

Attitudes and perceptions towards infant feeding practices among HIV-seropositive women attending Baylor Family Model Clinic in Botswana

Geoffrey Tafaune

Assignment presented in partial fulfillment of the requirements for the degree of the Master of Philosophy (HIV/AIDS Management) at Stellenbosch University



Africa Centre for HIV/AIDS Management
Faculty of Economic and Management Sciences
Study leader: Dr. Thozamile Qubuda
March 2012

DECLARATION

By submitting this assignment electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Signed:

Date: 12th January 2012

DEDICATION

I dedicate this Research Project in loving memory of my late eldest brother, Chrispen Tarisai Tafaune, who taught me the ropes of life and inspired in me the desire to pursue further academic studies.

ACKNOWLEDGEMENTS

I would like to thank the following persons for their respective contributions to this dissertation:

- My wife, Blessing, for her unconditional love, support and encouragement.
- A special thank you to my Study Leader, Dr. Thozamile Qubuda, for his guidance, support and mentorship.
- The Assistant Director, Dr. Mike Tolle, of Baylor Family Model Clinic and the rest of the healthcare staff for granting me the permission to conduct this survey at their Clinic.
- All the women participants at Baylor Family Model Clinic who volunteered to spare their precious time to partake in this study.
- My colleagues; Registered Nurse Mrs. Bonnie Kgathi, for her willingness identify, engage and facilitate the indirect recruitment of the research participants, and also Dr. Lillian Okui for helping with the statistical analysis.
- Mr. Arthur Masoa, for editing the manuscript.

Last but not least, I would like to like to express my profound gratitude to both my parents Eugenia and Kubvoruno Tafaune-Nevanji, for grooming me to cherish working hard and inspiring the desire in me to acquire wisdom through continuous learning ever since my early childhood.

ABSTRACT

The purpose of this study was to examine the knowledge and attitudes towards infant feeding practices amongst HIV-infected women in Southern Botswana. A questionnaire-based survey was undertaken at Baylor Family Model Clinic in Gaborone. Subjects included postnatal women with HIV infection (Group 1, n=120) and antenatal women with HIV infection (Group 2, n=80).

Advantages of breastfeeding and formula feeding according to several characteristics (convenience, cleanliness, cheapness and safety) were rated using a four-point (0-3) scale. Overall, breastfeeding was rated much higher (11.4/12) than Formula feeding (6.3/12) ($p < 0, 0005$).

Formula feeding rating was highest among postnatal women with HIV infection (6.8/12); however, it was lower than the rating for breastfeeding (11.3/12). The majority of women with HIV infection were either Formula feeding (Group 1, 92%) or intended to formula feed (Group 2, 78%) their infants for the first 6 months.

All the women, despite their known HIV seropositive status still considered breastfeeding to be more advantageous than formula feeding. However, once women with HIV infection were informed of the reduced risk of HIV transmission through breastfeeding while on anti-retroviral therapy, they should be better equipped to make their own decisions to follow the Botswana Ministry of Health's 2011 PMTCT recommendations.

Key words: breastfeeding; formula feeding; HIV vertical transmission; infant feeding practices.

OPSOMMING

Die doel van hierdie studie was om die kennis en houdings teenoor babavoeding onder MIV-geïnfekteerde vroue in Suider-Botswana te ondersoek. 'n Vraelys-opname is gedoen by Baylor Familie Model Clinic in Gaborone. Onderwerpe het nageboortelike vroue met MIV-infeksie (Groep 1, N = 120) en voorgeboortelike vroue met MIV-infeksie (Groep 2, N = 80) ingesluit. Voordele van borsvoeding en formule-voeding volgens verskeie kenmerke (gerief, skoonheid, prys en veiligheid) was gegradeer met behulp van 'n vier-punt (0-3) skaal. In totaal is borsvoeding veel hoër gegradeer as formule-voeding (6.3/12) ($p < 0,0005$) (11.4/12).

Formule-voeding se voorkoms is die hoogste onder nageboortelike vroue met MIV-infeksie (6.8/12), maar dit was laer as die voorkoms by borsvoeding (11.3/12). Die meerderheid van vroue met MIV-infeksie was óf op formule-voeding (Groep 1, 92%) of bedoel is om formule te voer (Groep 2, 78%) vir hul babas vir die eerste 6 maande.

