant feeding option is Affordable, Feasible, Available, Sustainable and Safe. Figure 2.2.1 shows how the six concepts in the health model influence ones health behaviour.

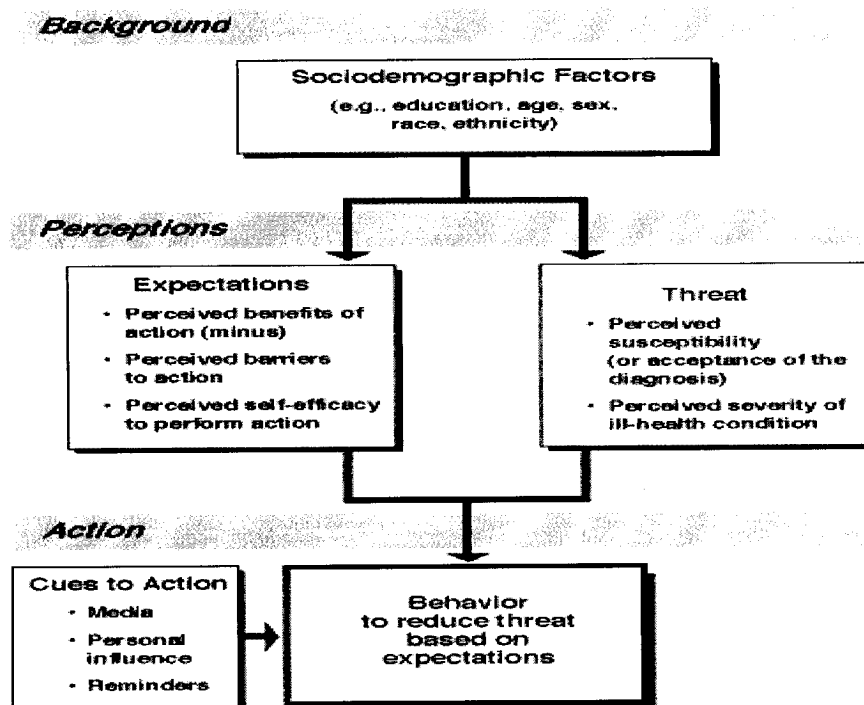


Figure 2.2.1: Health Belief Model Framework. (Becker, 1974).

2.2.2 Theory of Reasoned Action

The theory of reasoned action was developed by Icek Ajzen in 1970. This is a theory which includes attitudes as one of the most important factors influencing behavioural intention.

The theory suggests that intentions to engage in a behaviour are mostly influenced by an individual's attitude towards engaging in the behavior and the subjective norms associated with it. In simple terms, the Theory of Reasoned Action says that a person's behaviour is determined by their attitude towards the outcome of that behaviour and the opinions of the persons in their social environment. The theory defines attitude as the sum of beliefs about a particular behaviour weighted by evaluations of these beliefs (Azen and Fishbein, 1980).

Attitudes are made up of beliefs that a person accumulates over his/her life time. Some beliefs are formed from street experience, some are from outside information and others are inferred or self generated and beliefs are rated for the probability that engaging in the behaviour will produce the desired outcome. Subjective norms look at the influence of people in ones social environment on his or her behavioural intention. The beliefs of people are weighted by the importance one attributes to each of their opinions and will influence ones behavioral intention. Behavioural intention is a function of both attitudes toward behaviour and subjective norms towards that behavior. Behaviour then is the transmission of intention into action.

A mother's decision to breastfeed her HIV exposed infant is, according to the theory of reasoned action, determined by their attitude towards the outcome of that behaviour and the opinions of the persons in their social environment. The mother's attitude towards the benefits and risks associated with breastfeeding will influence her decision to breastfeed or not to breastfeed. The views of friends, relatives and those highly respected in society also highly influence a woman's decision to breastfeed or not to breastfeed. This means that, the views of the community greatly influence the ultimate decision that a mother would make concerning breastfeeding. To this extent, this study also examined perceptions of mothers regarding community attitude toward HIV positive breastfeeding mothers in order to determine how such perceptions can influence breastfeeding.

CHAPTER THREE

STUDY METHODOLOGY

3.1 Study design

The study was a cross sectional- non intervention explanatory study. Explanatory in the sense that it sought explanations surroundings the breastfeeding practices that were reported by women and aimed at gaining insights on awareness , attitude and practices towards breastfeeding and infant feeding in the era of HIV.

The study employed a non experimental research design. A survey approach was used to solicit information from mothers to- be and mothers attending antenatal and postnatal care in the selected clinics.

3.2 Study sites

The study was carried out in Lusaka and Kitwe. Lusaka was selected as a study site because it had the highest HIV prevalence of 22.4% (ZDHS, 2007) and also had low exclusive breastfeeding prevalence of below 40% (NFNC, 2009), while Kitwe was selected because it had a high HIV prevalence of approximately 21.6% and the lowest exclusive breastfeeding percentage of below 40 % (31.1%)(). The target population in these sites were mothers attending Antenatal Care (ANC) and Post-Natal Care (PNC). These women are the ones likely to start breastfeeding or to have breastfed respectively. The sampling unit was a female attending ANC and PNC.

3.3 Sampling Procedure

To reach these women, 5 out of 29 government clinics in Kitwe and 5 out of 35 government clinics in Lusaka were randomly selected as study sites. The selected clinics in Lusaka were George clinic, Chelston clinic, Kamwala clinic, Chilenge clinic and Kalingalinga clinic. In Kitwe, the selected study sites were Chimwemwe, Luangwa,

Ndeke, Buchi and Kwacha clinics. All the selected sites were townships in urban areas and are all high density areas with high populations. Fifty women attending antenatal care and post natal care were conveniently selected from each of the clinics. The mothers were selected conveniently in that only mothers who visited the health centre at the time of the study were selected as respondents. The sample size was 500 women. The inclusion criteria into the sample were that; a woman should be pregnant or should have had at least one child who is less than 2 years of age and should be between 16 and 49 years of age.

3.4 Collection of Data

A Semi- structured questionnaire with both open and closed ended questions was used as the data collection tool. The open ended responses complemented statistics provided by closed ended questions. Data was collected from a total of 10 clinics with the help of 10 research assistants who administered the questionnaire to the respondent on a one to one basis to ensure privacy and maximum response. Administering the 10 paged questionnaire containing 68 questions took an average of 25 minutes.

3.5 Data Processing and Analysis

The data were entered using CsPro version 4.1 and analysed using SPSS version 16.0 and Microsoft Excel 2007. The data were cleaned before analysis to check for accuracy and consistency in the data. SPSS and Excel were mainly used to analyse quantitative data and produce graphs and tables for presentation of findings. Frequencies and Cross tabulations were used to answer the research questions that were posed. Univariate and Bi- variate analysis were used in the analysis of objectives. Hypotheses were tested using Chi-squared test - a non parametric test that can be used when data are randomly and

independently selected, the level of scale of measurement of variables is not known and all categories are mutually exclusive.

Findings from open ended questions were analysed thematically and were presented using narratives. The questionnaires were checked for the most common reasons and explanations and were summarized into excerpts that have been presented in the report.

3.6 Ethical Considerations

The proposal and questionnaire were scrutinized by the Chairperson of School of Humanities and Social Sciences Ethics Committee and were cleared for data collection as they did not present any pertinent ethical issues that would need further scrutiny. Consent was sought from the respondents before the interview, the purpose of the study was explained to the respondents and interviews only took place when a respondent agreed to the interview. The respondent was also given enough leverage to abandon the interview when they felt they were unable to continue. Furthermore, the responses were treated with maximum confidentiality. To ensure maximum confidentiality, the names, address or anything linking the respondents to data were not written on the questionnaires and reporting was aggregated and not based on individual responses. Permission was also sought from the Kitwe and Lusaka District Health Offices to use the health facilities for data collection.

3.7 Study Limitations

The main limitations of this study were; firstly, respondents showed some reluctance to respond because they were afraid of being asked about their HIV status; Secondly, the study was carried out in urban districts, which limits generalization of the findings to rural areas; Thirdly, the study would have revealed much more if the target population

where HIV positive women as they would have given more accurate information rather than women of unknown status.

CHAPTER 4

FINDINGS

4.1 Characteristics of respondents

Demographic and socio-economic characteristics such as age, marital status, parity, sources of livelihood and religion affect people's awareness and practices. The demographic and socio-economic characteristics of 500 respondents all of whom were women were collected. Two hundred and forty five (49%) were from Lusaka and 255 (51 %) were from Kitwe.

4.1.1 Age

The ages of the respondents ranged from 16 to 47 years with a mean age of 25.9 years. Eleven percent (n=27) of mothers in Lusaka and 12.5% (n=32) of mothers in Kitwe were teenage mothers aged 15-19. Overall, there were 11.8% (n=59) of teenage mothers represented for the entire study. Most of the respondents were in the 20-24 and 25-29 age groups. These two age groups made up 55.2% (276) of the respondents (Table 4.1.1).

Table 4.1.1: Count and Percent distribution of respondents by age.

Characteristics	District		Total
	Lusaka	Kitwe	
Age			
15-19	27(11)	32(12.5)	59(11.8)
20-24	72(29.4)	65(25.5)	137(27.4)
25-29	69(28.2)	70(27.5)	139(27.8)
30-34	41(16.7)	47(18.4)	88(17.6)
35-39	14(5.7)	24(9.4)	38(7.6)
40-44	5(2)	13(5.1)	18(3.6)
45-49	1(0.4)	3(1.2)	4(0.8)
Unstated	16(6.5)	1(0.4)	17(3.4)
Total	245 (100)	255 (100)	500 (100)
Mean = 25.9			
Mode=21.2			
Median =26			
Range= 31			

4.1.2 Marital status

At the time of the study, 76.4 % (n=382) of the respondents were married, 16.4 % (n=82) were single, 1.2 % (n=6) were divorced, 4.0 % (n=20) were widowed and 2.0 % (n=10) were separated (Table 4.1.2).

Table 4.1.2: Count and Percent distribution of respondents by marital status.			
	District		Total
	Lusaka	Kitwe	
Marital Status			
Married	181(73.9)	201(78.8)	382(76.4)
Single	50(20.4)	32(12.5)	82(16.4)
Divorced	4(11.6)	2(0.8)	6(1.2)
Widowed	8(3.3)	12(4.7)	20(4)
Separated	2(0.8)	8(3.1)	10(2)
Total	245(100)	255(100)	500(100)

4.1.3 Religious Denomination

In terms of religious denomination, the results show that 26.8 % (n=134) of the respondents were Catholic, 8.0 % (n=40) were Jehovah’s witnesses, 33.2 % (n=166) were Pentecostal, and 26.6 % (n=133) belonged to the main line churches (which included United Church of Zambia (UCZ), Reformed Church in Zambia (RCZ), Baptist, Evangelical Fellowship of Zambia (EFZ), African Methodist Episcopal Church (AMEC), Anglican and Seventh Day Adventist (SDA) , 0.6% (n=3) were Muslim and 4.8% (n=24) belonged to other religious denominations (Table 4.13).

Table 4.1.3: Count and Percent distribution of respondents by religious denomination.			
	Lusaka	Kitwe	Total
Religious Denomination			
Catholic	71(29)	63(24.7)	134(26.8)
Jehovah's witness	17(6.9)	23(9)	40(8)
Pentecostal	115(46.9)	51(20)	166(33.2)
Mainline churches	22(9)	111(43.5)	133(26.6)
Muslim	2(0.8)	1(0.4)	3(0.6)
Other	18(7.3)	6(2.4)	24(4.8)
Total	245(100)	255(100)	500 (100)

4.1.4 Main source of livelihood

The respondents were asked to state what their main source of livelihood was. This variable was important as it is an indicator of which infant feeding option would be feasible for a mother. Generally, a mother's source of livelihood has a bearing on which option would be AFASS. Among the sources mentioned were; business, employment, husband, tailoring, vending, trading, farming, prostitution and parents. Employment was the most frequently mentioned source of livelihood and among the kind of jobs mentioned were; house maid, nurse, teacher, driver, miner, shop keeper, hair dresser, cook, banker, brick layer, counselor, cleaner, electrician, cashier and accountant. A number of women reported that their only source of livelihood was their husbands.

