ADHERENCE TO PRE-SELECTED INFANT FEEDING PRACTICES AMONG MOTHERS ON THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION (PMTCT) OF HIV/AIDS PROGRAMME IN THE AMATHOLE REGION, EASTERN CAPE

BY

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DECLARATION

I, Elizabeth Matseliso Yako, declare that the work submitted in this dissertation is my own work and that I have not submitted it before, either in part or its totality, for obtaining a qualification from any institution.

Signature: [Signature]  Date: 04/05/2011
DEDICATION

This study is dedicated to my family:

my daughter Rosemary Nobesuthu Yako

my son Simphiwe Monwabisi Yako

and

my husband John-Mott Mzwandile Yako
ABSTRACT

Infant feeding in the context of HIV/AIDS poses a challenge among mothers. The implementation of UNICEF guidelines on infant feeding, which state that "when replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended" (WHO, 2003:12) are not easy to meet. In more developed countries, where these criteria are met, almost all HIV-infected mothers have ceased to breast feed. Consequently, infants of mothers in these countries are less likely to be infected with HIV postnatally. In South Africa, more specifically in the Eastern Cape, infant feeding is a challenge as a number of UNICEF criteria cannot be met. The Eastern Cape is one of the poorest Provinces in South Africa, with a number of rural communities. Earlier studies have shown that, if mothers select either exclusive breast feeding or exclusive formula feeding, this reduces mother-to-child transmission of HIV. A limited number of studies on adherence to the method of infant feeding selected before delivery were found in the literature, hence the need for the current study.

The purpose of the study was to explore adherence to exclusive breast feeding and exclusive formula feeding among mothers with HIV infection and to determine the problems that mothers may be facing in implementing their pre-selected methods.

Aims

The objectives of this study were as follows:

1. To determine the level of adherence to the pre-selected method of infant feeding.
2. To determine problems that mothers face regarding their selected infant feeding methods.
3. To document findings and make recommendations about improvement
Significance of the Study

The findings of this study will potentially assist the midwives in gaining a better understanding of what goes on beyond decision-making during the antenatal period as far as the choice of infant feeding method is concerned. Findings of this study will also potentially assist the midwives in developing strategies to assist the mothers in adhering to either exclusive breastfeeding or exclusive formula feeding, thus reducing the risk of mother-to-child transmission of HIV.

Methods

Research design

This study used a quantitative approach and the design of this cross-sectional study was descriptive.

Population

Participants in this study were mothers in the PMTCT programme in the Buffalo City Municipality within the Amathole District Region.

Inclusion criteria: To be included in the study, the mother had to meet the following criteria: 1) attend the clinic six weeks post delivery, 2) singleton birth, 3) have a live full-term baby, 4) ability to communicate in either English or IsiXhosa.

Exclusion criteria: Mothers who were hospitalised due to serious illness and those with mental illness were not included in the study, even though they would have been considered eligible according to the inclusion criteria.

Sampling

A convenience sample of 60 mothers in the PMTCT programme was selected from the Nontyantyambo Community Health Centre, which serves mothers from the two hospitals that make up the East London Hospital Complex (Cecilia Makiwane Hospital and Frere Hospital) and surrounding clinics.
**Measurement**

Data were collected using two instruments developed by the researcher. These were used for the first time in his study. They were: 1) Maternal and Infant Profile, a questionnaire with items including demographic data, antenatal and delivery information and information on the baby, and 2) Infant Feeding Interview Guide; a measure with closed- and open-ended questions. The items on this Interview Guide included maternal HIV status, socio-economic factors, method of infant feeding communicated to the clinic staff, adherence to the method, other substances given to the infant. The content validity of the instruments was assessed by two experts in Midwifery also conversant with HIV/AIDS. The instruments were available in English and IsiXhosa.

**Procedure**

The principal investigator trained a research assistant in data collection. The study was explained to her and a demonstration of how the instruments should be used was given. Data were collected while the mothers were waiting at the postnatal clinic six weeks post delivery.

**Ethical considerations**

Prior to conducting the study, the principal investigator sought approval for the study from the University of Fort Hare Research Committee, the Eastern Cape Health Research Committee and the professional nurse in charge of the clinic. The mothers were given a clear understanding of the study. They were reassured that the principles of anonymity and confidentiality would be followed. There were no anticipated risks in this study. Those willing to participate signed a written consent form.

**Data Analysis**

Quantitative data were analysed using SPSS 17.0 software for Windows. The significant level of tests was set at 0.05. The percentages and measures of central tendency (means and medians) were determined.
The level of adherence was determined for the entire sample and also between the groups of mothers who adhered to the method of infant feeding selected in the antenatal period and those who did not and the results were expressed in terms of percentages. Data generated from open-ended questions were summarised into categories. Each of the categories was assigned a number. These data were then coded and analysed using SPSS 17.0 software for Windows. (Pallant, 2001:8).

Results

Almost all of the mothers (98.3%, N = 59) were from the city, mostly from Mdantsane area. Only one mother (1.7%) was from a rural area. The mean age of these mothers was 26.5 years, the range from 19 to 41 years (SD: 5.3). The mean years of education was 12 years of schooling, the range was one year to tertiary education. The majority of mothers (75%, N = 45) were single, 23.3%, N = 14, were married and only one mother (1.7%) was divorced. Approximately 62% (61.7%) of the mothers were unemployed, 13.3% were formally employed full time, 18.3% were students, while 3.3% were either employed on a part-time basis or informally. Comparatively, their spouses were better off as only 15% of them were unemployed, 53.3% were formally employed full time, 13.3% were employed part time and 8.3% were informally employed.

Adherence to infant feeding method

At six weeks 73% (N = 44) of the mothers had adhered to the infant feeding method selected during the antenatal period and 27% (N = 16) were non-adherent to the method they selected earlier. When comparing the group of HIV-positive and HIV-negative mothers, it was found that every HIV-positive mother (100%, N = 28) had adhered to the method selected during the antenatal period. Only 50% (N = 16) of the HIV-negative mothers adhered to the infant feeding method selected before delivery and the remaining 50% of this group was non-adherent. The Chi-square test was conducted to determine the proportion of those who adhered, compared to those who did not. A significant
proportion of the mothers adhered to the method selected earlier ($x^2$ (df 1) = 19, $p< .000$).

The mothers gave various reasons for non-adherence. The majority of mothers (50%, N = 8) changed their method of infant feeding because they were students going back to school, 25% were going back to work, 1.7 % (N = 1) reported that the baby was sick with constipation from taking breast milk, while another mother reported painful breasts and the rest of the mothers changed because of advice from significant others.

The two groups of mothers were also compared on demographic variables. The only significant difference was found with age. There was a significant difference in the scores for the mothers who adhered (mean =27.4, SD = 4.9) and those who did not {mean = 24, SD = 5.9; t (df 58) = 2.28, p =.028}.

HIV-positive mothers were more conscious of the possibility of transmitting HIV to their infants and, as the result, adhered to the method selected before delivery. It is of concern that, although most of the mothers adhered to the method they selected earlier, some of them lacked understanding of exclusive breast feeding and exclusive formula feeding as they gave the infants water as well.

**Implications for practice**

The midwives should educate the mothers so that these mothers have a better understanding of the concept of exclusive infant feeding and the dangers of introducing other fluids early. The community should also be taught the importance of exclusive breast and exclusive formula feeding in other forums, as the participants’ mothers, spouses and other relatives had a say in how the infant should be fed.
Implications for research

This study provides baseline information on adherence to the infant feeding method. There is a need for a more comprehensive study that looks at different aspects of infant feeding and which covers the entire province so that the results may be generalised. The recommendations are presented in the study.
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My husband gave me lots of support and this is highly appreciated. My daughter, Rosemary Nobesuthu Yako, and son, Simphiwe Monwabisi Yako, kept me grounded and taught me to lead a balanced life. This is highly appreciated.