Al die vroue, ten spyte van hul bekende MIV-sero positief status, oorweeg borsvoeding om meer voordelig as formule-voeding. Sodra vroue met MIV-infeksie in kennis gestel word van die verminderde risiko van MIV-oordrag deur borsvoeding terwyl sy op anti-retrovirale terapie is, moet hulle beter toegerus word om hul eie besluite te maak by Botswana se Ministerie van Gesondheid se 2011 VMNKO aanbevelings te volg.

Sleutel woorde: borsvoeding; formule-voeding en MIV vertikale oordrag; babavoeding

ACRONYMS

AFASS – Acceptable, Feasible, Affordable, Sustainable and Safe

AIDS – Acquired Immune Deficiency Syndrome

ANC – Antenatal Care

ARVs – Antiretroviral drugs

AZT – Zidovudine

BAIS II – Botswana AIDS Impact Survey II

BF – Breastfeeding

HIV – Human Immunodeficiency Virus

VCT – Voluntary Counseling and Testing

MTCT – Mother-to-child-transmission

NVP – Nevirapine

NGOs – Non Governmental Organizations

PLHWA – People Living with HIV/AIDS

PMTCT – Prevention of Mother-to-Child Transmission

PNC – Postnatal care

CONTENTS

	Pages
(i) Declaration	1
(ii) Dedication	2
(iii) Acknowledgements	3
(iv) Abstract	4
(v) Opsomming	5
(vi) Acronyms	6
(vii) Contents	7- 8

CHAPTERS:

1. BACKGROUND TO THE STUDY	8
1.1 The research problem.....	9
1.2 Rationale or purpose of the study.....	9
1.3 The objectives of the study.....	9
1.4 Significance of the study.....	10
1.5 Research question	11
2. LITERATURE REVIEW	12
2.1 Background	12
2.2 Literature	12
3. RESEARCH METHODOLOGY	18
3.1 Research design.....	18
3.2 Data sources.....	18
3.3 Data collection techniques.....	18
3.4 Sampling techniques.....	19
3.5 Definition of key terms, concepts and variables.....	19
3.6 Data analysis and interpretation.....	20
4. ETHICAL CONSIDERATIONS	20
4.1 Confidentiality.....	20

4.2 Informed consent.....	20
4.3 Dealing with potential stigmatization.....	20
5. RESULTS AND DISCUSSION	22
5.1 Demographic information	22
5.2 Attitudes towards infant feeding practices	28
6. CONCLUSION AND RECOMMENDATIONS.....	32
7. LIST OF REFERENCES.....	34

LIST OF APPENDICES:

APPENDIX I (a): The Questionnaire (English version)	36
APPENDIX I (b): The Questionnaire (Setswana version).....	39
APPENDIX II (a): Consent Form (English version)	43
APPENDIX II (b): Consent Form (Setswana version)	47

LIST OF TABLES AND FIGURES:

<i>Table 1:</i> Botswana Infant and Young child feeding Recommendations	15
<i>Table 2:</i> The relationship status of the study participants	24
<i>Table 3:</i> The distribution of participants according to their employment status....	25
<i>Table 4:</i> Infant feeding advantage rating among the two groups	28
<i>Table 5:</i> Attitudes towards infant feeding among the two groups	29
<i>Figure 1:</i> Age group distribution of the study population	22
<i>Figure 2:</i> Trends in age-specific HIV prevalence rates in pregnant women.....	23
<i>Figure 3:</i> The relationship status of the study participants	24
<i>Figure 4:</i> PMTCT Programme trends in Botswana, 2002 – 2009.....	27

1. BACKGROUND TO THE STUDY

INTRODUCTION

The recognition of breastfeeding as a source of human immunodeficiency virus (HIV) infection in babies born to HIV seropositive mothers represents a public health dilemma, especially in countries with high HIV prevalence rate and where breastfeeding is the norm and essential to child survival.

In 2009, 370 000[230 000 – 510 000] children were infected with HIV through mother-to-child transmission (down from 500 000[320 000 – 680 000] in 2001).

An estimated 5 to 15 percent of children born to HIV positive women are still being infected through their mother's milk (UNAIDS, 2010: p 63).

As knowledge about the risk of HIV transmission through breastfeeding has reached healthcare workers, the general population, and individual mothers, uncertainty has developed on how best to feed infants in the context of HIV. Women who know or suspect they are HIV positive are faced with difficult and complex choices (Thior et al, 2006).

Without intervention the risk of mother-to-child HIV transmission is 20 – 40%. The risk is halved by the use of Zidovudine (AZT) or single dose Nevirapine (NVP) monotherapy. Additional benefit is obtained by not breastfeeding and by offering elective caesarian section where resources are readily available. Transmission of HIV through breast milk can occur at any point during lactation; hence an approach to infant feeding is a cornerstone of prevention of mother-to-child transmission (Nduati et al., 2000).