4.1.5 Parity

The respondents were asked to indicate the number of children they have ever had in their life time, (Table 4.1.4). About 10% (n=48) of the respondents had never had children at the time of the study. The most frequent parity among mothers was one.

Twenty seven percent (27.4%) (n=137) of the mothers had borne one child at the time of the study. The highest parity was 10; 1 woman had borne ten children.

Table 4.1.4: Count and Percent distribution of respondents by Parity by district.

Parity	District		
	Lusaka	Kitwe	Total
0	23 (9.4)	25 (9.8)	48 (9.6)
1	67 (27.3)	70 (27.5)	137 (27.4)
2	58 (23.7)	54 (21.2)	112 (22.4)
3	44 (18)	37 (14.5)	81 (16.2)
4	28 (11.4)	33 (12.9)	61 (12.2)
5	12 (4.9)	16 (6.3)	28 (5.6)
6	9 (3.7)	9 (3.5)	18 (3.6)
7	2 (0.8)	9 (3.5)	11 (2.2)
8	1 (0.4)	2 (0.8)	3 (0.6)
10	1 (0.4)	0 (0.0)	1 (0.2)
Total	245(100)	255 (100)	500(100)

4.2 INFANT FEEDING PRACTICES

4.2.1 Prevalence of breastfeeding among women.

This study sought to find out the current breastfeeding status among women. The women were asked if they were breastfeeding their child or intended to breastfeed. This question was meant to capture women who were pregnant at the time of the survey and those who were attending Post Natal Care (PNC). The results presented in Table 4.2.1 show that 74.8% (n=369) were breastfeeding or intended to breastfeed. About 78.4% (n=189) in Lusaka and 71.4% (n=180) in Kitwe were breastfeeding or intended to breastfeed.

At the time of the study, 59.3% of the respondents in both Lusaka and Kitwe (n=296) were breastfeeding. When stratified by district, 63.7% (n=156) in Lusaka and 55.1%

(n=140) in Kitwe were breastfeeding at the time of the survey. There was a higher percentage of breastfeeding women in Lusaka than in Kitwe. The percentage difference in breastfeeding prevalence between Lusaka and Kitwe was 8.6 percentage points. This difference could be as a result of the higher percentage of women who are aware of the benefits of breastfeeding in Lusaka than in Kitwe (as presented later in Table 4.3.1).

Table 4.2.1: Count and Percent distribution of respondents by breastfeeding status by district			
	Lusaka	Kitwe	Total
Currently breasting and intending to breastfeed	189(78.4)	180(71.4)	369(74.8)
Currently breastfeeding(only)	156(63.7)	140(55.1)	296(59.3)

When stratified by age of child, 68.7% (n=202) of the mothers with children less than 6 months of age were breastfeeding their children while the rest, that is, 31.3% (n=92), with children in the same age category were not breastfeeding. There is a significant relationship between age of child and breastfeeding prevalence, ($P=0.001$). The percentages of mothers who were breastfeeding decreased as the age of the child increased, to the extent that none of the respondents with children aged 24-60 months reported breastfeeding.

Table 4.2.2: Count and percent distribution of respondents currently breastfeeding by age of child.			
Age of child in months	Lusaka	Kitwe	Total
0-6	106(72.6)	96(64.9)	202(68.7)
7-12	38(79.2)	32(80)	70(79.5)
13-24	11(50)	10(45.5)	21(47.7)
24-60	0(0)	0(0)	0(0)
Total	155(68)	138(59.7)	293(63.8)

The findings show that there were 292 mothers with infants below six months and 383 mothers with infants below one year. Thirty one percent (31.3%) (n=93) of the former were not breastfeeding.

The respondents who were not breastfeeding at the time of the study were asked to give reasons why they were not doing so. The following are some of the reasons that they gave.

Box 1: Reasons for not breastfeeding

- I am HIV positive (Kitwe mother aged 27).*
- I got pregnant before the child was 2 years old (Lusaka mother aged 24).*
- I was advised by the clinician to breastfeed my baby up to six months because of my status (Lusaka mother aged 21).*

4.2.2 Infant feeding types

In the first six months of life, WHO recommends exclusive breastfeeding as the best infant feeding option regardless of the mother’s HIV status. Exclusive breastfeeding is defined as breastfeeding where an infant receives only breast milk and no other liquids or solids, not even water, with the exception of drops or syrups consisting of vitamins,

mineral supplements, or medicines. However, not all women exclusively breastfeed their infants. Some predominantly breastfeed while others use replacement feeding or formula feeding. Predominant feeding is defined as exclusive breastfeeding in combination with plain water, water- based liquids, or juices; and replacement feeding is defined as feeding infants who are receiving no breast milk with a diet that provides the nutrients infants need until the age at which they can be fully fed on family foods. During the first 6 months of life, replacement feeding should be with a suitable breast milk substitute. After 6 months the suitable breast milk substitute should be complemented with other foods.

The women were asked how they were feeding their infants in the first six months of life. The results show that 64% (n=137) of the respondents in Lusaka and 56.4% (n=128) of the respondents in Kitwe were exclusively breastfeeding their children. This means that approximately 6 in every 10 women were exclusively breastfeeding their infants. The results also show that 22.4% (n=48) of the respondents in Lusaka and 28.2% (n=64) of the respondents in Kitwe described their feeding as predominant and 13.6% (n=29) of the respondents in Lusaka and 15.4% (n=35) of the respondents in Kitwe were using replacement feeding. Overall, 25.4% (n=112) were predominantly breastfeeding their infants, 60.1% (n=265) were exclusively breastfeeding their infants and 14.5% (n=64) were using replacement feeding or formula feeding. Table 4.2.2 shows the results.

Table 4.2.2: Count and percent distribution of respondents by type of infant feeding by district						
	Lusaka		Kitwe		Total	
Predominant breastfeeding	48	(22.4)	28.2	(64)	112	(25.4)
Exclusive breastfeeding	137	(64)	128	(56.4)	265	(60.1)
Replacement feeding or formula feeding	29	(13.6)	35	(15.4)	64	(14.5)
Total	214	(87.3)	227	(89)	441	(88.2)

4.2.3 Breastfeeding decision

According to the International Lactation Consultation Association (ILCA, 2006), every mother has a right to protection from coercion, stigma and commercial influences in making her own decisions about infant and young child feeding. The respondents were asked who decided or who will decide that they breastfeed their infant.

The findings (Table 4.2.3) show that most women [96.6% (n=224) in Lusaka and 88.8% (n=214) in Kitwe] decided to breastfeed or will decide to breastfeed on their own.

Table 4.2.3: Count and Percent distribution of respondents by who decided that the child is breastfed disaggregated by district.			
	<u>Lusaka</u>	<u>Kitwe</u>	<u>Total</u>
Myself	224(96.6)	214(88.8)	438(92.6)
My husband	3(1.3)	8(3.3)	11(2.3)
Relatives	1(0.4)	2(0.8)	3(0.6)
Grandmother	1(0.4)	0(0)	1(0.2)
Parents	3(1.3)	8(3.3)	11(2.3)
Other	0(0)	9(3.7)	9(1.9)
Total	232(100)	241(100)	473(100)

4.2.4 Breastfeeding Initiation

Women were asked when they initiated breastfeeding or when they intended to initiate breastfeeding in case of first or next pregnancy. The results (Table 4.2.4) show that breastfeeding initiation in the first hour of the infant’s life is almost universal, with 97.4 % (n= 228) and 97.2 % (n= 247) of the respondents in Lusaka and Kitwe respectively indicating to have initiated or intended to initiate breastfeeding in the first hour.

Table 4.2.4.: Count and Percent distribution of respondents by breastfeeding initiation disaggregated by district						
	Lusaka		Kitwe		Total	
Breast feeding initiation						
1st Hour	222	(97.4)	240	(97.2)	462	(97.3)
After Six hours	1	(0.4)	0	(0)	1	(0.2)
After 3 days	4	(1.8)	7	(2.8)	11	(2.3)
After 1 week	1	(0.4)	0	(0)	1	(0.2)
Total	228	(100)	247	(100)	475	(100)

To find out if mothers understood the importance of putting the baby to the breast in the first hour of life or as soon as possible, the respondents were asked to state the reasons why they initiated breastfeeding or intended to initiate breastfeeding in the first hour. The following excerpts were among the reasons given.

Box 2. Reasons for initiating breastfeeding in the first hour

- *It is part of family planning (Kitwe mother aged 33).*
- *Yellow milk is the first immunization to my baby (Kitwe mother aged 27).*
- *The first milk is the best and the baby grows well (Kitwe mother age 21).*
- *It connects the baby to me (Lusaka mother aged 22).*
- *It is healthy for the baby and was advised by a nurse (Lusaka mother aged 23).*
- *Helps in the stimulation and production of milk (Kitwe mother age 35).*
- *Yellowish milk is very nutritious (Kitwe mother aged 29).*
- *To know if baby is able to suck (Lusaka mother aged 32).*

The excerpts in Box 2 are an indication that information about putting the baby to the breast had reached most women; most women were aware of the importance of initiating

breastfeeding in the first hour as they were able to correctly state the benefits of initiating breastfeeding in the first hour or as soon as possible after the birth of a child.

4.2.5 Breastfeeding Cessation

The women in the study were asked when they intend to wean their children. The results (Table 4.2.5) show that 28.7% (n=70) of the respondents in Lusaka plan to wean or weaned their infants at six months, while 14.3 % (n=36) of the respondents in Kitwe planned to wean or weaned their infants at six months . Eight percent (n=19) of the respondents in Lusaka planned to wean their infants at one year of age while 8.4% (n=21) of the respondents in Kitwe planned to wean their infants at one year of age. Almost an equal percentage of mothers in Lusaka and Kitwe (37.3% vs 37.5) planned to wean their child at one year six months.

Table 4.2.5: Count and percent distribution of respondents by length of breastfeeding period.						
Background characteristics	After Six months	At one year old	At one year six months	At two years	Beyond two years	Total
Residence						
Lusaka	70(28.7)	19(7.8)	91(37.3)	58(23.8)	6 (2.5)	244(100)
Kitwe	36(14.3)	21(8.4)	94(37.5)	87(34.7)	13(5.2)	251(100)
Marital status						
Married	69(18.2)	30(7.9)	2(33.3)	115(30.3)	16(4.2)	379(100)
Single	29(35.8)	6(7.4)	0(0)	20(24.7)	3(3.7)	81(100)
Divorced	2(33.3)	23(28.4)	3(50)	1(16.7)	0(0)	6(100)
Widowed	4(21.1)	3(15.8)	4(21.1)	8(42.1)	0(0)	19(100)
Separated	3(15.8)	1(10)	6(60)	1(10)	0(0)	10(100)
Total	106 (21.4)	40(8.1)	185(37.4)	145(29.3)	19(29.3)	495(100)

Table 4.2.5 also shows that thirty seven percent (n=91) in Lusaka and 37.5% (n=94) mothers in Kitwe plan to wean their child at one year six months. The percentages start to decline after one year six months, with only 2.5% (n=6) of the respondent in Lusaka and 5.2% (n=13) in Kitwe planning to breastfeed beyond two years. There is a significant difference between the length of breastfeeding among mothers in Lusaka and

Kitwe,($P=0.001$). Women in Lusaka plan to wean their children earlier than women in Kitwe. With regard to marital status, there is no significant difference across marital status categories in terms of when women plan to wean their children,($P=0.142$). However, 33.3% (n=115) of the married women plan to breastfeed for one year six months and 4.2% (n=16) plan to breastfeed beyond two years.

4.3 AWARENESS, ATTITUDES AND PERCEPTIONS OF MOTHER TO CHILD TRANSMISSION OF HIV (MTCT) THROUGH BREASTFEEDING.

4.3.1 Awareness of benefits of breastfeeding

This study sought to find out the benefits of breastfeeding that women knew of. Respondents were asked if they knew the benefits of breastfeeding, and 93.4 % (n=467) responded that they knew the benefits of breastfeeding. Knowledge of the benefits of breastfeeding was universal and cuts across residence, marital status as well as age. (Table 4.3.1).