My sincere appreciation goes to Ms Zandile Njokweni for assisting me with data collection, the mothers who participated in this study, together with their infants, the Eastern Cape Department of Health and the institutions that gave me permission to conduct this study.

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CHAPTER 1
INTRODUCTION

This research study sought to determine adherence to the infant feeding method, which the mother selected during the antenatal period in order to prevent mother-to-child transmission of HIV/AIDS. Since this method is selected ahead of delivery, it is referred to as the pre-selected method of infant feeding in this study.

Infant feeding in the context of HIV/AIDS poses a challenge to the newly delivered mothers. Following counselling during the antenatal period, a mother has to make a decision on the infant feeding method. It is recommended that the mother should select either exclusive breast feeding or exclusive formula feeding in order to prevent mother-to-child transmission (PMTCT) of HIV (Coutsoudis, Pillay, Spooner, Kuhn & Coovadia, 1999:474). The United Nations guidelines state that “when replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended” (WHO, 2003:2). In more developed countries, where these criteria are met, breast feeding by HIV-infected women has “virtually ceased” (Coutsoudis, Pillay, Spooner, Kuhn, & Coovadia, 1999:471). Consequently, infants of mothers in these countries are less likely to be infected with HIV post-natally.

In the Eastern Cape Province, as in most parts of South Africa, replacement feeding is “not acceptable, affordable or safe” (Coutsoudis, 2005:956). The majority of mothers in this province are poor and also lack the necessary resources such as fridges, clean water and steady maternal income. Even when milk is provided free of charge by the government, the choice of formula feeding and adhering to that becomes a challenge due to culture, community expectations and stigma (Doherty, Chorpa, Nkonki, Jackson & Griener, 2005:93). Those who choose exclusive breast feeding also face their own problems as the
concept of exclusive feeding is not within the culture of African societies 
(Shapiro, Lockman, Thior, Stocking, Kebaabetswe, Wester, Peter, Marlink, Essex 
& Heymann, 2003:226). As a result of these challenges, newly-delivered 
mothers find it difficult to adhere to the feeding method they selected during the 
antenatal period.

1.1 Statement of the problem

Adherence to either exclusive breast feeding or exclusive formula feeding as 
recommended in the national guidelines is critical in a resource-constrained 
country with a high prevalence of HIV/AIDS. South Africa is one of the countries 
that have a high prevalence of HIV and AIDS. UNAIDS (2008) estimated that 5.7 
million people living with HIV were in South Africa and that approximately 50% of 
these were women and 28% children within the ages 0-14 years based on the 
prevalence of HIV among 14-49 year old antenatal women in the Eastern Cape 
Province was 27.6% in 2008. This puts a significant number of children at the risk 
of HIV infection. WHO (2003:15) indicates that the overall risk of transmission of 
HIV infection from the mother to the child in the absence of interventions is 25% 
to 35%. These numbers can be significantly reduced with antiretroviral treatment 
and exclusive breast feeding or exclusive formula feeding.

Earlier studies indicate that adherence to either exclusive breast feeding or 
exclusive formula feeding is low among women in resource-constrained countries 
in Southern Africa, including South Africa (Doherty, Chorpa, Nkonki, Jackson & 
Griener, 2005:90; Shapiro, Lockman, Thior, Stocking, Kebaabetswe, Wester, 
Peter, Marlink, Essex & Heymann,2003: 221; Vaahter, Kulmala, Heitanen, 
consequently is viewed, with more scepticism. Women are afraid to adhere to 
formula feeding. It is viewed as giving away one’s HIV status. For this reason,
women do not want to be seen carrying infant formula by others at the postnatal clinic or well baby clinic. While in the clinic, they go to the extent of hiding the milk formula in their bags and peeling off the labels before they reach their communities. Their families and communities question them about why they give formula to their babies. These mothers end up giving excuses such as cracked nipples and the baby refusing breast milk (Doherty, Chorpa, Nkonki, Jackson & Griener, 2005: 93).

These pressures make infant feeding a challenge (Doherty et al., 2005:93). Few studies have looked at adherence to pre-selected methods of infant feeding. Hence, the purpose of this study was to explore adherence to exclusive breast feeding and exclusive formula feeding among mothers with HIV infection and to determine the problems that mothers may be facing in implementing their pre-selected methods.

1.2 Research questions

The proposed study attempted to answer the following research questions.

1) What is the level of adherence to the pre-selected method of infant feeding?
2) What are the problems faced by the mothers in adhering to their pre-selected method?
1.3 Objectives

The objectives of this study were as follows:

4. To determine the level of adherence to the pre-selected method of infant feeding.
5. To determine problems that mothers face regarding their selected infant feeding methods.
6. To document findings and make recommendations about improving adherence to pre-selected methods of infant feeding.

1.4 Significance of the Study

The intended primary audience of the proposed study is the midwives. The justification for this study is its public health and scientific importance. It will make a contribution in the context of previous studies, and reduction of mother-to-child transmission of HIV post delivery. It will add to the body of midwifery knowledge on infant feeding in the context of HIV/AIDS. Findings of this study will potentially assist the midwives in gaining a better understanding of what goes on beyond decision-making on the choice of infant feeding method. The midwives working in the antenatal clinic will potentially come up with strategies to assist, overcome or minimise the problems of newly-delivered mothers, so that they will adhere to either exclusive breast feeding or exclusive formula feeding in order to reduce the risk to the infant of infection with the HIV virus.

1.5 Theoretical Framework

The current study was guided by the Theory of Planned Behaviour (TPB) framework. According to this theory, intention to perform a behaviour is the central component in determining the behaviour. Intent is influenced by attitude, subjective norm and perceived control (Kerr, Weitkunat & Moretti, 2005:72). The
attitude is a measure of affective feelings toward performing the behaviour. Subjective norm is the extent to which an individual thinks that significant others want her/him to perform the behaviour (Kerr et al., 2005:72). Perceived behavioural control includes perceived availability or non-availability of resources such as skills and knowledge (Spruijt-Metz, 1999:64).

In this study, adherence to whatever method selected by the mother was the behaviour. A maternal decision to either exclusively breast feed or formula feed was the intention. This intention was influenced by maternal attitudes towards infant feeding, and subjective norm or the extent to which the mother believed significant others wanted her to implement the pre-selected method of infant feeding. Additionally, intention was influenced by perceived control, which was operationalised by availability of resources such availability of breast milk for breast feeding mothers and availability of formula milk, refrigerator, access to clean water, fuel for boiling water and regular maternal income among mothers who selected formula feeding. The proposed model on adherence to infant feeding is presented in Figure 1.1.
Attitude
Maternal attitude to infant feeding method

Intent:
- Decision on infant feeding method

Behaviour:
- Adherence to the pre-selected infant feeding method

Subjective Norm
The extent to which the mother thinks significant others want her to implement the pre-selected method

Perceived control
- Availability of breast milk in adequate amounts or
- Availability of resources: formula milk, clean water, fuel and refrigerator

Figure 1.1: Proposed model for adherence to infant feeding method - Adapted from: *Theory of planned behaviour* (Kerr, Weitkunat & Moretti, 2005:73)
1.6 Definition of terms

The terms that are used in this study were defined as follows:

1. Pre-selected method means the method of infant feeding that the mother selects following counselling during the antenatal period. (This method could be either exclusive breast feeding or exclusive formula feeding.)

2. Exclusive breast feeding means feeding the baby breast milk only, with no solids or liquids except supplemental vitamins or medication (WHO, 2003:14).

3. Exclusive formula feeding means feeding the baby formula milk only, with no breast milk solids or liquids, except supplemental vitamins or medication.

4. Adherence means self-reporting of either exclusive breast feeding or exclusive formula feeding (Shapiro et al., 2003: 223).