Table 4.3.1: Count and percent distribution of respondents knowledge of benefits of breastfeeding by selected background characteristics		
Background Characteristics	Count	Percent
Lusaka	235	95.9
Kitwe	232	91
Total	467	93.4
Marital Status		
Married	355	92.9
Single	78	95.1
Divorced	5	83.3
Widowed	19	95
Separated	10	100
Total	467	100
Age		
15-19	56	94.9
20-24	127	92.7
25-29	125	89.9
30-34	84	95.5
35-39	36	94.7
40-44	18	100
45-49	4	100
Total	450	100

When further probed to identify the benefits that they knew of, a multiple response question with a list of benefits of breastfeeding was used to find out mother's levels of awareness of breastfeeding benefits. Ninety four percent (n=471) were aware that breastfeeding helps the infant grow more healthy, 94.8 % (n=473) were aware that it is hygienic, 97% (n=484) were aware that it is always available at no cost and 91 % (n=454) were aware that breastfeeding guarantees less illness of infant . Interestingly, about 58.5% (n=292) of the respondents were aware of the contraceptive effect of breastfeeding. The rest of the results are as presented in Figure 4.3.1.

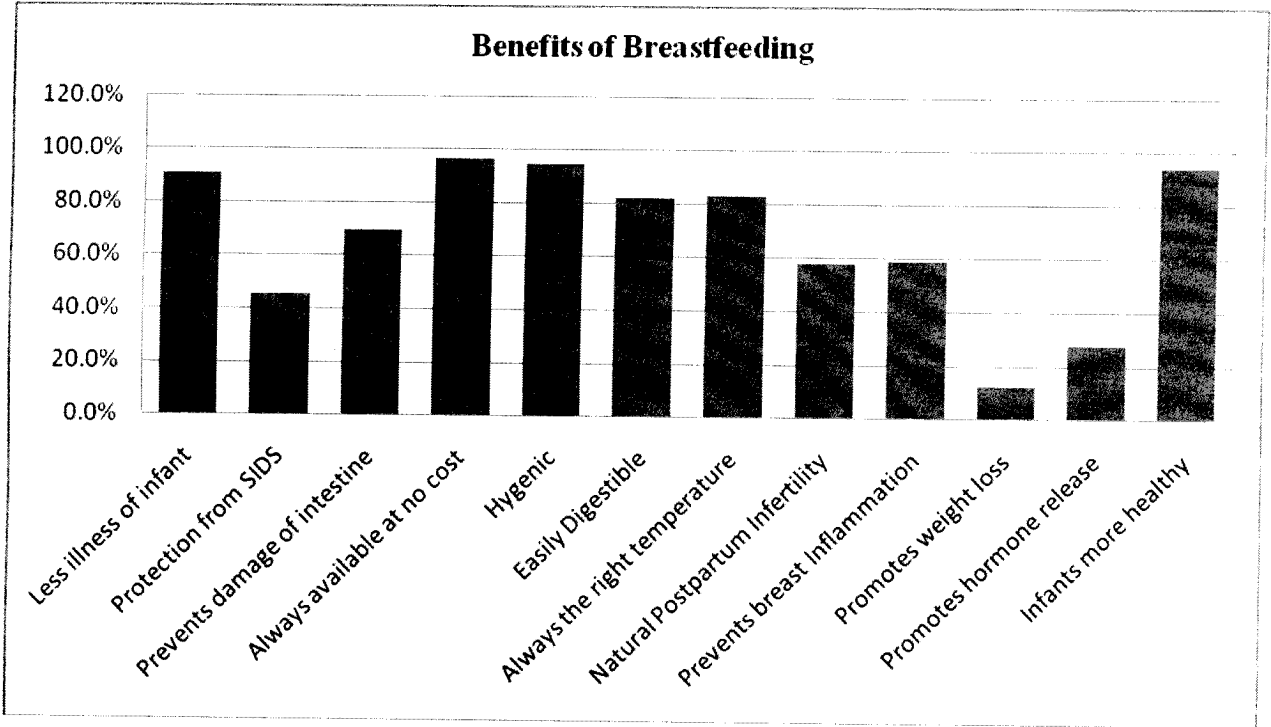


Figure 4.3.1: Percent distribution of respondents by awareness of benefits of breastfeeding

4.3.2 Awareness of the link between breastfeeding and HIV transmission

This study investigated respondents' awareness of the possibility of mother- to- child transmission of HIV through breast milk. The results (Table 4.3.2) show that 91.6 % of the respondents were aware of the possibility of mother-to-child transmission of HIV. When the results are stratified by district, 96.7 % (n=237) of the respondents in Lusaka and 86.7 % (n=221) in Kitwe were aware that MTCT of HIV through breast milk was possible. Across all age groups there was a higher percentage of women in Lusaka than in Kitwe who were aware of mother- to- child transmission of HIV ($P=0.001$). By and large, the results in Table 4.3.2 clearly indicate that awareness of mother to child transmission of HIV is almost universal.

Table 4.3.2: Count and Percent distribution of respondents reporting awareness of MTCT of HIV by selected background characteristics			
Characteristic	Lusaka	Kitwe	Total
General awareness	237(96.7)	221(86.7)	458(91.6)
Age			
15-19	26(96.3)	25(78.1)	51(86.4)
20-24	72(100)	59(90.8)	131(95.6)
25-29	65(94.2)	59(84.3)	124(89.2)
30-34	39(95.1)	44(93.6)	83(94.3)
35-39	13(92.9)	18(75)	31(81.6)
40-44	5(100)	12(92.3)	17(94.4)
45-49	1(100)	3(100)	4(100)
Total	221	220	441
Marital Status			
Married	175(96.7)	176(87.6)	351(91.9)
Single	49(98)	28(87.5)	77(93.9)
Divorced	4(100)	1(50)	5(83.3)
Widowed	7(87.5)	11(91.7)	18(90)
Separated	2(100)	5(62.5)	7(70)
Total	237	222	459
Parity			
0	22(95.7)	25(100)	47(97.9)
1	66(98.5)	61(87.1)	127(92.7)
2	55(94.8)	44(81.5)	99(88.4)
3	44(100)	28(75.7)	72(88.9)
4	27(96.4)	29(87.9)	56(91.8)
5	10(83.3)	16(100)	26(92.9)
6	9(100)	7(77.8)	16(88.9)
7	2(100)	9(100)	11(100)
8	1(100)	2(100)	3(100)
10	1(100)	0(0)	1(100)
Total	237	221	458

The mothers were asked an open- ended question to state how mother-to-child transmission was possible. Results indicated that some women were not only aware of

the possibility of mother- to- child transmission of HIV but were also aware of how the transmission was possible. Excerpts in Box 3 are illustrative but not exhaustive.

Box 3 : How is mother to child transmission possible

- *If an HIV positive mother does not follow the advice of exclusive breastfeeding for six months because mixed feeding can lead to a sore mouth and a mother with cracked nipples (Lusaka mother aged 43).*
- *If the baby has already started teething and can bite the mother when suckling (Lusaka mother aged 28).*
- *When the baby is sucking and teething they may develop sores in the mouth or on the gums (Kitwe mother aged 39).*
- *If mother has sores on the nipples and baby has thrush in the mouth (Kitwe mother aged 25).*

4. 3.3 Attitudes and perceptions towards mother-to- child transmission (MTCT) of HIV through breast milk.

4. 3.3.1 Perception of MTCT of HIV

In order to establish the attitude that women have towards breastfeeding, they were asked: whether they believed that HIV could be transmitted through breast milk; how they rated the seriousness of mother to child transmission and the extent to which they thought their children were vulnerable to HIV infection through breast milk. The following section presents responses to these questions.

According to the responses presented in Table 4.3.3.1, all the respondents in Lusaka (n=234) and 97.7 % (n=208) in Kitwe believed that MTCT of HIV through breast was possible. In terms of seriousness of mother to child transmission through breast milk, more than nine out of ten women (90.2%) (n=220) in Lusaka and 94.2% (n=240) in Kitwe considered the problem to be either serious or very serious. Only 9.8% (n=24) and 5.1% (n=13) in Lusaka and Kitwe respectively, considered the problem of mother-to-child transmission of HIV as not being serious. Table 4.3.3.1 and 4.3.3.2 show the results.

Table 4.3.3.1: Count and percent distribution of respondents who believe that HIV can be transmitted through breast milk by selected demographic characteristics	
Background characteristics	Believe that HIV can be transmitted through breast milk
Residence	
Lusaka	234(100)
Kitwe	208(97.7)
Total	442
Age	
15-19	47(97.9)
20-24	126(100)
25-29	120(98.4)
30-34	83(98.8)
35-39	31(100)
40-44	15(93.8)
45-49	4(100)
Total	426
Marital status	
Married	340(98.8)
Single	71(98.6)
Divorced	5(100)
Widowed	19(100)
Separated	7(100)
Total	442
*Age categories do not include age not stated	

Table 4.3.3.2: Count and percent distribution of respondents by perceived degree of seriousness of MTCT of HIV by residence, age and marital status.

Perceived degree of seriousness of mother to child transmission			
Background characteristics	Not serious	Serious	Very serious
Residence			
Lusaka	24(9.8)	103(42.2)	117(48)
Kitwe	13(5.1)	91(36)	149(58.9)
Total	37	194	266
Age			
15-19	6(10.2)	11(64.7)	5(29.4)
20-24	10(7.4)	19(32.2)	34(57.6)
25-29	9(6.6)	50(36.8)	76(55.9)
30-34	9(10.2)	48(35)	80(58.4)
35-39	2(5.3)	34(38.6)	45(51.1)
40-44	0(0)	19(50)	17(44.7)
45-49	0(0)	10(55.6)	8(44.4)
Total	36	191	265
Marital status			
Married	25(6.6)	142(37.5)	212(55.9)
Single	9(11)	33(40.2)	40(48.8)
Divorced	0(0)	4(66.7)	2(33.3)
Widowed	3(15)	10(50)	7(35)
Separated	0(0)	5(50)	5(50)
Total	37	194	266
*Age categories do not include age not stated			

4.3.3.2 Perception of extent of vulnerability of own children to HIV Infection through breast milk.

Respondents' perception of the degree to which their children were vulnerable to HIV infection through breast milk are presented in Table 4.3.3.3.

Table 4.3.3.3: Count and Percent distribution of respondents by perception of the extent of vulnerability of their infants to HIV transmission through breast milk by selected background characteristics.					
	Less extent	Large extent	Not Sure	Not at all	Total
District					
usaka	60(24.9)	100(41.5)	25(10.4)	56(23.2)	214(100)
Kitwe	44(17.7)	131(52.6)	58(23.3)	16(6.4)	249(100)
Total	104(21.2)	231(47.1)	83(16.9)	72(14.7)	490(100)
Marital status					
Married	82(21.9)	177(47.2)	61(16.3)	55(14.7)	375(100)
Single	15(18.8)	36(45)	16(20)	13(16.2)	80(100)
Divorced	3(50)	1(16.7)	1(16.7)	1(16.7)	6(100)
Widowed	3(15)	10(50.0)	5(25)	2(10)	20(100)
Separated	1(11.1)	7(77.8)	0(0)	1(11.1)	9(100)
Total	104(21.2)	231(47.1)	83(16.9)	72(14.7)	490(100)
Mothers age					
5-19	10(17.2)	27(46.6)	10(17.2)	11(19)	58 (100)
20-24	33(24.6)	63(47)	15(11.2)	23(17.2)	134(100)
25-29	28(20.6)	67(49.3)	24(17.6)	17(12.5)	136(100)
30-34	20(23)	42(48.3)	11(12.6)	14(16.1)	87(100)
35-39	8(21.1)	18(47.4)	8(21.1)	4(10.5)	38(100)
40-44	1(5.6)	7(38.9)	10(55.6)	0(0)	18(100)
45-49	1(25)	1(25)	2(50)	0(0)	4(100)
Total	101(21.2)	225(47.1)	80(16.9)	69(14.7)	490(100)
Age of Child					
Below six months	64(22.2)	136(47.2)	50(17.4)	38(13.2)	288(100)
6-12 months	24(27.3)	37(42)	11(12.5)	16(18.2)	88(100)
13-24 months	5(11.6)	23(53.5)	11(12.5)	8(18.6)	43(100)
24-60 months	1(3.1)	14(43.8)	7(16.3)	7(21.9)	32(100)
Total	94(20.8)	210(46.6)	78(17.3)	69(15.3)	451(100)

As results in Table 4.3.3.3 indicate, most mothers (68.3%) (n=326) considered their children to be vulnerable to HIV infection to a less extent (21.2%) (n=101) or to a large extent (47.1%) (n=225), and only 14.7% (69) and 16.9% (n=80) respectively thought

that their children were either not vulnerable or could not tell the extent to which their own children were vulnerable to HIV infection through breast milk.

4.3.4 Awareness that HIV positive mothers are supposed to breastfeed.

To find out if mothers were aware of the WHO recommendation that HIV positive mothers should exclusively breastfeed, the respondents were asked a prompted question to state if HIV positive women are supposed to breastfeed. Table 4.3.4 shows that 65.4 % (326) of women knew that HIV positive mothers are supposed to breastfeed. In both sites, the proportions of women who were not aware that HIV positive mothers are supposed to breastfeed were quite high, [32.8% (n=78) of the respondents in Lusaka and 37.6% (n=96) of the respondents in Kitwe]. When stratified by age, women in the 15-19 age group showed the least level of awareness, while women in the 40-44 age group showed the highest level of awareness with regard to breastfeeding by HIV positive women. There is no significant difference in awareness that HIV positive women are supposed to breastfeed between the two districts ($P=0.173$).

Table 4.3.4: Count and percent distribution of respondents aware that HIV positive mothers are supposed to breastfeed by age.			
Age	Lusaka	Kitwe	Total
15-19	14(51.9)	18(56.2)	32(54.2)
20-24	50(69.4)	48(73.8)	98(71.5)
25-29	49(71)	37(52.9)	86(61.9)
30-34	31(75.6)	25(53.2)	56(63.6)
35-39	10(71.4)	17(70.8)	27(71.1)
40-44	4(80)	11(84.6)	15(83.3)
45-49	1(100)	2(66.7)	3(75)
Total	167(68.2)	159(62.4)	326(65.4)

The respondents were further asked to give reasons why HIV positive mothers should breastfeed. The following excerpts are illustrative but not exhaustive of the reasons why respondents think HIV positive women should breastfeed.

Box 4: Reasons why HIV positive women should breastfeed
<ul style="list-style-type: none">• <i>Breast milk is the best and contains all the requirements that the baby needs (Lusaka mother aged 19).</i>• <i>It promotes mother to child bond (Kitwe mother aged 21).</i>• <i>So that the baby receives that first milk from the mother which will make the baby protected from disease (Kitwe mother aged 17).</i>

4.3.5 Awareness of HIV positive mothers who were breastfeeding

As a follow up question on awareness, respondents in the study were asked if they knew of anyone in their community who was HIV positive and was breastfeeding. This was meant to find out if the information that HIV positive mothers can breastfeed had reached women and, to establish if some women in the communities were actually breastfeeding despite being HIV positive. Figure 4.3.5 shows that about 43.2% (n=213) [44.5% (n=109) from Lusaka and 41.9% (n=104) from Kitwe] reported knowing someone who was HIV positive and was breastfeeding.

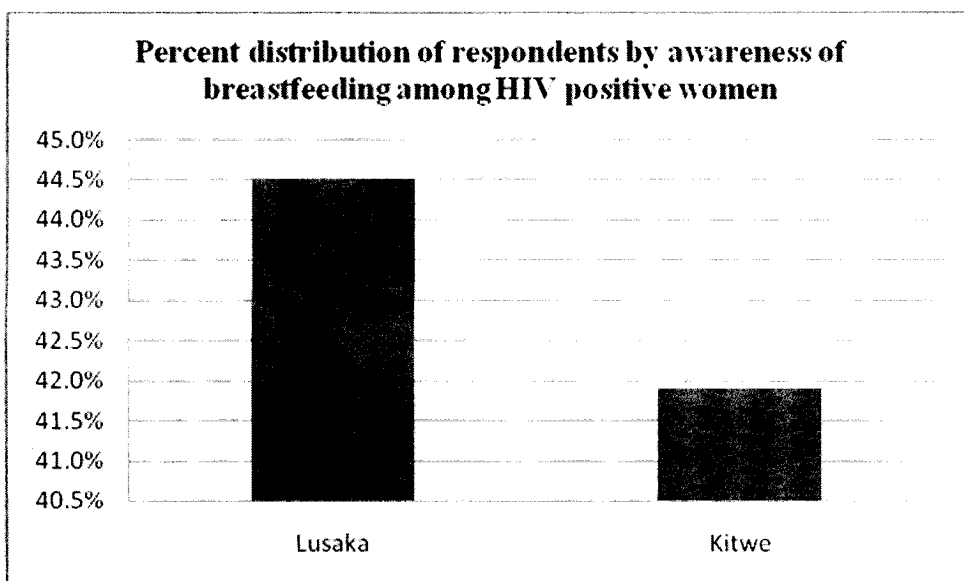


Figure 4.3.5: Percent distribution of respondents by awareness of breastfeeding among HIV positive women

4.3.6 Willingness to breastfeed among mothers even when found HIV positive

Respondents in the study were further asked to indicate the extent to which they would be comfortable to breastfeed their children in the event that they were found HIV positive.

The responses are as tabulated in Table 4.3.6.

Table 4.3.6: Count and Percent distribution of respondents by how comfortable they would be breastfeeding if they were found HIV positive by district			
	Lusaka	Kitwe	Total
Rating			
Not comfortable	152(62.3)	133(53.6)	285(57.9)
Quite comfortable	26(10.7)	37(14.9)	63(12.8)
Comfortable	31(12.7)	66(26.6)	97(19.7)
Very Comfortable	35(14.3)	12(4.8)	47(9.6)
Total	244(100)	248(100)	492(100)

More than half (57.9%) [62.3% in Lusaka and 53.6% in Kitwe] indicated that they would not be comfortable to breastfeed their children if they tested positive for HIV. This is not

withstanding the fact that more than four (4) out of ten (10) were aware of some HIV positive women in their communities who were breastfeeding. Table 4.3.7 shows that only 65.4% (68.2% in Lusaka and 62.4% in Kitwe) of women were in support of breastfeeding by HIV positive mothers. Put differently, more than three (3) out of ten (10) women (32.8% in Lusaka and 37.6% in Kitwe) were of the view that HIV positive mothers should not breastfeed.

Table 4.3.7: Count and percent distribution of respondents in support of breastfeeding by HIV positive mothers.			
Age	Lusaka	Kitwe	Total
15-19	14(51.9)	18(56.2)	32(54.2)
20-24	50(69.4)	48(73.8)	98(71.5)
25-29	49(71)	37(52.9)	86(61.9)
30-34	31(75.6)	25(53.2)	56(63.6)
35-39	10(71.4)	17(70.8)	27(71.1)
40-44	4(80)	11(84.6)	15(83.3)
45-49	1(100)	2(66.7)	3(75)
Total	167(68.2)	159(62.4)	326(65.4)

Not only were mothers reluctant to breastfeed if found HIV positive, but they were also opposed to other women doing so (Table 4.3.7). A number of reasons were given for opposing the idea of HIV positive women breastfeeding. The most prominent ones were captured in the following excerpts (Box 5).

Box 5: Reasons why breastfeeding is not encouraged among HIV positive women

- Health teachings say that HIV is found in breast milk and the mother might pass the virus to the child through breastfeeding (Kitwe mother aged 30).*
- Breastfeeding is a way of transmitting HIV to the baby (Lusaka mother aged 24).*

The expressed reluctance of most women to breastfeed their children if they tested positive for HIV inspite of the numerous advantages of breastfeeding they were aware of may be attributed largely to their perceived low community approval of breastfeeding among HIV positive women. Only about 55.8% of women in Lusaka and 47% of those in Kitwe thought that their communities were in favour of or supported breastfeeding by HIV positive mothers. This is evident in Figure 4.3.7.

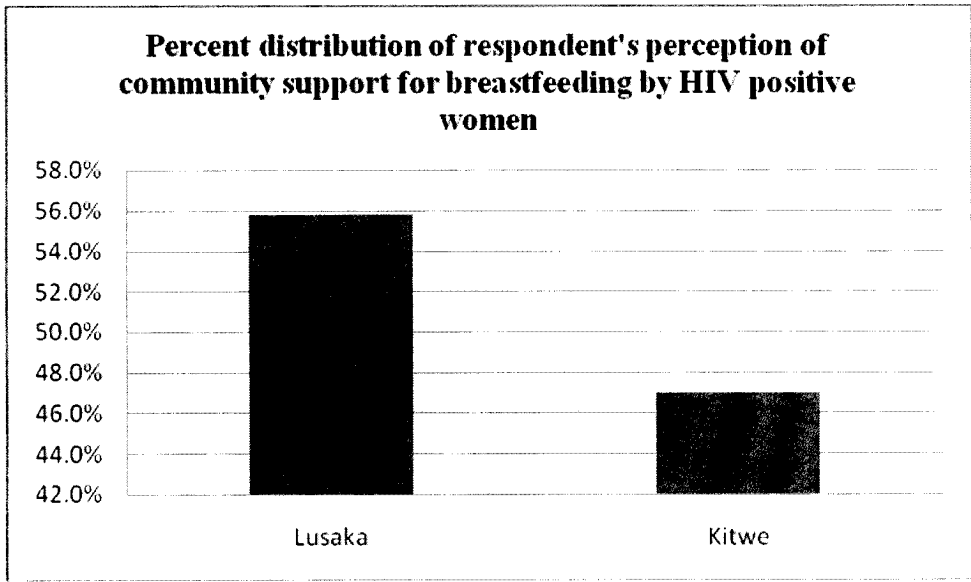


Figure 4.3.7: Percent distribution of respondent’s perception of community support for breastfeeding by HIV positive mothers

4.3.7 Sources of breastfeeding information (Cues to action)

According to the Health Belief Model there should be cues to action which are reminders to taking a health action (Becker, 1974). Sources of breastfeeding information remind mothers of the benefits of breastfeeding. The mothers were asked to indicate their source of breastfeeding information from a list of sources. The results show that ANC (96.4%), under-five clinics (60.2 %), radio (40.4 %) and television (38.2 %) were the most

common sources of information. When the results were disaggregated by district, the same pattern is observed.

Table 4.3.7: Count and Percent distribution of respondents by sources of breastfeeding information by district						
Source of information	Lusaka		Kitwe		Total	
Television	114	(46.7)	76	(30)	190	(38.2)
Radio	109	(44.7)	92	(36.4)	201	(40.4)
Brochures	62	(25.4)	78	(30.8)	140	(28.2)
Antenatal	235	(96.3)	244	(96.4)	479	(96.4)
Underfive Clinic	152	(62.3)	147	(58.1)	299	(60.2)
Relatives	74	(30.3)	60	(23.7)	134	(27)
Friends	79	(32.4)	50	(19.8)	129	(26)
Church	62	(25.4)	18	(7.1)	80	(16.1)
Books	77	(31.6)	47	(18.6)	124	(24.9)
Newspaper	62	(25.4)	25	(9.9)	87	(17.5)
Total	244		253		497	
Statistics obtained from a multiple response question						

ANC and under-five clinics were not only the main sources of information but they were also the most trusted sources of information about breastfeeding. Table 4.3.8 shows that ANC [94.9% (n= 470)] and under five clinic [53.7% (n= 266)] were the most trusted source of information for both Lusaka [95.9% (n=233) vs. 55.1% (n=134)] and Kitwe [94% (n= 237) vs. 52.4% (n=132)].

Trusted sources of breastfeeding information

Table 4.3.8: Count and Percent distribution of respondents by trusted sources of breastfeeding information.					
Source of information	Lusaka		Kitwe		Total
Television	66	(27.2)	15	(6)	81 (16.4)
Radio	56	(23)	16	(6.3)	72 (14.5)
Brochures	46	(18.9)	16	(6.3)	62 (12.5)
Antenatal	233	(95.9)	237	(94)	470 (94.9)
Underfive Clinic	134	(55.1)	132	(52.4)	266 (53.7)
Relatives	47	(19.3)	8	(3.2)	55 (11.1)
Friends	47	(19.3)	2	(0.8)	49 (9.9)
Church	44	(18.1)	1	(0.4)	45 (9.1)
Books	52	(21.4)	10	(4)	62 (12.5)
Newspaper	43	(17.7)	3	(1.2)	46 (9.3)
Total	243		252		495
Table is generated from a multiple response question					

Table 4.3.8 shows that ANC is the most trusted source of information. The excerpts below represent some of the reasons why ANC is the most trusted source of information.