1.7. Summary

In this chapter, the background information of the study was presented. The problem statement, research questions, objectives, significance and purpose of the study were explained. The theoretical framework that guided the study and the proposed model of adherence to the infant feeding method were presented. In the next chapter, a review of literature on adherence to the selected infant feeding and infant feeding practices will be discussed in order to determine what is known about the topic and to determine the gap in the literature.
CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

The literature review that is presented in this chapter focuses on adherence to the infant feeding method and on infant feeding practices among mothers in South Africa and other African countries.

2.2 Infant feeding practices in South Africa

Using a sample of 1 253 infected and uninfected women, Bland, Rollins Coovadia, Coutsoudis and Newell (2007:289) investigated the feeding intentions of the women, the appropriateness of their choices and adherence to their intentions in the first week postnatally. In this study, 73% selected breast feeding, 9% replacement feeding, 18% were undecided. Three percent had access to clear water, a refrigerator, fuel for boiling water and income. The availability of clean water supply and maternal income were independently associated with replacement feeding. A significant number of HIV-infected women intending to exclusively breast feed, rather than formula feed, adhered to their intention in one week time (exclusive breast feeding 78% versus replacement feeding 42%, p < 0.001). Of the 1238 HIV-infected women, 82% intended to exclusively breast feed, 2% decided on replacement feed and 16% were undecided. One week past delivery, 75% of those who intended to breast feed were adhering to their intention. The limitation of this study is that adherence was observed after a period of one week, which was quite short. In the current study, data were gathered from the mothers six weeks post delivery, thereby giving the mother a longer period to either adhere or not adhere to the pre-selected method.

Ikpe, Blitz and Tlaledi (2009) conducted a cross-sectional descriptive study on infant feeding practices of the mothers enrolled in the PMTCT programme in the
Mpumalanga Province. Findings of this study were that, in a sample of 30 mothers, 50% (N = 15) practised exclusive replacement feeding, 27% (N = 8) practised exclusive breast feeding, and 23% (N = 7) practised mixed feeding. In this clinic, very few mothers, i.e. only 18% (N = 4) ever received milk from the clinic, as the clinic ran out of milk formula most of the time. The mothers who practised exclusive replacement feeding bought the milk formula. This study shed light on some of the problems that mothers practising exclusive breast feeding face in a rural clinic in Mpumalanga. Its limitation is that it used a small sample of only 30 participants.

In a study conducted in the Kwazulu-Natal Province, Sibiya, Moodley, Moodley and Coovadia (2000) investigated the factors which influenced the HIV-infected woman’s decision to breast feed or not to breast feed her infant. These investigators found that 48.8% (N = 105) selected breast feeding, 50.2% (N = 108) selected formula feeding and 0.9% (N = 2) chose mixed feeding. Of those who selected formula feeding, a significant number was employed (13% versus 3.2%, \( p = 0.014 \)). The majority (83.3%) of women who chose breast feeding, stated that they could not afford formula feeding. The rest of the mothers gave the following reasons: 1) breast milk was healthier for the baby, and 2) the baby enjoyed breast feeding. These investigators concluded that the high cost of milk formula was the factor that influenced the mother in deciding whether to breast feed or not.

2.3 Infant feeding practices in other African countries

In a study conducted in the neighbouring country of Botswana, adherence to the method of infant feeding was found to be low. In this study, 31 women were randomly assigned to exclusive breast feeding, 32 to exclusive formula feeding and 17, who volunteered to formula feed, were also followed. The women had to adhere to the infant feeding method for five months. Those who chose formula feeding were supplied with free milk. Findings of this study were that none of the
31 women assigned to breast feeding did so exclusively. Twenty-two percent of those in the formula feeding group also breast fed, as evidenced by their verbal report and presence of breast milk on expression. Even among those who voluntarily selected exclusive formula feeding, adherence was low, as breast milk was present in 53% of this group on examination. The expectation was that, had the mothers on formula feeding adhered to this method, no breast milk would be expressed during the breast examination.

These investigators pointed out that women in Botswana and also in other countries in Sub-Saharan Africa were not used to exclusive feeding for a period as long as five months. The majority of them breast fed for short periods and introduced solids quite early (Shapiro et al., 2003:226). The strengths of this study were that women were randomly assigned to each method and that, besides their verbal report, investigators examined the presence of milk in the women’s breasts.

A study on breast feeding and complementary feeding practices in rural Malawi, which used a sample of 720 babies (Vaahtera et al., 2001), found that, besides breast milk, the majority of babies were given water and other foods soon after birth. Exclusive breast feeding rates were very low. These were 19%, 8%, 2% and 0% at 1, 2, 3 and 4 months respectively. This study provides useful information on adherence to breast feeding only.

In the operations research study testing a PMTCT infant feeding counselling programme in Tanzania, Leshabari, Koniz-Booher, Burkhalter, Hoffman and Jennings (2007), using a sample of 30 mothers, found that only three methods of infant feeding were acceptable in the region, i.e. exclusive breast feeding, cow’s milk and formula feeding. Some breast feeding mothers reported practising mixed feeding as early as two months post birth. The mothers’ reasons for this practice included breast problems, such as sore nipples and cracked nipples, working outside the home, and cultural practices. The relatives of the new mothers, e.g. their husbands, own mothers and mothers-in-law had a final say in how the infant was fed. Advice from a number of senior people in the family, the
spouse and health personnel may be confusing to the mother, especially if the advisors have conflicting views on how the infant should be fed. Consequently, this may influence to the method selected by the mother during the antenatal period.

Leshabari, Blystard and Moland (2007) investigated the experiences of HIV-positive mothers and the difficult choices these mothers made concerning infant feeding in Northern Tanzania. The investigators interviewed 20 mothers during the last part of pregnancy, delivery and six months post delivery. Findings of this study indicated that there was a gap between intention and the feeding practice in the communities where there was a high social expectation for the woman to breast feed and where family members and the neighbours had a say in how the baby should be fed (Leshabari, et al., 2007:544).

The study illustrated the mental stress that a woman had to go through in making a decision about infant feeding. At times, the woman chose exclusive breast feeding in order to meet her social obligation, yet she would have liked to give exclusive formula feeding. In giving the infant exclusive formula feeding, she would have to disclose her HIV status, but she was not yet ready to do so at the time (Leshabari et al., 2007:549).

The major contribution of this study is that it illustrates the social context in which infant feeding takes place, which may, in turn, influence the choice of and adherence to the infant feeding method.

2.4 Summary

The literature search on infant feeding practices and adherence to the selected method was conducted. The studies conducted in South Africa and other African countries indicate that, in the context of HIV/AIDS, exclusive infant feeding can become a daunting experience for the mother in a country with limited resources and where the mother gets advice from several sources.
CHAPTER 3

RESEARCH METHODS

3.1 Introduction
In this chapter, the research design, the study population, sampling methods, measurement, data collection, ethical consideration and data analysis will be discussed.

3.2 Research design
This study used quantitative approach and the design of the study was descriptive. The descriptive design was deemed appropriate for this study, since the researcher was interested in obtaining more information about adherence to pre-selected methods of infant feeding among mothers in a natural setting without manipulation of any variables (Burns & Grove, 2005:232).

3.3 Population
Participants in this study were mothers in the PMTCT programme in the Buffalo City Municipality within the Amathole District Region. The total population of the Buffalo City Municipality (BCM) Local Service Area (LSA) is 272555. This LSA has 16 health facilities. The study was carried out in the facility that provided PMTCT services. The East London Hospital Complex is composed of two hospitals; Cecilia Makiwane Hospital (CMH) and Frere Hospital. The East London Hospital Complex is accredited to roll out antiretroviral treatment. Eight hospitals and 35 clinics within the Amathole District refer their PMTCT cases to CMH. These facilities are spread throughout the district. The hospitals include Butterworth, Stutterheim, Grey and others. The clinics include all the clinics in Mdantsane, Berlin, Notyatayambo, Ginsberg, etc. (CMH PMTCT statistics 2008).
Following the Primary Health Care approach, only sick mothers and babies are taken care of at the East London Hospital Complex. The mothers are referred to the Notyatyambo Community Health Centre for PMTCT services and post delivery services. Consequently, the study was carried out at Notyatyambo Community Health Centre.

**Inclusion criteria:** To be included in the study, the mother had to meet the following criteria: 1) attend the clinic six weeks post delivery, 2) singleton birth, 3) have a live full-term baby, 4) ability to communicate in either English or IsiXhosa.

**Exclusion criteria:** Mothers who were hospitalised due to serious illness and those with mental illness were not included in the study, even though they would have been considered eligible according to the inclusion criteria.

### 3.4 Sampling

A convenience sample of 60 mothers in the PMTCT programme was selected from Notyatyambo Community Health Centre, which serves mothers from the two hospitals that make up the East London Hospital Complex (Cecilia Makiwane Hospital and Frere Hospital) and surrounding clinics. Based on the CMH PMTCT September 2008 statistics, it was anticipated that approximately 10 mothers per day would attend the postnatal clinic and that at least six mothers would be available and willing to participate in the interviews.

### 3.5 Measurement

Data were collected using two instruments developed by the researcher and used for the first time in his study. These were: 1) Maternal and Infant Profile, a questionnaire with items including demographic data, antenatal and delivery information and information on the baby, and 2) Infant Feeding Interview Guide; a measure with closed- and open-ended questions. The items on this Interview
Guide included maternal HIV status, socio-economic factors (such as availability of clean water, refrigerator, formula feed and statement of regular maternal income), presence of other family members in the home, method of infant feeding communicated to the clinic staff, adherence to the method, other substances given to the infant. To determine content validity, two experts in Midwifery also conversant with HIV/AIDS were asked to assess the contents of the instruments developed by the researcher and used for the first time in the current study.

The instruments were written in English by the investigator and translated into IsiXhosa by a Midwife knowledgeable in both Languages. The instruments were then given to two people fluent in both English and IsiXhosa to translate them back into English. The party then assessed the instruments to determine whether the meaning remained unchanged. This process was continued until there was 100% agreement on the meaning of the translations.

The instruments were pilot tested among five mothers attending the postnatal clinic at the Nontyantyambo Community Health Centre, prior to conducting the main study. These mothers were not included in the main study. No problems were encountered with the instruments. As a result, no changes were made to the instrument.

3.6 Data collection

The principal investigator trained a research assistant in data collection. The study was explained to her. The principal investigator explained and demonstrated how the instrument should be used. To test for inter-rater reliability, the research team interviewed three participants simultaneously. These interviewees were not part of the sample in the main study. The principal investigator compared her recordings with those of the research assistant and determined agreement and disagreement between the two members of the team. The average agreement should be 80% and above, as Topf (1986:254) indicates
that agreement of 80% is considered to be adequate among behavioural scientists. If the agreement is less than 80%, the training should be continued until the acceptable percentage is reached.

The principal investigator explained the study to the mothers while they were waiting for services in the postnatal clinic six weeks post delivery. Those mothers willing to participate in the study signed a written consent form. Interviews were conducted privately in single cubicles. The principal investigator and the research assistant conducted these interviews using the interview guide and the researcher filled in the responses on the interview guide. Conducting interviews minimised the problems of poor response rate, and incomplete information, which were the downside of the use of a questionnaire. The interviews also catered for participants who might have been illiterate.

3.7 Ethical considerations

Prior to conducting the study, the principal investigator sought approval for the research from the University of Fort Hare Health Research Committee and the Eastern Cape Health Research Committee. Additionally, permission to undertake the study was sought from the professional nurse person in charge of the Notyatymo Community Health Centre. The principal investigator gave the mothers a clear explanation about the study and the benefits and risks of the study were explained. There were no anticipated risks in this study. It was explained to the mothers that their participation in the study would neither affect their care nor care of their infants. They were also informed that they were free to refuse to participate or to terminate their participation at any point in the study. No names would appear in the instrument. Code numbers would be the only means of identification appearing on each instrument and collected data would be kept under lock and key. The only people who would be able to gain access to the data were the research team members. Those willing to participate signed a written consent form.
3.8 Data Analysis

Quantitative data were analysed using SPSS 17.0 software for Windows. The significant level of tests was set at 0.05. Firstly, the interview guides were checked for completeness. No missing responses were identified. Secondly, prior to data analysis, data cleaning was done. Data were checked for errors visually, by conducting frequencies for categorical items, and by checking the means for the continuous variables. The errors were corrected and data analysis was conducted (Pallant, 2001:40-41).

The percentages and measures of central tendency were determined, e.g. the mean age of the mothers and their median salary. The level of adherence was determined for the entire sample and also between the groups of mothers who adhered to the method of infant feeding selected in the antenatal period and those who did not. The results were expressed in terms of percentages. Data generated from open-ended questions were summarised into categories. Each of the categories was assigned a number. For example, with the question on somebody having a say in the method of infant feeding, “mother” was assigned number 1, “other relative” 2, “spouse” 3 and “self only” 4. These data were then coded and analysed using SPSS 17.0 software for Windows (Pallant, 2001:8).

3.9 Summary

In this chapter, methods were described. These included the research design, population, sampling, data collection, ethical consideration and data analysis. The results of the analysis will be presented in the next chapter.
CHAPTER 4

RESULTS

4.1 Introduction
The findings of the data analysis are presented as follows in the sections below: 1) the demographics of the participants, 2) method of delivery and information on the baby, 3) information on maternal HIV status, 4) choice of infant feeding method, adherence to this method and problems with feeding.

4.2 Demography of the mothers
Almost all of the mothers (98.3%, N = 59) were from the city, mostly from the Mdantsane area. Only one mother (1.7%) was from a rural area. The mean age of these mothers was 26.5 years, in the range of 19 to 41 years (SD:5.3). The mean years of education was 12 years of schooling, the range was one year to tertiary. The majority of mothers (75%, N = 45) were single, 23.3 %, N =14, were married and only one mother (1.7%) was divorced. The details are presented in Tables 4.1 and 4.2 below.
Table 4.1: Maternal age, family income and education

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th></th>
<th>Std.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
<td></td>
</tr>
<tr>
<td>Age of participants in years</td>
<td>60</td>
<td>19</td>
<td>41</td>
<td>26.5</td>
</tr>
<tr>
<td>Gross family income, monthly in SA Rand</td>
<td>60</td>
<td>0-499</td>
<td>5,000 &amp;</td>
<td>2000-2999*</td>
</tr>
<tr>
<td>Over</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last year of school completed in years</td>
<td>60</td>
<td>1-7</td>
<td>13and</td>
<td>12</td>
</tr>
<tr>
<td>above*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Tertiary
* Median & Mean = R2000 to R2999

Table 4.2: Marital status of the mothers

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Single, never married</td>
<td>45</td>
<td>75.0</td>
<td>75.0</td>
<td>75.0</td>
</tr>
<tr>
<td>Married</td>
<td>14</td>
<td>23.3</td>
<td>23.3</td>
<td>98.3</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>1.7</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Twenty-five percent of the participants lived with their own mothers, 16.7% lived with both parents, and 18% lived with their husbands. Approximately 17% lived with other relatives and 3.3% lived with either the father or friends.

The parents of the mothers were their main source of financial support (36.7%). This was followed by the boyfriend at 28.3% and the husband at 18%. The majority (46.3%) reported that the family income met their needs fairly well.