Box 6: Reasons for trusting ANC

- *The people who tell us the information are trained people (Kitwe mother aged 40).*
- *The people at ANC are well trained; they teach us things that we have never even heard of (Kitwe mother aged 37).*
- *They motivate us; because these sources are authorized to give rightful information (Kitwe mother aged 21)*
- *Health personnel give us updated information (Lusaka mother aged 25)*
- *Gives the right information and the information is given clearly with illustration (Lusaka mother aged 19)*

**4.4 AWARENESS OF OTHER INFANT FEEDING OPTIONS FOR HIV-
POSITIVE MOTHERS**

Available Infant and Young Child Feeding (IYCF) options among mothers who are HIV positive, negative or of unknown status for different resource setting; should be known; In addition , a mother has the right to full and objective information on all infant feeding options, in a form she can understand and apply in her own situation (ILCA,2006). There are several infant feeding options available for an HIV positive mother during the first six months. Awareness of these and the attitudes of study respondents toward them are discussed below.

In order to determine awareness, the women were asked which feeding option was the best for feeding infants born to HIV positive mothers. There was a significant difference between Lusaka and Kitwe in preferences for infant feeding options for HIV positive mothers, ($P=0.001$). More women in Lusaka preferred modified breastfeeding for HIV positive mothers than in Kitwe while more women in Kitwe preferred Expressed Heat Treated breast milk for HIV positive mothers than in Lusaka. Majority of the women in both Lusaka and Kitwe thought commercial infant formula was the best for feeding infants born to HIV positive mothers. Results are presented in Table 4.4.1.

Table 4.4.1 Count and percent distribution of respondents by preference for other infant feeding options for HIV positive mothers by district			
Preferred feeding option	Residence		Total
	Lusaka	Kitwe	
Wet Nursing	17(7.0)	31(12.2)	48(9.6)
Modified breastfeeding	37(15.5)	19(7.6)	56(11.5)
Heat treated expressed breast milk	19(8.0)	71(28.4)	90(18.4)
Commercial infant Formula	181(76.1)	159(63.6)	340(69.7)
Modified animal milk	1(0.4)	1(0.4)	2(0.4)
Total	238	250	488

4.4.1 Wet Nursing

Wet nursing involves a child being breastfed by another woman who is not the child's biological mother. The respondents were asked if they would be comfortable having their infant breastfed by an HIV negative wet nurse. Only about 10 percent (7% in Lusaka and 12% in Kitwe) indicated that they would be comfortable having their infant breastfed by an HIV negative wet nurse.

The women were asked to state the reasons why they were not in favour of wet nursing as an option for feeding infants born to HIV positive mothers. The following excerpts illustrate some of the responses.

Box 7: Reasons why women do not prefer wet nursing as an infant feeding option for HIV positive mothers

- *I would not know the past illnesses experienced by the nursing mother (Lusaka mother aged 19).*
- *I am HIV positive but I cannot give my baby to someone whose status I do not know its better I formula feed (Kitwe mother aged 21).*
- *Mother baby bond is created during breastfeeding so I cannot make such a mistake (Kitwe mother aged 33).*
- *Because I can still breastfeed my baby even when HIV positive (Lusaka mother aged 24).*
- *It is not healthy to give your baby to some else (Kitwe mother aged 17).*
- *It is very difficult to trust anybody in the era of HIV (Lusaka aged 28).*
- *It is a taboo and not common in our country (Kitwe mother aged 41).*
- *I don't trust anyone (Kitwe mother aged 21).*
- *I am jealous and I could be very sad to allow someone to breastfeed my baby (Lusaka mother aged 30).*

4.4.2 Expressed Heat Treated breast milk

Heat treated expressed breast milk is an infant feeding option where a mother decides to feed her infant on breast milk that she expresses from her breast and then heat treats it and cools it before giving it to the infant (AED, 2004). Research has shown that when appropriately heat- treated, expressed milk of HIV positive mothers will not transmit HIV and remains economically, nutritionally and, possibly, immunologically superior to infant

formula. Expressed Heat Treated breast milk (EHT) is very affordable, feasible although a time consuming feeding option which requires a lot of support from family, community and health professionals in order to effectively implement. Mothers who choose this option should have a reliable supply of clean water and fuel energy for heat treating the expressed milk (AED, 2004).

Results in Table 4.4.2 indicate that out of a total of 500 women, only 63% (n=153) in Lusaka and 51.4% (n=130) in Kitwe had heard of the practice of expressing breast milk. There was a significant difference between Lusaka and Kitwe in terms of respondents having heard of the practice of expressing breast milk ($P=0.009$). Of those who had heard about expressing milk, 8% (n=19) of the respondents in Lusaka and 28.4% (n=71) of the respondents in Kitwe would prefer heat treated expressed breast milk. When further probed as to whether they intend to or have expressed breast milk before, only 23.4% (n=56) in Lusaka and 27.9% (n=70) in Kitwe intend to or have expressed breast milk before. Table 4.4.2 shows the results.

Table 4.4.2: Count and Percent distribution of respondents reporting ever having heard of expressing breast milk and practice of expressed breast milk.			
	Lusaka	Kitwe	Total
Ever heard of the practice of expressing breast milk	153(63)	130(51.4)	213(42.9)
Prevalence of expressed milk feeding	56(23.4)	70(27.9)	126(25.7)

The results in Table 4.4.2 show that very few women have expressed milk for their infants. The women were asked the circumstances in which expressing milk was

necessary. The following are the circumstances under which expressing milk was considered necessary:

Box 8: Circumstances under which expressing milk was necessary

- *When a mother is working and wants to avoid feeding the baby with formula milk (Lusaka woman aged 25).*
- *For working mothers and students, they express milk for the babies to avoid starvation and weaning the baby before time (Lusaka woman aged 23).*
- *When the child is sick and weak to suckle (Lusaka mother aged 24).*

Some mothers said that they would not use expressed milk to feed their infants. The excerpts below are among some of the reasons given by respondents who were against expressing breast milk.

Box 9: Reasons for not preferring expressed breast milk

- *There are some chances of contamination during expressing of breast milk. (Lusaka mother aged 22).*
- *I cannot manage expressing milk (Kitwe mother aged 21).*
- *No time for that, I am a very busy woman (Lusaka mother aged 34).*
- *If I get sick or my child is sick or I have sores on my breasts (Kitwe mother aged 41).*

The circumstances provided by the respondents suggest that most women were not aware that expressing and heat treating breast milk is an option for feeding HIV– exposed

infants as very few women stated being HIV positive as one of the circumstances when expressing and heat treating breast-milk was necessary.

4.4.3 Modified breastfeeding

Indirect evidence from observational studies and mathematical modeling suggest that modified breastfeeding (exclusive breastfeeding followed by rapid transition to exclusive replacement feeding) may be one of the safest feeding options for HIV positive mothers (WHO, 2000). This practice provides infants with the many important benefits of breastfeeding for at least the first few months of life while reducing postnatal exposure to HIV by limiting the duration of breastfeeding. Modified breastfeeding is based on a three pronged strategy which includes exclusive breastfeeding for six months or until decision to stop breastfeeding is made if that occurs before six months of age, transition feeding with expressed milk fed by cup and exclusive replacement feeding with breast milk substitutes and family food without any breast milk (Piwoz.E,2004)

The results also show that only 15.5% (n=37) of the respondents in Lusaka and 7.6% (n=19) of the women in Kitwe would recommend modified breastfeeding for HIV positive mothers showing a low level of awareness of this feeding option (Table 4.4.1).

4. 4.4 Modified animal milk

Home-modified animal milk is a breast milk substitute prepared at home from fresh or processed animal milks, suitably diluted with water and with the addition of sugar and micronutrients (AED, 2004). Modified animal milk is given to infants in instances where commercial infant formula is not readily available or is too expensive for the family, supplies of animal milk are reliable and the family can afford to buy about half a litre per day for at least 6 months and the family has the resources to make the necessary

modifications and feed the home-modified animal milk safely. The milk can be cow, goat, camel, sheep or buffalo milk and it can be fresh animal milk, full cream—pasteurized or powdered—milk, evaporated milk, or ultra high-temperature (UHT) milk.

Only 0.4% (2) in both Lusaka and Kitwe were aware of and would recommend modified animal milk for infants born to HIV positive mothers (Table 4.4.1).

4.4.5 Formula feeding

Commercial infant formula is a breast milk substitute formulated industrially in accordance with applicable Codex Alimentarius* standards to satisfy the nutritional requirements of infants during the first months of life up to the introduction of complementary foods (AED, 2004). The findings have revealed that commercial infant formula is the most preferred infant feeding option for HIV positive mothers. Table 4.5.1 shows that 76.1% (n=181) of the respondents in Lusaka and 63.6% (n=159) of the respondents in Kitwe would prefer commercial infant formula for HIV positive mothers. Overall, the results in Table 4.4.1 show that 69.7% (76.1% in Lusaka and 69.7% in Kitwe) of the mothers would prefer commercial infant formula to other options for infants exposed to HIV. Most women were aware of Commercial Infant Formula as an option for feeding infants born to HIV positive mothers, hence, the high percentage of women preferring it to other feeding options. However, commercial infant formula comes with challenges, and most study respondents were aware of this, as the following excerpts from an open ended question indicate.

*Codex Alimentarius (Latin for "Book of Food") is a collection of internationally recognized standards, codes of practice, guidelines and other recommendations relating to foods, food production and food safety (<http://www.codexalimentarius.org/>).

Box 10. Challenges of Formula feeding

- *It is very expensive (Kitwe mother aged 19).*
- *Stigmatisation, affordability, time consuming and lack of hygienic utensils (Kitwe mother aged 30).*
- *If the milk is not properly prepared the baby will have diarrhea and vomiting (Lusaka mother aged 26).*
- *Some women do not know how to read (Lusaka mother aged 24).*
- *Lack of funds to meet baby's needs, poor hygiene, and stigma when using bottle feeders (Lusaka mother aged 22).*
- *People become suspicious (Lusaka mother aged 23).*
- *Milk is not always available and the mother is always worried about baby's milk (Lusaka mother aged 25).*
- *The formula could be expired, the nutrients are not enough and some do not contain vitamins (Kitwe mother aged 29).*
- *Babies do not receive protection from disease hence can get sick any time (Lusaka mother aged 32).*
- *Some babies may react to the milk due to overstay of the milk in the shop (Kitwe mother aged 21).*
- *Measurements may not be followed; preparation takes longer, baby at risk of diarrhea because of poor mixture (Kitwe mother aged 30).*

Despite the identified challenges that come with commercial infant formula, there are some benefits associated with it. Some of the benefits that the respondents provided are presented in the excerpts in Box 11.

Box 11: Benefits of Formula feeding

- *It is supplementary (Lusaka mother aged 40).*
- *Baby cannot contract HIV (Kitwe mother aged 37).*
- *Babies of working mothers and those deceased do not starve (Kitwe mother aged 35).*
- *There is less risk of transmitting HIV to the baby and, the nutrients that the baby needs are already added to the formula (Kitwe mother aged 21).*

4.5 BARRIERS IN IMPLEMENTING EXCLUSIVE BREASTFEEDING

Although there are other options for feeding infants especially those born to HIV positive mothers, breastfeeding is still the recommended option for mothers regardless of their HIV status. However, this recommended option has a lot of challenges especially among mothers who are HIV positive. These can be summarized in the excerpts below.

Box 12: Barriers in implementing exclusive breastfeeding among HIV positive mothers

- *Poverty, ignorance and stigmatization (Kitwe mother aged 27).*
- *Some listen to what the community tells them instead of clinic guidelines (Kitwe mother aged 30).*
- *Some pregnant mothers feel discriminated, stigmatized and already sick (Kitwe mother aged 33).*
- *It is difficult for an HIV positive mother to breastfeed because the baby can contract HIV if breastfed (Lusaka mother aged 21).*
- *Lack of full knowledge (Lusaka mother aged 34).*
- *Mothers do not feel free to breastfeed the baby among people who know their status for fear of being talked about (Lusaka mother aged 25).*

- *Fear of being stigmatized by other women and relatives (Lusaka mother aged 32).*
- *When women are found HIV positive and disclose to their relatives, they are given wrong information on breastfeeding (Kitwe mother aged 21).*
- *Victimization and fearing to be suspected (Kitwe mother aged 37).*
- *Lack of education and information, and not wanting to attract the attention of others (Kitwe mother aged 40).*
- *Mothers do not want others to know their status (Kitwe mother aged 29).*

The excerpts above suggest that the main barrier to exclusive breastfeeding is stigma and low levels of awareness that HIV positive women can exclusively breastfeed their infants without transmitting HIV to them. This lack of awareness breeds a lack of self efficacy in the mother to successfully exclusively breastfeed and in the community, it spurs stigma which makes it difficult for mothers who decide to exclusively breastfeed to sustain their exclusive breastfeeding decision.