Table 4.3: Financial source

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Own Job</td>
<td>7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
</tr>
<tr>
<td>Parents</td>
<td>22</td>
<td>36.7</td>
<td>36.7</td>
<td>48.3</td>
</tr>
<tr>
<td>Husband</td>
<td>11</td>
<td>18.3</td>
<td>18.3</td>
<td>66.7</td>
</tr>
<tr>
<td>Boyfriend</td>
<td>17</td>
<td>28.3</td>
<td>28.3</td>
<td>95.0</td>
</tr>
<tr>
<td>own grant</td>
<td>2</td>
<td>3.3</td>
<td>3.3</td>
<td>98.3</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.7</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Every mother (100%, N = 60) in this study had access to clean running water from the tap. Ninety-five percent of the mothers (N = 57) had refrigerators and the rest did not. One mother (1.7%) of the sample was from the rural areas, her HIV status was negative and she gave the baby breast feeding exclusively. The remaining 3.3% (N = 2) were from the city, were HIV-positive and exclusively gave the infants formula feeding.
Most of the mothers had a religious affiliation with churches collectively identified as other religious organisations. Under this category the mothers reported to be attending various churches including indigenous churches such as the Apostolic Church and Zion Church. Approximately 23% (23.3%) were members of the Methodist Church, 3.3% were Anglican and 1.7% were affiliated to the Roman Catholic Church. The results are presented in Table 4.4.

### Table 4.4: Religious affiliation of the mothers

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methodist</td>
<td>14</td>
<td>23.3</td>
<td>23.3</td>
<td>23.3</td>
</tr>
<tr>
<td>Roman</td>
<td>1</td>
<td>1.7</td>
<td>1.7</td>
<td>25.0</td>
</tr>
<tr>
<td>Catholic</td>
<td>2</td>
<td>3.3</td>
<td>3.3</td>
<td>28.3</td>
</tr>
<tr>
<td>Anglican</td>
<td>2</td>
<td>3.3</td>
<td>3.3</td>
<td>28.3</td>
</tr>
<tr>
<td>Other</td>
<td>43</td>
<td>71.7</td>
<td>71.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Approximately 62% (61.7%) of the mothers were unemployed, 13.3% were formally employed full time, 18.3% were students, while 3.3% were either employed on a part-time basis or informally. The men were in a more advantageous position as only 15% of them were unemployed, 53.3% were formally employed full time, 13.3% were employed part time and 8.3% were informally employed. The details are presented in Tables 4.5 and 4.6.
Table 4.5: Employment status of the mother

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>11</td>
<td>18.3</td>
<td>18.3</td>
<td>18.3</td>
</tr>
<tr>
<td>Formal full-time employment</td>
<td>8</td>
<td>13.3</td>
<td>13.3</td>
<td>31.7</td>
</tr>
<tr>
<td>Formal part-time employment</td>
<td>2</td>
<td>3.3</td>
<td>3.3</td>
<td>35.0</td>
</tr>
<tr>
<td>Informally employed</td>
<td>2</td>
<td>3.3</td>
<td>3.3</td>
<td>38.3</td>
</tr>
<tr>
<td>Unemployed</td>
<td>37</td>
<td>61.7</td>
<td>61.7</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.6: Employment status of spouse

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Student</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>6</td>
<td>10.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Formally employed full time</td>
<td>32</td>
<td>53.3</td>
<td>53.3</td>
<td>63.3</td>
</tr>
<tr>
<td>Formally employed part time</td>
<td>8</td>
<td>13.3</td>
<td>13.3</td>
<td>76.7</td>
</tr>
<tr>
<td>Informally employed</td>
<td>5</td>
<td>8.3</td>
<td>8.3</td>
<td>85.0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>9</td>
<td>15.0</td>
<td>15.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>
4.3: The method of delivery and infant information

Approximately 98% (98.3%, N = 59) of the mothers delivered in the public institutions. Seventy-one percent delivered at the East London Hospital Complex; 66.7% at Cecilia Makiwane Hospital, 5% at Frere Hospital and 26.7% at Nontyantyambo Community Health Centre. Only 1.7% delivered at a private hospital (St Dominic Hospital). The majority of mothers had normal vaginal delivery. The details are presented in the Tables 4.7 and 4.8 below.

Table 4.7: Institution of baby's birth

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cecilia Makiwane Hospital</td>
<td>40</td>
<td>66.7</td>
<td>66.7</td>
<td>66.7</td>
</tr>
<tr>
<td>Notyatyambo Community Health Centre</td>
<td>16</td>
<td>26.7</td>
<td>26.7</td>
<td>93.3</td>
</tr>
<tr>
<td>Frere Hospital</td>
<td>3</td>
<td>5.0</td>
<td>5.0</td>
<td>98.3</td>
</tr>
<tr>
<td>St Dominic Hosp</td>
<td>1</td>
<td>1.7</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.8: Type of delivery and delivery complications

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal vaginal delivery</td>
<td>47</td>
<td>78.3</td>
<td>78.3</td>
<td>78.3</td>
</tr>
<tr>
<td>Vacuum</td>
<td>2</td>
<td>3.3</td>
<td>3.3</td>
<td>81.7</td>
</tr>
<tr>
<td>Caesarean section</td>
<td>11</td>
<td>18.3</td>
<td>18.3</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Delivery complications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>56</td>
<td>93.3</td>
<td>93</td>
<td>93.3</td>
</tr>
<tr>
<td>Some complications</td>
<td>4</td>
<td>6.7</td>
<td>6.7</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

More than 50% of the infants were females. The apgar scores ranged between 7 and 9 after one minute post birth. Every baby was born at term. The birth weight ranged from 2 kilograms to 4.6 kilograms. The exact gestational ages were not indicated in the records of most mothers. All the babies got BCG vaccination before discharge from the institution. The details are presented in Table 4.9.
Table 4.9: Baby’s apgar score after one minute and birth weight

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range Minimum</th>
<th>Range Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby's apgar score after 1 minute</td>
<td>60</td>
<td>7</td>
<td>9</td>
<td>8.8</td>
<td>.37</td>
</tr>
<tr>
<td>Baby's birth weight in kilograms</td>
<td>60</td>
<td>2.0</td>
<td>4.6</td>
<td>3.1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

4.4 HIV status of the mothers

Fifty-three percent of the mothers (N = 32) were HIV-negative and 46.7% (N = 28) were HIV-positive. Of the 28 HIV-positive mothers, 25% were not on Antiretroviral (ARV) drugs and the rest were on ARVs. The mothers’ mean CD4 count was 349.1 (SD = 178.4) and the range was 73 to 765. Every HIV-positive mother reported that she had reported her HIV status to significant others such as the family members, the spouse and or friend. The significant others accepted their HIV-positive status and gave them adequate social support.

4.5 The mothers’ infant feeding practices

During the antenatal period, 45 % (N = 27) of the mothers chose exclusive breast feeding and 55% (N = 33) of the mothers chose exclusive formula feeding. The details are presented in Table 4.10.
Table 4.10: Method of feeding selected during the antenatal period.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Exclusive breast feeding</td>
<td>27</td>
<td>45.0</td>
<td>45.0</td>
<td>45.0</td>
</tr>
<tr>
<td>Exclusive formula feeding</td>
<td>33</td>
<td>55.0</td>
<td>55.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

At six weeks, the pattern of infant feeding had changed. While some gave exclusive breast feeding and exclusive formula feeding, some mothers gave water additionally. Out of the exclusive breastfeeding group consisting of 19 mothers, 21.1% (N = 4) gave the infants water additionally. Out of the exclusive formula feeding group consisting of 41 mothers, 26.8% (N = 11) gave the infant water additionally. The details are presented on Table 4.11 and Table 4.12 respectively.
Table 4.11: Infant feeding method at 6 weeks of the group that selected exclusive breast feeding

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast feeding only</td>
<td>8</td>
<td>13.3</td>
<td>42.1</td>
<td>42.1</td>
</tr>
<tr>
<td>Breast feeding plus water</td>
<td>4</td>
<td>6.7</td>
<td>21.1</td>
<td>63.2</td>
</tr>
<tr>
<td>Breast feeding plus formula feeding</td>
<td>7</td>
<td>11.7</td>
<td>36.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>31.7</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>41</td>
<td>68.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.12: Infant feeding method at six weeks of the group that selected the exclusive formula feeding method

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formula feeding only</td>
<td>18</td>
<td>30.0</td>
<td>43.9</td>
</tr>
<tr>
<td>Formula feeding plus medication</td>
<td>3</td>
<td>5.0</td>
<td>7.3</td>
</tr>
<tr>
<td>Formula feeding plus water</td>
<td>11</td>
<td>18.3</td>
<td>26.8</td>
</tr>
<tr>
<td>Formula feeding plus breast feeding</td>
<td>9</td>
<td>15.0</td>
<td>22.0</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>68.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing from system</td>
<td>19</td>
<td>31.7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

4.6: Adherence to infant feeding method

At six weeks, 73% (N = 44) of the mothers still adhered to the infant feeding method selected during the antenatal period and 27% (N = 16) were non-adherent to the method they selected earlier. When comparing the group of HIV-positive and HIV-negative mothers, it was found that every HIV-positive mother (100%, N = 28) had adhered to the method selected during the antenatal period. Only 50% (N = 16) of the HIV-negative mothers adhered to the infant feeding method selected before delivery and the remaining 50% of this group was non-adherent. The Chi-square was conducted to determine the proportion of those who adhered compared to those who did not. A significant proportion of the mothers adhered to the method selected earlier ($x^2$ (df 1) = 19, p< .000). These findings are presented in 4.13 below.
Table 4.13; Mother's HIV status and infant feeding as selected in the antenatal period Cross tabulation Count

<table>
<thead>
<tr>
<th>Mothers' HIV status</th>
<th>Infant feeding as selected in the AN period</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Negative</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Positive</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>16</td>
</tr>
</tbody>
</table>

The mothers gave various reasons for non-adherence. The majority of mothers (50%, N = 8) had changed their method of infant feeding because they were students going back to school, 25% (N = 4) were going back to work, 1.7% (N = 1) reported that the baby was sick with constipation from taking breast milk, while another mother reported painful breasts and the rest of the mothers changed because of advice from significant others.

The two groups of mothers were also compared on demographic variables. The only significant difference was found in age. The independent sample t-test was conducted to compare the ages of the mothers who adhered to the infant feeding method selected in the antenatal period and those who did not. There was a significant difference between the scores for the mothers who adhered (mean = 27.4, SD = 4.9) and those who did not (mean = 24, SD = 5.9; t (df 58) = 2.28, p =0.028) (Pallant, 2001:209).
4.7: Involvement of relatives and other people in the infant feeding method

Only 23.3% (N = 14) made their own decision as to how the baby should be fed. Sixty-three percent of the mothers indicated that their own mothers had a say in how the baby should be fed and 23.3 mentioned other relatives as people who had a say in how the baby should be fed.

Almost all of the mothers (98.3%, N = 59) indicated that their method of infant feeding was accepted by their relatives and only 1.7% (N = 1) indicated that their method was not accepted by the relatives. One hundred percent (N = 60) indicated that the infant feeding method selected was accepted by the spouses. The details are presented in Tables 4.14 and 4.15.

Table 4.14: Acceptance of infant feeding method by relatives

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>59</td>
<td>98.3</td>
<td>98.3</td>
<td>98.3</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>1.7</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
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Table 4.15: Acceptance of infant feeding by spouse

<table>
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<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>60</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
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</table>
4.8: Problems with infant feeding

Eighty percent (N = 48) of the mothers indicated that they had no problems related to infant feeding and 20% (N = 12) indicated that their problem was access to milk formula. The health facilities ran out of the formula quite often, which made formula feeding quite challenging as the majority of the mothers were unemployed. Even those who were employed had low incomes. The details are presented in Table 4.16 below.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<tbody>
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<td>80.0</td>
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<tr>
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<tr>
<td>Total</td>
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<td>60</td>
<td>100.0</td>
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</table>

4.9: Summary

In this chapter, the results of the analysis are presented. Data were analysed using SPSS 17.0 software for Windows. The findings reported in this chapter will be discussed in the next chapter.
5.1 Introduction
In this chapter the results presented in the previous chapter will be discussed in relation to previous studies and in relation to the proposed model of adherence to infant feeding.

5.2 Adherence to the infant feeding method
At six weeks post delivery, every HIV positive mother, on the one hand, still adhered to the method selected during the antenatal period. The health education on PMTCT had had an impact on the mother. They understood that mixing breast feeding with formula feeding could have a detrimental effect on the infant. On the other hand, only half of the HIV-negative mothers were adhering to the infant feeding method selected earlier. They capitalised on their HIV-negative status. The infants of HIV-negative mothers were safe for as long as the mothers remained negative. In this stage of the HIV/AIDS pandemic there is no guarantee that these mothers will remain negative. Therefore sticking to one method, either of exclusive breast feeding or of exclusive formula feeding, would have been safer for the baby.

The fact that the health facilities ran out of milk formula made exclusive formula feeding cumbersome, as more than half of the participants were unemployed and even those who were employed, including their spouses, earned low salaries. This study indicates the complexity of implementing the guidelines of the United Nations that state that “when replacement feeding is acceptable, feasible,
affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended" (WHO, 2003:12).

Some mothers showed lack of understanding regarding exclusive breast and exclusive formula feeding as they gave their infants water additionally. In exclusive feeding, the baby should only be given medication in addition. Giving the infant additional fluids puts such an infant at risk of infection. This is especially true among the HIV-positive infants whose immune systems are compromised.

Every mother in the study had access to clean running water from the tap, which is ideal for the preparation of infant feeds. This is not typical of the Eastern Cape, where many rural communities have no running water. In 2007, only 70.8% in this area had access to piped water, which was below the national average of 88.6% (Statistics South Africa, 2007:4). Only 5% of the women had refrigerators. What causes concern is that 3.3% (N = 2) were HIV positive and had selected exclusive formula feeding. This confirms the findings that indicate that the choice of infant feeding method is stressful to the woman due to social circumstances.

In this study, the mothers of the participants comprised the main group of people who influenced infant feeding. Other relatives also contributed, thereby allowing the mother little room for personal choice. The participants depended heavily on their parents for financial support and culturally they had to respect their parents or more senior relatives regarding infant feeding. Two conflicting ideas puts stress on the mother who would like to follow advice from the midwives and also show respect to the elders. Findings of this study support earlier studies that have indicated difficulties with infant feeding within the African context (Doherty et al., 2005:93; Shapiro et al., 2003:226). The variables of influence by significant others and resources in the proposed model were also supported.
5.3 Implications for practice
The midwives should educate the mothers so that they have a better understanding of the concept of exclusive infant feeding and the dangers of introducing other fluids early. Since the relatives and neighbours have an influence on infant feeding, the community should also be taught the importance of exclusive breast and exclusive formula feeding in other forums, for example, at the clinic while waiting for health care services.

5.4 Implications for research
This study provides baseline information on adherence to infant feeding methods. There is a need for a more comprehensive study that looks at different aspects of infant feeding in the Eastern Cape Province.

5.5 Limitations of the study
Findings of the current study shed light on adherence to pre-selected methods of infant feeding. The two main limitations in this study are: 1) its findings cannot be generalised to the entire Eastern Cape Province since the sample was taken from the Buffalo City Municipality only and 2) the study was focused on one point in time, namely six weeks post delivery due to limitations of time and financial constraints. A comprehensive study covering the entire province and undertaken over a period of six months would yield better results regarding the rate of adherence to the infant feeding methods as it would cover the period of four to six months of exclusive breast or exclusive formula feeding recommended by the World Health Organization (WHO, 2003:32).
5.6 Summary

The current study explored adherence to the pre-selected method of infant feeding. Following counselling, the mother had to choose between exclusive breast feeding or exclusive formula feeding in order to minimise mother-to-child transmission of HIV. It was not clear whether the mothers adhered to their pre-selected method in the Buffalo City Municipality of the Amathole Municipality in Eastern Cape Province.