4.6 HYPOTHESIS TESTING

In this study, we formulated hypothesis to find out the association between knowledge of the benefits of breastfeeding, awareness of MTCT of HIV through breast milk and awareness that HIV positive women can breastfeed and breastfeeding if found HIV positive. The following were the hypothesis formulated;

1. Women who know the benefits of breastfeeding are more likely to breastfeed even when they are HIV positive than women who do not know the benefits.
2. Women who are aware of the possibility of mother to child transmission are less likely to breastfeed their infants than women who are not aware.
3. Women who are aware that HIV positive women are supposed to breastfeed their children would be more comfortable breastfeeding their children than women who do not know.

The dependent variable in the hypotheses above was willingness to breastfeed if found HIV positive and the independent variables were knowledge of breastfeeding benefits, awareness of the possibility of mother to child transmission through breast milk and awareness that HIV positive women can breastfeed their infants.

To test the association between the identified variables, Chi-Squared test was used. A Chi-squared test was used because it is a Non –parametric test which can be used when the level of scale of measurement is not known or are irrelevant, the data are randomly and independently selected and all categories are mutually exclusive. A *P*-value less than 0.05 ($P \leq 0.05$) was considered significant.

4.6.1 Awareness of the benefits of breastfeeding and breastfeeding when found HIV positive

In this study, we investigated the association between awareness of the benefits of breastfeeding and how comfortable one would feel breastfeeding if found HIV positive. The results (Table 4.6.1) show that 43.6% (n=200) of women who know the benefits would be comfortable breastfeeding when found HIV positive while 21.2% (n=7) of women not aware of the benefits would not be comfortable breastfeeding. Fifty six percent (n=259) of women aware of the benefits of breastfeeding would not be comfortable breastfeeding if they were found HIV positive while 78.8% of those not aware would not be comfortable breastfeeding if they were found HIV positive. There is a significant association between awareness of benefits and breastfeeding if found HIV positive, ($P=0.0014$). There was a high percentage (78.8%) of women who do not know the benefits of breastfeeding who would not be comfortable breastfeeding when found HIV positive than women who know the benefits of breastfeeding. Knowledge of benefits of breastfeeding does influence one’s willingness to breastfeed even when found HIV positive.

Table 4.6.1: Awareness of benefits of breastfeeding and breastfeeding if found HIV positive.			
	Awareness of benefits of breastfeeding		
Would you be comfortable breastfeeding if found HIV positive	Yes	No	Total
Comfortable	200(43.6)	7(21.2)	207(42.1)
Not comfortable	259(56.4)	26(78.8)	285(57.9)
Total	459 (100)	42 (100)	492 (100)

4.6.2 Awareness of Mother- to –child transmission and breastfeeding when found HIV positive.

In this study, we also investigated the association between awareness of mother to child transmission and how comfortable a mother would be breastfeeding if they were found HIV positive. The findings in Table 4.6.2 show that 58% (n=261) of the women who were aware of the mother-to-child transmission of HIV through breastfeeding would be uncomfortable breastfeeding if they were found HIV positive and 57.1% (n=24) of the respondents who were not aware of the possibility of mother to child transmission would be uncomfortable breastfeeding if they were found HIV positive. Forty two percent (n=189) of the mothers who were aware of Mother-To-Child-Transmission of HIV through breastfeeding would feel comfortable to breastfeed if they were found HIV positive. Given the Pearson Chi-squared value ($P=0.037$) , we can therefore conclude that, there is an association between awareness of mother to child transmission and how comfortable one would feel breastfeeding if they were found HIV positive. This means that women’s awareness of MTCT through breastfeeding may influence how comfortable they would be breastfeeding if they were found HIV positive.

4.6.2: Awareness of MTCT of HIV and breastfeeding if found HIV positive			
	Aware of MTCT of through breastfeeding		
you be comfortable feeding if found HIV positive	Yes	No	Total
comfortable	189(42.0)	18(42.9)	207(42.1)
uncomfortable	261(58.0)	24(57.1)	285(57.9)
	450 (100)	42 (100)	492 (100)

4.6.3 Awareness of breastfeeding as a feeding option for HIV positive women and breastfeeding if found HIV positive.

Awareness of breastfeeding as an infant feeding option for HIV positive mothers may have an influence on a mother’s decision to breastfeed when they are found HIV positive. This study investigated the association between awareness that HIV positive women can breastfeed and how comfortable they would be breastfeeding if they were found HIV positive. The results (Table 4.6.3) show that 55.1% (n=177) of mothers who were aware that HIV positive women can breastfeed would feel comfortable to breastfeed if they were found HIV positive. On the other hand, only 17.6% (n=30) of women not aware that HIV positive women can breastfeed would be comfortable breastfeeding if found HIV positive. The results show that there is an association between awareness that HIV positive women can breastfeed and breastfeeding if found HIV positive, (P=0.001).

Table 4.6.3: Awareness of breastfeeding for HIV positive women and breastfeeding if found HIV positive.			
	Awareness of breastfeeding for HIV positive mothers		
Would you be comfortable breastfeeding if found HIV positive	Yes	No	Total
Comfortable	177(55.1)	30(17.6)	207(42.1)
Not comfortable	144(44.9)	141(82.5)	285(57.9)
Total	321 (100)	171 (100)	492 (100)

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

The overall objective of this study was to investigate awareness, knowledge, intentions, attitudes and practices towards breastfeeding and infant feeding in the era of HIV in two urban districts of Zambia namely; Lusaka and Kitwe, with particular focus on how expert infant feeding guidelines have reached mothers and the extent to which they have been adhered to. To the best of the investigators knowledge, there is no study that has investigated breastfeeding and infant feeding in the era of HIV in Zambia, particularly in Lusaka and Kitwe.

Breastfeeding incidence is declining in almost all parts of the world despite all its nutritional and immunological benefits (Singh B, 2010). In fact, the World Health Organisation and UNICEF recommend that breastfeeding is the best feeding option for mothers regardless of their HIV status,(WHO,2010).

The findings of the study show that breastfeeding prevalence among mothers was high (74.8%). It was, however, lower than the national breastfeeding prevalence of 98% reported in the 2007 ZDHS and below the desirable level of 100%. The high prevalence of breastfeeding among women can be attributed to the high levels of awareness of the benefits of breastfeeding which the mothers were not only able to identify from a list of benefits but could also state accurately. These benefits identified by mothers in this study were also identified by mothers in a study carried out by Paoli on breastfeeding practices in the Kumasi, Ashanti region of Ghana in 2010. Paoli's study found that mothers had universal awareness of the benefits of breastfeeding. The universal awareness of the

benefits of breastfeeding can be attributed to the ANC attendance which was also universal, and, information on breastfeeding information was reported to have been obtained from Antenatal care Clinics. ANC was cited as the most common and most trusted source of HIV information. Among services provided at ANC were VCT, PMTCT information and infant feeding information.

The findings with regard to breastfeeding practices show that almost all women (92.6%) make the decision to breastfeed on their own. This autonomy in breastfeeding decision is cardinal in that the woman would not be influenced to choose an inappropriate option for feeding her infant. However, she risks not having the support of her spouse or family members especially that they play a huge role in the successful implementation of any feeding option that an HIV positive mother chooses in terms of financial and psychosocial support.

Initiation of breastfeeding is a cardinal element in Infant and Young Child Feeding, according to the Academy for Education Development (AED, 2004). Early initiation of breastfeeding is important as it stimulates milk production and protects the infant from disease by providing colostrums which is the thick yellowish first milk which is the infant's first vaccine. Early initiation also facilitates the release of oxytocin which helps the contraction of the uterus and reduces postpartum blood loss. WHO recommends early initiation of breastfeeding, which is within one hour of birth. A recent trial has shown that early initiation of breastfeeding could reduce neonatal mortality by 22% (National Nutrition Surveillance Survey Report (NNSS), 2010). Globally, over one million

newborn infants could be saved each year by initiating breastfeeding within the first hour of life (WHO, 2010).

Breastfeeding initiation in both Lusaka (97.4%) and Kitwe (97.2%) is early and in the first hour. The percentage of women reported as having put or intending to put their children to the breast in the first hour in this study represents a difference of about 40% with the national average of 57% who were put to the breast in the first hour reported in the 2007 ZDHS. This almost universal initiation of breastfeeding in the first hour of the infants life shows that women are well informed about the importance of putting the baby to the breast in the first hour of life.

The WHO recommendations also guide how, and, when infants should be weaned. Weaning, or the process of stopping breastfeeding, is the time when an infant switches from being nourished on breast milk alone to complete reliance on other food (Greiner ,1996). WHO recommends that children be breastfed up to 24 months, if both the mother and infant are HIV negative or both are HIV positive. When the mother is HIV positive and the infant is exposed but HIV negative, the infants should be exclusively breastfed for the first six months; thereafter, complementary foods should be introduced and breastfeeding continued up to 12 months. HIV positive mothers who decide to stop breastfeeding should do so gradually within one month. There are different types of breastfeeding cessation; Gradual cessation which takes place over several weeks or months. Deliberate cessation which can be gradual or rapid and is a conscious effort initiated by the mother in order to end breastfeeding at a particular point in time Mothers may decide to stop breastfeeding for several reasons, such as desire to return to work, pressure from spouses for sexual access, desire for another child or to comply with cultural norms regarding the child's age or developmental status. Abrupt cessation of

breastfeeding is an immediate cessation of breastfeeding which may be forced on the baby by the mother or both the mother and the baby by circumstances (Piwoz, et.al , 2001).

This study also revealed that the average duration of breastfeeding was 18 months. Most women indicated weaning their children at 18 months, reflecting that women were weaning their children earlier than the 24 months recommended by WHO. Early cessation of breastfeeding presents high risk of mortality and morbidity especially in poor resource setting due to inappropriate breast milk substitutes given to infants. Early cessation of breastfeeding in instances where both the mother and infant are HIV positive presents an even greater risk of morbidity and mortality. WHO recommends breastfeeding to 24 months and beyond in such instances. This study did not collect information on HIV status of mothers and their infants and therefore could not ascertain whether HIV mothers with HIV positive infants were adhering to this recommendation.

Other findings worth noting were that, awareness of Mother- to- Child Transmission of HIV was universal among mothers and the problem was rated as a very serious health issue which their children were vulnerable to. Also, a large number of respondents were aware of women who were HIV positive and were breastfeeding. Only 37.7% in Lusaka and 46.4% in Kitwe were willing to breastfeed if found HIV positive. These results are an indication that most women would not breastfeed their infants when found HIV positive. This is because women are not only uncertain about the safety of breastfeeding for HIV positive women but also consider breastfeeding for HIV positive mothers as a deliberate and definite mode of transmitting HIV to the infant. Chopra et. al (2007) found that HIV mothers intentionally avoided breastfeeding because they thought that breastfeeding their infant always infects the child with HIV.

Among other findings was that community support for breastfeeding among HIV positive mothers was only 47.3%. This low level of community support is as a result of low levels of awareness about breastfeeding as infant feeding option for HIV positive mothers. Low levels of community support is a huge deterrent in the implementation of exclusive breastfeeding as an infant feeding option to mothers whom this option is AFASS.

The International Lactational Consultation Association (ILCA) affirms that available Infant and Young Child Feeding (IYCF) options among mothers who are HIV positive, negative or of unknown status for different resource setting should be known and, a mother has the right to full and objective information on all infant feeding options, in a form she can understand and apply in her own situation (ILCA, 2006). There are several infant feeding options available for an HIV positive mother during the first six months. The results of the study showed that most women were not aware of, or in support of, other feeding options except commercial infant formula. The women in a study conducted by Doherty (2007) in South Africa also preferred commercial infant formula to breastfeeding. The women who chose to formula feed cited protecting their child from HIV infection as the strongest influence on their infant feeding decision. However, formula fed infants are more susceptible to illness because formula milk, unlike breast milk, does not contain immunological components that protect the infant against disease. Despite offering 100 percent guarantee against HIV transmission to the infant, infant formula increases risk of morbidity and mortality from other diseases especially diarrhea and malnutrition. The Zambia Exclusive breastfeeding study (Thea D., 2007) found that there was higher mortality among HIV positive infants who were formula fed than those who were breastfed by 24 months.