Findings of this study were that all HIV-positive mothers adhered to the method they selected earlier. Only 50% of HIV-negative mothers adhered to the pre-selected method. It was also found out that the mothers did not have a clear understanding of the concept of exclusive infant feeding as they also gave their infants water. Every HIV-positive mother included in this study had disclosed her HIV-positive status significant others such a spouse, family members and friends. They were well-supported and not stigmatised by significant others. These findings are contrary to those of earlier studies. This change in attitude indicates a better understanding of HIV/AIDS. Another finding of the current study was that only a few mothers were able to take a personal decision on how the infant should be fed. In most cases, family members and neighbours contributed their opinions on the infant feeding method. This, in turn, had a potential impact on adherence to the pre-selected method of infant feeding.

5.7 Recommendations

Based on the findings of this study, the following recommendations are made:

- Midwives should emphasise the importance of exclusive breast feeding or exclusive formula feeding, even among HIV-negative mothers.
- The mothers should be taught the importance of adhering to the selected method, as this strategy will potentially assist in reducing mother-to-child transmission of HIV.
• The concepts of exclusive breast feeding should be disseminated among the community, especially the women, as they have a major influence on the how the infant is fed.

• A more comprehensive study which covers the entire Eastern Cape Province should be conducted in order to generalise the findings to the Province. The study should be conducted over a longer period of time in order to generate more meaningful information.

• The suggested model of adherence to the selected infant feeding method should be tested, so that the relationships among the variables can be determined and predictions made.
REFERENCES


APPENDICES

Appendix A:

Maternal and Infant Profile

Instructions

Please fill in the blanks or circle the appropriate answers.

Mother

Demographic Information

1. Residential area ______________________
   a. City or _____________________________
   b. Rural ______________________________

2. Age_______________________________(Yrs)

3. Your marital status
   a. Single - never married
   b. Married
   c. Divorced
   e. Separated
   f. Co-habiting
4. Your religious affiliation.
   a. Methodist
   b. Catholic
   c. Anglican
   d. Lutheran Church
   e. Seventh-Day Adventist
   f. Other: Specify ______________

5. With whom do you live? (Select all who apply)
   a. Alone (with child)
   b. Own mother
   c. Own father
   d. Own mother and father
   e. Husband
   f. Other relatives
   g. Friends
   h. Other: Specify_________________

6. What was the last year of school you completed?
   a. Never attended school
   b. 1 - 7 years
   c. 8 -11 years
   d. 12 years
   e. Tertiary education

7. Are you a student, employed or unemployed at present?
   a. Student
b. Formally employed full time

c. Formally employed part time

d. Informally employed

c. Unemployed

d. Other: Specify

8. Is your spouse or partner a student, employed or unemployed at present?

a. Student

b. Formally employed full time

c. Formally employed part time

d. Informally employed

c. Unemployed

d. Other: Specify

9. What is the main source of your current financial support?

a. Own job

b. Parents

c. Husband

d. Other: Specify

10. Given these amounts of total monthly income, please circle the letter that matches the income your household receives before taxes.

MONTHLY

a. R0 to R499.00

b. R500.00 to R999.00

c. R1000.00 to R1,999.00

d. R2,000.00 to R2,999.00

e. R3,000.00 to R3,999.00
f. R4,000.00 to R4,999.00

g. R5,000.00 and above.

h. Don't know

11. How well does the amount of money you have take care of your needs?

a. Very well
b. Fairly well
c. Poorly

**Pregnancy and Delivery Information**

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C/S---

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<th>Complications/Comments:</th>
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-----------------------------------------------
Infant Profile

Gender: Male-------------Female------------------

Birth Hospital/Health Centre-------------------------------------

Birth Weight----------(Kilograms)  Today’s weight-------- (Kilograms)

Gestational Age------(Weeks)

Apgar Score -----------(1 minute)----------(5 minutes)

Vaccinations: BCG-------- Date Administered---------(D M Y)
Appendix B

Infant Feeding Interview Guide

Study ID: ........................
Site:...............................  
Date: \%\%/\%\%/\%\%

Instructions

Please fill in the blanks or circle the appropriate answers.

Date:-------Day-------Month-------Year-------  
ID:---------------------------Site------------------

Maternal HIV Status

1. HIV counselling done (Yes)------(No)-----------

2. HIV status negative (Yes)----

3. HIV status positive (Yes)----

4. If positive, CD4 count------

5. Mother on Antiretroviral drugs (ARVs)----(Yes)----(No)

6. If on ARVs, state the drugs and dose
Disclosure of HIV status:

7. Has the mother disclosed her HIV status? (Yes)-----(No)--

8. If status disclosed, to whom has she disclosed her status? (list all the people)-----------------------------------------------

9. How would you rate the support you receive from significant others regarding your HIV status? (no support)-----(little support) --- (moderate support)----(lot of support)

10. If the HIV status is not disclosed, give reason(s) for non-disclosure-------
    ---------------------------------------------------------------
    ---------------------------------------------------------------
    ---------------------------------------------------------------

Resources:

11. Do you have a refrigerator? (Yes) or (No)

12. Do you have clean running water? (Yes) or (No)

13. Where do you get your drinking water from?
    a. Tap----------
    b. River--------
c. Tank

d. Dam

e. Other (specify)

14. Which method of infant feeding did you select before the baby was born?

a. Exclusive breast feeding
b. Exclusive formula feeding
c. Undecided during antenatal visits

15. Within this 6-week period, how have you fed the baby?

a. Breast feeding
b. Breast feeding plus medication
c. Water was given additionally
d. Formula feeding was given additionally
e. Other liquids (explain)
f. Formula feeding

State the name of the milk formula

h. Formula feeding plus medication

i. Water given additionally

j. Breast milk given additionally
k. Other fluids given additionally (explain)-------------------------------------------------------------
--------------------------------------------------
--------------------------------------------------

Where do you obtain the milk formula?-------------------------------------------------------------

-----------------------------------------------------------------------------------------------

I. Cow’s or Goat’s milk (delete what is not applicable) ---------------

m. Cow’s or goat’s milk (delete what is not applicable) plus medication-------

n. Water given additionally-----------------------------

o. Other fluids given additionally (explain)--------------------------------------------


14. Is the method of infant feeding you are currently implementing the same
    as selected earlier during the antenatal period? (Yes) or (No)

16. If No, why have you changed? Give the reasons:-----------------------------------------------

17. Who else besides you has a say in how your baby should be fed?------------------
18. Do you think your spouse (if alive) accepts the method you have selected? (Yes)----- (No)-----

19. Do you think your other relatives accept the method of infant feeding you have selected? (Yes)----- (No)-----

20. List all the problems you have had, if any, regarding the infant feeding method you have selected.

21. Give any information regarding feeding in the space below:

Thank you for your participation.

Name of researcher:---------------------- Signature:---------------------

Date:----------------------(D M Y)
Appendix C

Consent Form

Participant’s Code Number---------------

Title: Adherence to pre-selected infant feeding practices among mothers on the prevention of mother-to-child transmission (PMTCT) of HIV/AIDS programme in the Amathole Region, Eastern Cape.

The study is conducted by Dr Elizabeth Matseliso Yako as part of the requirement for the Master’s in Nursing (M Cur) degree studies at the University of Fort Hare in the Department of Nursing Sciences. The study is being processed for final approval by the University of Fort Hare Ethics Committee and it will also be approved by the Eastern Cape Department of Health Research Committee before it is conducted.

The purpose of this study is to gain information about adherence to a method of infant feeding that a mother selects following counselling during the antenatal period. Because this method is selected before the baby is born, it termed the pre-selected method in this study. This method could be either exclusive breast feeding or exclusive formula feeding.

Participants in this study will be interviewed on their methods of infant feeding using an interview guide. The researcher will fill in the information on a form, by hand. Participation in the study will take approximately forty minutes. Your identity will not be revealed throughout the study and during reporting. Collected information will be kept in a secure and locked place. The only people who will have access to this information are the researchers conducting this study.

Findings of this study will assist in reducing mother-to-child transmission of the HIV. It will assist the midwives in determining the problems which the mothers face in putting their pre-selected method of infant feeding into practice and in coming up with strategies to promote adherence to these methods of infant feeding.
There are no anticipated risks in this study. Participation in this study is voluntary. Participants are free to withdraw from the study at any point during the study. A decision not to participate in the study or withdrawal from the study will not influence the nursing care of the mother and her baby.

………………………… has described to me what is going to be done in this study, how it is going to be done, the risk and the benefits involved. Elizabeth Matseliso Yako will be available at the University of Fort Hare, Department of Nursing Sciences to answer any questions regarding the study. (Work phone number: (043) 704 75945; Email: eyako@ufh.ac.za). I understand that my participation in this study will not influence my care or the care of my infant. I understand that I may withdraw from this study at any time by notifying the principal investigator or research assistants that I do not wish to participate.

The undersigned volunteers to participate in the study:

Signature……………………… Date………………… Age……..(Years)

Researcher’s Name:…………………………

Researcher’s Signature……………………… Date……………………
Declaration by Parent or Guardian of a participant under 18 years of age

The researcher has fully explained the study to me. I understand that there are no anticipated risks in this study and that my daughter participates voluntarily and that she may withdraw from the study at any point and that such a choice will not affect on her care and that of her baby or other family members. I grant permission to my daughter to participate in this study

Signature……………………………………   Date……………………………………

Researcher's Name…………………………

Researcher's Signature……………………   Date……………………………………
Appendix D

Participant Information Sheet

Participant’s Code Number………………..

Title: Adherence to pre-selected infant feeding practices among mothers on the prevention of mother-to-child transmission (PMTCT) on the HIV/AIDS programme in the Amathole Region, Eastern Cape.

The study is conducted by Dr Elizabeth Matseliso Yako as part of the requirement for the Master’s in Nursing (M Cur) degree studies at the University of Fort Hare in the Department of Nursing Sciences.

Prior to participation in this study, participants will sign a written consent form. For those participants who are less than 18 years old, both the mother or guardian and the minor will be requested to sign the form. The consent form is written in simple and easy to understand language. The consent form together with the interview guide will be available in English and IsiXhosa; the commonly spoken languages in the area where the study will be carried out.

A sample of 60 newly delivered mothers attending a clinic six weeks after delivery will participate in this study. A convenience sample will be selected, meaning that mothers will be requested to participate in the study as they come to the clinic until the required number is reached. The mothers will be interviewed while waiting for the services at the postnatal clinic. The researchers will fill in the information on a form by hand. Participation in the study will take approximately forty minutes.

The identity of participants will not be revealed throughout the study and during reporting. Collected information will be kept in a secure and locked place. The only people who will have access to this information will be the researchers involved in this study.
Findings of this study will assist in reducing mother-to-child transmission of HIV. It will assist the midwives in determining the problems which the mothers face in putting their pre-selected method of infant feeding into practice and in coming up with strategies to promote adherence to these methods of infant feeding.

There are no anticipated risks in this study. Participation in this study is voluntary. Participants are free to withdraw from the study at any point in the study by notifying the principal investigator or research assistants that they do not wish to participate. A decision not to participate in the study or withdrawal from the study will not influence the nursing care of the mother, her baby or other family members. The participants are free to ask any questions during participation. The researchers will provide the answers. For further clarification on the study, Elizabeth Matseliso Yako will be available at the University of Fort Hare, Department of Nursing Sciences, to answer such questions. (Work phone number: (043) 704 75945; Email: eyako@ufh.ac.za).
Appendix E

Letter to the Eastern Cape Department of Health Research Committee

I am a Master of Nursing (MCur) student at the University of Fort Hare, Department of Nursing Sciences who undertakes to answer any questions regarding the study. (Work phone number: (043) 704 75945; Email: eyako@ufh.ac.za). I am currently conducting a study on adherence to pre-selected methods of infant feeding; exclusive breast feeding and exclusive formula feeding among newly delivered mothers in the Buffalo City Municipality in Amathole District. This will take approximately 45 minutes. Participants in this study will be interviewed on their methods of infant feeding. Findings of this study will potentially assist in reducing mother-to-child transmission of HIV. It will assist the midwives in determining the problems which the mothers face and in implementing their pre-selected methods of infant feeding and in coming up with strategies to promote adherence to these methods of infant feeding. There are no anticipated risks in this study.

If you grant permission, the principal investigator and research assistants will explain the study to the potential participants. The newly delivered mothers who attend a post natal clinic at six weeks post delivery and agree to participate and the parents or guardians of those under age will be requested to sign a written consent form.

This study has been approved by the University of Fort Hare Research Committee. I would like permission to obtain participants from the East London Hospital Complex and clinics in the surrounding areas.

I wish to thank you for your consideration.

Sincerely yours,

Elizabeth Matseliso Yako.
APPENDIX F

Permission Letter from the Eastern Cape Department of Health Research Committee

Eastern Cape Department of Health

Enquiries: Zonwabale Mntali
Date: 25th December 2008
e-mail address: zonwabale.mntali@impilo.mpumalanga.gov.za

Dear Dr EM Yako

Re: Adherence to pre-selected infant feeding practices among mothers on the prevention of mother to child transmission (PMTCT) of HIV/AIDS programme in the Amathole Region, Eastern Cape

The Department of Health would like to inform you that your application for conducting a research on the abovementioned topic has been approved based on the following conditions:

1. During your study, you will follow the submitted protocol with ethical approval and can only deviate from it after having a written approval from the Department of Health in writing.
2. You are advised to ensure you observe and respect the rights and culture of your research participants and maintain confidentiality of their identities and shall remove or not collect any information which can be used to link the participants. You will not impose or force individuals or possible research participants to participate in your study. Research participants have a right to withdraw anytime they want to.
3. The Department of Health expects you to provide a progress on your study every 3 months (from date you received this letter) in writing.
4. At the end of your study, you will be expected to send a full written report with your findings and implementable recommendations to the Epidemiological Research & Surveillance Management. You may be invited to the department to come and present your research findings with your implementable recommendations.
5. Your results on the Eastern Cape will not be presented anywhere unless you have shared them with the Department of Health as indicated above.

Your compliance in this regard will be highly appreciated.

Deputy Director: Epidemiological Research & Surveillance Management
APPENDIX G:

Clearance certificate from the University of Fort Hare research ethics committee

OFFICE OF THE DEPUTY VICE-CHANCELLOR:
ACADEMIC AFFAIRS AND RESEARCH
Private Bag X1314, Alice 5700
Tel: 04060 22403 Fax: 0866282944

Application for clearance from the University of Fort Hare’s Ethics Committee

Project Title: ADHERENCE TO PRE-SELECTED INFANT FEEDING PRACTICES AMONG MOTHERS ON THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION (PMTCT) OF HIV/AIDS PROGRAMME IN THE AMATHOLE REGION, EASTERN CAPE

Chief Researcher: Dr. E. M. Yako

Supervisor: Dr. N. P. B. Nzama

Date of application: 29 May 2008

Having consulted the Dean of Research, I hereby grant permission to conduct the research.

Professor J R Midgley
Deputy Vice-Chancellor
Chairperson of the interim Ethics Committee