The findings of this study also show that, most women considered wet nursing as taboo and uncultural. These results were similar to the results from a study conducted by Kapungwe A. et.al (2010), which revealed that the practice of expressing breast milk was strongly opposed as women felt it was not hygienic and was not a natural way to feed infants. Very few women were aware of modified animal milk as a breast milk substitute, probably due to the fact that, very few people rear animals in urban areas and few have the resources to modify the animal milk. This makes it very difficult for women to implement this option, hence, the very low numbers observed.

The greatest barrier to exclusive breastfeeding in the era of HIV, therefore, seems to be fear that mothers would infect their children in the process and stigma. Fear and stigma are huge deterrents to women's implementation of the recommended feeding options. Only 55.8% thought that their community supports HIV positive mothers to breastfeed and consequently only 65.2% were in support of HIV positive mothers to breastfeed and only 42.1% would be willing to breastfeed if they were found HIV positive. Furthermore, the results from the Chi-squared tests show that; there is association between awareness of the benefits of breastfeeding and breastfeeding if found HIV positive, there is association between mothers awareness of MTCT through breastfeeding and breastfeeding and, there is also association between awareness that HIV positive women are suppose to breastfeed and breastfeeding if found HIV positive. This shows that knowledge about breastfeeding as an infant feeding option for HIV positive women, knowledge about the benefits of breastfeeding and awareness of Mother -To - Child Transmission of HIV have a key role to play in influencing an HIV positive mother's breastfeeding decision.

5.2 Conclusion

With a high antenatal HIV prevalence, estimated at 16.4 percent in 2008, approximately 80,000 infants born annually are at risk of acquiring HIV from their mothers. Zambia has committed to intensifying action around Prevention of Mother to Child Transmission (PMTCT), with the aim of achieving virtual elimination of mother to child transmission by 2015. Among Zambia's objectives for the five year PMTCT Scale-Up Plan called "Virtual Elimination of MTCT of HIV and Provision of Care and Treatment for Paediatric HIV" is the reduction of the transmission of MTCT of HIV to less than 5 percent by 2015. However, PMTCT objectives may not be achieved unless mothers and the communities in which they live are made to understand that breastfeeding, especially exclusive breastfeeding, actually prevents HIV transmission. Also that, there are other feeding options recommended by WHO for infants born to HIV positive mothers which are provided in the 2010 PMTCT National protocol guidelines.

Generally, some women are not adhering to the WHO recommendation of exclusive breastfeeding for the first six months of the infant's life. The main reason for this is fear to transmit HIV to their infants in the process. Based on the findings from this study, stigma also still remains a major deterrent to women implementing the infant feeding option of choice. General lack of support from the community, especially for breastfeeding, deters women from choosing this option even when they realize that exclusive breastfeeding is the best option for them. Other feeding options such as Expressed Heat Treated breast milk and wet nursing are not known to most women, as very few are aware of them. Women who are aware of them consider them alien, unhygienic, uncultural and taboo.

Most women are aware of the benefits of breastfeeding and the possibility of mother to child transmission of HIV, but, most of them are not aware of breastfeeding as an infant feeding option for HIV positive mothers. Those who are aware do not accept this infant feeding option and do not support it. Further, most women are not even aware that exclusive breastfeeding for all women regardless of status is safer than formula feeding. Women are still uncertain about the safety of breastfeeding for HIV positive mothers. The infant feeding guidelines have reached some women but have not been clearly understood to be effectively executed, consequently, most women choose infant feeding options that may not be Affordable, Feasible, Available, Sustainable and Safe thereby increasing HIV morbidity and mortality among infants.

5.3 Recommendations

- All women should be encouraged to exclusively breastfeed their infants for the first six months of life. Women should be sensitized on the sufficiency of breast milk to meet all the infant nutritional requirements for the first six months of life.
- Promotion of other infant feeding options should be done and Formula feeding should only be encouraged in cases where AFASS criteria are met.
- This study has revealed that there are low levels of awareness on safety of breastfeeding for HIV positive mothers and available infant feeding options other than breastfeeding. This study therefore recommends that health workers should adequately counsel women during pregnancy and after delivery to ensure that they have adequate time to make infant feeding decisions and support to implement them.

- Given the perceived low level of community support for breastfeeding among HIV mothers, this study recommends that health workers encourage formation of support groups to assist mothers adhere to the feeding option of choice and encourage exclusive breastfeeding among HIV positive women in the communities.
- To further raise awareness on breastfeeding for HIV positive mothers the Ministry of Health and the Ministry of Community Development, Mother and Child Health and Non-Governmental Organizations working in health; should scale up provision of information on the safety of breastfeeding for HIV positive mothers using ANC, PNC and print and electronic media. The messages should be targeted to all women and the communities so as to reduce stigma.
- Given that PMTCT is a dynamic and rapidly changing field, Further research on this topic is recommended especially as the country embarks on rolling out option B+ which involves administering lifelong ART for all pregnant or breastfeeding, HIV infected women regardless of their CD4 count. Incorporation of rural areas in order to know rural and urban differentials on breastfeeding and infant feeding in the era of HIV and inclusion HIV positive mothers as respondents would also be considered.

REFERENCES

Academy for Educational Development, (2004). Infant feeding options in the context of HIV. Linkages project: Washington, DC.

Azen, I. and Fishbein, M., (1980). Understanding attitude and predicting social behavior. Pergamon Press : New York.

Bandara, A., (1989). Perceived self Efficacy in the exercise of control over AIDS infection. In V.M Mayes, G.W. Albee and S.F Shneider (eds.), Primary Prevention of AIDS, psychological approaches. Sage publishers: London.

Bess, S. and Browning V., Is breast still best in light of the HIV/AIDS pandemic in journal of American Diabetic association, vol.99, September, 1999, ppA33.(accessed on January 20, 2011)

Central Statistical Office, (2007). Zambia Demographic and Health Survey, Central statistical office: Lusaka.

Chopra M. and Rollins N.,(2007). Infant feeding in the time of HIV: Assesement of Infant feeding Policy and Programs in four African Countries Scaling up Prevention of Mother to Child Transmission programmes in Global Health Sciences Literature Digest, University of Califonia, San Francisco.

De Paoli M. et. al (ed.), (2010). Breastfeeding and HIV : experiences from a decade of prevention of postnatal HIV transmission in Sub-Saharan Africa. Institute of nutrition research , university of Oslo , Norway.(accessed on January 20, 2011).

Doherty, T.et.al (2007). Effectiveness of the WHO/UNICEF guidelines on infant feeding for HIV-positive women: results from a prospective cohort study in South Africa. Health Systems Trust:Capetown.

Human science research council, (2010). South Africa National HIV Prevalence, Incidence, Behaviour and communications Survey 2008: The Health of our children (<http://www.hsrb.ac.za/document-3611.phtml>.)

<http://www.avert.org/hiv-breastfeeding.html>. HIV and Breastfeeding accessed on 3/04/2011 at 5:13PM.

Illif P., et.al (2005). Exclusive Breastfeeding, risk of Postnatal HIV-1 transmission and HIV-free infant survival in Journal of the International AIDS society Volume 19 –issue 7-pp.699-708.

International Lactation Consultant Association, (2006). Position Paper on HIV and Infant Feeding. ILCA: Raleigh, NC, USA.

Kapungwe, A. (2009). Youth and Government's fight against HIV/AIDS in Zambia: A closer look at some underlying assumptions. Organization of Social Science Research in Eastern and Southern Africa: Ethiopia.

Kapungwe, A. (2010). Formative Assessment of infant and young child feeding practices at the community level in Zambia, IYCN: Washington, DC.

National food and nutrition commission, (2009). National nutrition surveillance report. National food and nutrition commission: Lusaka.

National HIV/AIDS/TB/STI/TB council, (2010). National Aids Strategic Framework 2011-2015. National HIV/AIDS/TB/STI/TB council: Lusaka.

Ministry of health, 2010. PMTCT National Protocol Guidelines: Intergrated Prevention of Mother – to - Child Transmission of HIV. Ministry of Health: Lusaka

Ministry of health, (2000). Infant feeding and HIV/AIDS, Guidelines for health workers in Zimbabwe. Ministry of health and child welfare and National nutritional unit: Zimbabwe

Ministry of Finance and National planning, (2008). Zambia Millennium Development Goals Progress Report. Ministry of Finance and National planning: Lusaka.

Molan, K.M.L et.al, (Ed.), Breastfeeding and HIV: Experiences from a decade of prevention of postnatal HIV transmission in Sub-Saharan Africa. In international breastfeeding journal 2010 .

Piazza AJ, Stroll BJ. Digestive System Disorders. In: Kliegman RM, Behrman RE, Jenson HB, Stanton BF, eds. *Nelson Textbook of Pediatrics*. 18th ed. Philadelphia, Pa: Saunders Elsevier; 2007:chap 102.

Piwoz, E. G. et.al (2001). Early breastfeeding cessation as an option for reducing postnatal transmission of HIV in Africa. Issues, Risks and Challenges. AED: Washington, DC

Singh, B. (1998), Knowledge, Attitude and Practice of breastfeeding- A case study. In European journal of scientific research vol.40, No.3 (2010) pp: 404-422.

Slater M, Stringer. M and Stringer J.S.A (2010), Breast feeding in HIV positive women , what can be recommended? University of Alabama at Birmingham, Centre for Infectious Disease Research in Zambia, Lusaka.

Stauton, C. and Duressa et.al. Oromo immigrants and breastfeeding information for health care providers: Ethnomed(internet);www: <http://ethnomed.com>.

Thea, D. and Kuhn, L. (2007). Zambia Exclusive Breastfeeding Study, NICHD, Lusaka.

WHO, (2010) Guidelines on HIV and infant feeding 2010: principles and recommendations for infant feeding in the context of HIV and a summary of evidence.(http://www.who.int/hiv/pub/paediatric/infant_key_mess.pdf).

THE UNIVERSITY OF ZAMBIA
SCHOOL OF HUMANITIES AND SOCIAL SCIENCES
DEPARTMENT OF POPULATION STUDIES

RESEARCH QUESTIONNAIRE

TOPIC: BREASTFEEDING AND INFANT FEEDING IN THE ERA OF HIV.

My name is _____ I am carrying out a study on breastfeeding and infant feeding in the era of HIV/AIDS. This clinic has been randomly selected as one of the clinics that I will visit to collect information from mothers and mothers to be, aged 16-49 years who are attending antenatal or postnatal care. This interview will not benefit you directly financially or otherwise but may raise awareness on how Prevention of Mother to Child Transmission can be scaled up using measures that are convenient, preferred, feasible and sustainable as suggested by you the mothers and mothers to be.

The responses that you will provide will be treated confidentially and only for purposes of this research, therefore I urge you to freely provide appropriate responses without fear or favour as the information you provide will not be linked back to you. That is why your name or anything linking you to the information you will provide will not be written on this questionnaire. If you are not willing to respond to this questionnaire you are at liberty not to do so, and if in the process of responding you wish to abandon the interview you are also at liberty to do so. Finally, I wish to thank you in advance for the responses that you will provide and once again the responses you will provide will be treated with utmost confidentiality.

May we begin?

Name of Facility _____

District 1. Lusaka ☐

2. Kitwe ☐

Instructions:

Respond by ticking. Where two or more responses apply, tick all the responses that apply.

Question Description	Coding Response	Official use
Sex?	1. Male <input type="checkbox"/> 2. Female <input type="checkbox"/>	<input type="checkbox"/>
Age at last birthday?	<input type="text"/>	<input type="checkbox"/>
Check: When were you born?		
Marital status	1.Married <input type="checkbox"/> 2.Single <input type="checkbox"/> 3.Divorced <input type="checkbox"/> 4.Widowed <input type="checkbox"/> 5.Seperated <input type="checkbox"/>	
Religious denomination	1.Catholic <input type="checkbox"/> 2.Jehovahs witness <input type="checkbox"/> 3. Pentecostal <input type="checkbox"/> 4. Main line churches <input type="checkbox"/> 5. Muslim <input type="checkbox"/> 6.Hindu <input type="checkbox"/> 7. Other (Specify) _____	<input type="checkbox"/>
What is your main source of livelihood?	_____	<input type="checkbox"/>
How many children have you ever had?	-----	<input type="checkbox"/> If never had children,go to Q9.
How many living children do you have?	_____	<input type="checkbox"/>

How old is the child you have brought?	_____	<input type="checkbox"/>
Are you breastfeeding the child or do you intend to breastfeed?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
Who has decided or who will decide that the child is breastfed?	1. Myself <input type="checkbox"/> 2. My Husband <input type="checkbox"/> 3. Relatives <input type="checkbox"/> 4. Grandmother <input type="checkbox"/> 5. Parents <input type="checkbox"/>	<input type="checkbox"/>
Did you or do you intend to exclusively breastfeed your child?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
How long do you intend to or did you exclusively breastfeed your child?	_____	
Give a reason for your answer above	_____ _____ _____ _____	
When did you or do you intend to initiate breastfeeding?	1. 1 st Hour <input type="checkbox"/> 2. After six hours <input type="checkbox"/> 3. After 3 days <input type="checkbox"/> 4. After 1 week <input type="checkbox"/>	<input type="checkbox"/>
Give a reason for your answer above	_____ _____ _____ _____	

6	When did you or do you plan to introduce supplementary foods to your infant?	1. First month <input type="checkbox"/> 2. Second month <input type="checkbox"/> 3. Third month <input type="checkbox"/> 4. Four months <input type="checkbox"/> 5. Five months <input type="checkbox"/> 6. Six months <input type="checkbox"/> 7. After six months <input type="checkbox"/>	<input type="checkbox"/>
7	Why at that age?	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	

18	Do you know the benefits of breastfeeding?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/> If no to Q2																								
19	What are the benefits of breastfeeding?	<hr/> <hr/>	<input type="checkbox"/>																								
20	How did you come to know about these benefits?	<hr/> <hr/> <hr/> <hr/>																									
21	Which of the following benefits of breastfeeding do you know of or have heard of?	<table border="0"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> <th></th> </tr> </thead> <tbody> <tr> <td>a Less illness of infant</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>b Protection from SIDS</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>c Prevents damage of intestines</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>d Always available at no cost</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>e hygienic</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>		Yes	No		a Less illness of infant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b Protection from SIDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	c Prevents damage of intestines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	d Always available at no cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	e hygienic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Yes	No																									
a Less illness of infant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																								
b Protection from SIDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																								
c Prevents damage of intestines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																								
d Always available at no cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																								
e hygienic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																								

	f Easily digestible <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> g Always the right temperature <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> h Natural Postpartum Infertility <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> i Prevents breast inflammation <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> j Promotes weight loss <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> k Promotes Hormone release <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> m. Infants more healthy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Are women who are HIV positive supposed to breast feed their infants?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
Give the reasons why?	 	
How did you come to know about this?	<div style="text-align: right;">1. Yes 2. No</div> a. Television <input type="checkbox"/> <input type="checkbox"/> b. Radio <input type="checkbox"/> <input type="checkbox"/> c. Brochures <input type="checkbox"/> <input type="checkbox"/> d. Antenatal clinic <input type="checkbox"/> <input type="checkbox"/> e. Under five clinic <input type="checkbox"/> <input type="checkbox"/> f. Relatives <input type="checkbox"/> <input type="checkbox"/> g. Friends <input type="checkbox"/> <input type="checkbox"/> h. Church <input type="checkbox"/> <input type="checkbox"/> i. Books <input type="checkbox"/> <input type="checkbox"/> j. Newspaper <input type="checkbox"/> <input type="checkbox"/> Others specify _____	
Of the various sources which one do you trust most?	<div style="text-align: right;">1. Yes 2. No</div> a. Television <input type="checkbox"/> <input type="checkbox"/> b. Radio <input type="checkbox"/> <input type="checkbox"/> c. Brochures <input type="checkbox"/> <input type="checkbox"/> d. Antenatal clinic <input type="checkbox"/> <input type="checkbox"/> e. Under five clinic <input type="checkbox"/> <input type="checkbox"/> f. Relatives <input type="checkbox"/> <input type="checkbox"/> g. Friends <input type="checkbox"/> <input type="checkbox"/> h. Church <input type="checkbox"/> <input type="checkbox"/>	

	<div>i. Books<div></div></div> <div>j. Newspaper<div></div></div> <div>Others specify<div></div></div>	
Why do you trust the source you have selected above the most?	<div></div> <div></div> <div></div> <div></div>	
Can HIV be transmitted from mother to child through breast milk?	<div>1. Yes<div></div></div> <div>2. No<div></div></div>	<div></div> <div>If No go to Q31</div>
How is this possible?	<div></div> <div></div> <div></div> <div></div> <div></div>	
How did you come to know about this?	<div></div> <div></div> <div></div>	
Do you believe in this?	<div>1. Yes<div></div></div> <div>2. No<div></div></div>	<div></div>
Did you or have you been seeking antenatal care during pregnancy?	<div>1. Yes<div></div></div> <div>2. No<div></div></div>	<div></div>
What was your source of ANC?	<div>1. Hospital/Health Centre/Clinic<div></div></div> <div>2. Private Hospital<div></div></div> <div>3. Home<div></div></div>	<div></div>
When you visited ANC which of the following services did you receive or have you received?	<div>1. Yes 2. No</div> <div>a.VCT<div></div></div>	<div></div>

	b. PMTCT information <input type="checkbox"/> <input type="checkbox"/> c. Breastfeeding Initiation <input type="checkbox"/> <input type="checkbox"/> d. Introduction of Supplementary feeding <input type="checkbox"/> <input type="checkbox"/> e. Formula feeding <input type="checkbox"/> <input type="checkbox"/> f. Exclusive breastfeeding <input type="checkbox"/> <input type="checkbox"/> g. other-----	
How would you rate the seriousness of mother to child transmission of HIV through breastfeeding?	1. Not serious <input type="checkbox"/> 2. Serious <input type="checkbox"/> 3. Very serious <input type="checkbox"/>	<input type="checkbox"/>
Do you know anyone in your community who is HIV+ and is breastfeeding?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
Would you be comfortable having your infant breastfed by another nursing mother if you were found HIV+?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
If No to question above, give the reason why?	----- ----- ----- -----	<input type="checkbox"/>
Are you currently breastfeeding your child?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/> If yes go to Q40.
If no to question above, why are you not breastfeed your child?	----- ----- ----- -----	
How would you describe your breastfeeding?	1. Predominant <input type="checkbox"/> 2. Exclusive <input type="checkbox"/> 3. Replacement feeding and formula feeding <input type="checkbox"/>	<input type="checkbox"/>

When did you or do you plan on weaning your child?	1. After six months <input type="checkbox"/> 2. At one year old <input type="checkbox"/> 3. At one year six months <input type="checkbox"/> 4. At two years old <input type="checkbox"/> 5. Beyond two years <input type="checkbox"/>	<input type="checkbox"/>
Which of the following feeding options do you think is best for feeding infants by mothers who are HIV+?	1. Modified breastfeeding <input type="checkbox"/> 2. Heat treated expressed breast milk <input type="checkbox"/> 3. Commercial infant formula <input type="checkbox"/> 4. Modified animal goat <input type="checkbox"/>	<input type="checkbox"/>
Have you heard about the practice of expressing milk for children who are still being breastfed?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
In what circumstances is this necessary?	_____ _____ _____ _____ _____ _____	
Have you or do you intend to feed your child using expressed milk .	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
Give reasons for your response to the question above?	_____ _____ _____ _____ _____	
Have you ever heard of Voluntary Counseling and Testing (VCT)?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/> If No go to Q 51
When did you go for VCT?	1. Before antenatal <input type="checkbox"/> 2. During antenatal <input type="checkbox"/> 3. After antenatal <input type="checkbox"/> 4. Other time specify _____	

50	Did you actually undergo testing?	1.Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
51	I do not want to know the results, but did you get the results?	1.Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	<input type="checkbox"/>
52	If you were found to be HIV+, how comfortable will you feel breastfeeding?	1. Not comfortable <input type="checkbox"/> 2. quite comfortable <input type="checkbox"/> 3. comfortable <input type="checkbox"/> 4. very comfortable <input type="checkbox"/>	<input type="checkbox"/>
53	Please indicate your sources of information on breastfeeding?	<div style="display: flex; justify-content: space-around;"> <div>1. Yes</div> <div>2. No</div> </div> a. Television <input type="checkbox"/> <input type="checkbox"/> b. Radio <input type="checkbox"/> <input type="checkbox"/> c. Brochures <input type="checkbox"/> <input type="checkbox"/> d. Antenatal clinic <input type="checkbox"/> <input type="checkbox"/> e. Under five clinic <input type="checkbox"/> <input type="checkbox"/> f. Relatives <input type="checkbox"/> <input type="checkbox"/> g. Friends <input type="checkbox"/> <input type="checkbox"/> h. Church <input type="checkbox"/> <input type="checkbox"/> i. Books <input type="checkbox"/> <input type="checkbox"/> j. Newspaper <input type="checkbox"/> <input type="checkbox"/> k. Others specify _____	
54	Which of the above do you trust most?	<div style="display: flex; justify-content: space-around;"> <div>1. Yes</div> <div>2. No</div> </div> a. Television <input type="checkbox"/> <input type="checkbox"/> b. Radio <input type="checkbox"/> <input type="checkbox"/> c. Brochures <input type="checkbox"/> <input type="checkbox"/> d. Antenatal clinic <input type="checkbox"/> <input type="checkbox"/> e. Under five clinic <input type="checkbox"/> <input type="checkbox"/> f. Relatives <input type="checkbox"/> <input type="checkbox"/> g. Friends <input type="checkbox"/> <input type="checkbox"/> h. Church <input type="checkbox"/> <input type="checkbox"/> i. Books <input type="checkbox"/> <input type="checkbox"/> j. Newspaper <input type="checkbox"/> <input type="checkbox"/> k. Others specify _____	
55	Give the reasons to your response above?	_____ _____ _____ _____ _____	

Does your source of information give you up to date information about breastfeeding and HIV/AIDS?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. Don't know <input type="checkbox"/>	<input type="checkbox"/> If yes or do not know go to Q57.
If, No to question above, why do you think the information is not up to date.	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	
To what extent do you think your child could be vulnerable to HIV infection through breastfeeding?	1. Less extent <input type="checkbox"/> 2. Large extent <input type="checkbox"/> 3. Not sure <input type="checkbox"/> 4. Not all <input type="checkbox"/>	<input type="checkbox"/>
What advice is given regarding HIV and Breastfeeding at this facility?	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	
Do mothers follow the advice?	1.Yes <input type="checkbox"/> 2.No <input type="checkbox"/>	<input type="checkbox"/> If Yes go to Q61
If no to question above, why don't they follow the advice?	<hr/> <hr/> <hr/> <hr/> <hr/>	
How helpful are the guidelines given at ANC/PNC in reducing the transmission of HIV from mother to child?	1. Not helpful <input type="checkbox"/> 2. Helpful <input type="checkbox"/> 3. Very helpful <input type="checkbox"/> 4. Not sure <input type="checkbox"/>	<input type="checkbox"/>

<p>What barriers do you think HIV+ women face in implementing breastfeeding?</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>Does the community encourage breastfeeding of infants born to HIV+ mothers?</p>	<p>1. Yes <input type="checkbox"/></p> <p>2. No <input type="checkbox"/></p>	<p><input type="checkbox"/></p>
<p>Give a reason to your answer above?</p>	<p>_____</p> <p>_____</p> <p>_____</p>	
<p>What challenges do you think HIV+ women face when they opt to formula feed their infants?</p>	<p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>	
<p>What do you think are the benefits of formula feeding?</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>What do you think are the risks in formula feeding?</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
<p>What should be done to the guidelines in order for the mothers to greatly benefit from them and consequently reduce and halt HIV transmission through breast milk?</p>	<p>_____</p> <p>_____</p> <p>_____</p>	

THANK YOU FOR YOUR RESPONSES AND COOPERATION