Infant feeding in the context of HIV is complex because of the major influence that feeding practices exerts on HIV-free child survival. The dilemma is to balance the risk of infants acquiring HIV through breast milk with the higher risk of death from causes other than HIV, in particular malnutrition and serious childhood illnesses such as diarrhea or pneumonia among non-breastfed infants in Southern Africa.

In resource limited settings, such as Botswana, one ought to strike a balance between the values of protecting the infant from the risk of death from these other childhood illnesses versus avoiding postnatal HIV transmission through breastfeeding. Over the past years, there was a stronger emphasis on delivering interventions to primarily avert HIV infection through breastfeeding. Replacement feeding, though unquestionably recognized to prevent HIV postnatal transmission, has been associated with an increased risk of infant death from other causes (WHO, 2009).

1.1 The research problem

We do not know the reasons why PMTCT enrolled HIV infected mothers who post-counseling antenatally chose to formula feed their infants exclusively for the first 6 months end-up resorting to clandestine breastfeeding. All HIV seropositive women are counseled at the time of enrolment and are offered free infant formula if they chose not to breastfeed as per Botswana National PMTCT guidelines. Those mothers who opt to breastfeed were counseled on exclusive breastfeeding and early weaning between 5 and 6 months of age, and free infant formula was provided from 5 to 12 months of age. Mothers who opt for exclusive formula feeding were supplied with free infant formula for 12 months. All mothers were educated about safe formula preparation and administration, and provided with high - protein food for infants from 6 through to 12 months of age.

In the absence of sufficient resources for safe alternative feeding options, exclusive breastfeeding is recommended for HIV seropositive women. In spite of counseling and an assessment for suitability by AFASS (Acceptable, Feasible, Affordable, Sustainable, and Safe) criteria to that effect, we found that exclusive breastfeeding was relatively uncommon and weaning occurred both earlier and later than was recommended in the Botswana National PMTCT guidelines.

1.2 Rationale or purpose of the study

To identify the factors or reasons why PMTCT enrolled HIV positive mothers who initially met the A.F.A.S.S. criteria antenatally and opted for exclusive Formula feeding end-up resorting to clandestine breastfeeding.

1.3 The objectives of the study

- To assess the HIV seropositive mothers' level of knowledge of the risk of HIV vertical transmission through breastfeeding
- To identify the attitudes and perceptions of HIV seropositive women towards breastfeeding.
- To establish the factors influencing infant feeding practices of HIV seropositive women enrolled in the PMTCT program.
- To provide guidelines for healthcare workers to counsel the HIV seropositive pregnant mothers to optimally choose and adhere to World Health Organization (WHO) recommended infant feeding practices.

1.4 Significance of the study

In the past years, there was stronger emphasis on delivering interventions to primarily avert post-natal HIV transmission through breastfeeding by resorting to formula feeding. However, replacement feeding has been associated with higher risk of morbidity and mortality from other childhood illnesses especially in resource limited settings like Southern Africa.

This study thus aims to explore the programmatic limitations, cultural pressures, personal attitudes and perceptions compelling HIV seropositive mothers who initially opted for formula feeding but resort to clandestine breastfeeding. Systematic reviews of research and programme data regarding morbidity and mortality in children associated with early cessation of breastfeeding of HIV exposed infants, including the protective benefits of breastfeeding infants 6-12 months of age, taking into account access to ARVs to improve maternal health and to prevent postnatal HIV transmission strongly suggest exclusive breastfeeding for the first 6 months as the most appropriate recommendation for HIV seropositive mothers in resource limited settings.

The improved access and availability of HAART for both HIV seropositive mothers and their HIV-exposed infants significantly reduces the actual risk of HIV vertical transmission postnatally through breastfeeding. The immune-protective effect of breast milk in HIV-exposed infants can thus be retained by allowing their mothers to

“freely” exclusively breastfeed for the first 6 months as long as they are readily receiving ARV interventions.

In summary, there are few clear messages regarding the role of breast-feeding infants in developing countries. It is clear from the above considerations that feeding options available to HIV-infected women in developing countries are limited. Considerable social and cultural variability exists that influences feeding practices within individual communities, and feeding recommendations must take these into account. What is clear, though, is that women should be clearly informed about all available feeding choices. Healthcare workers must be adequately trained in feeding options available to these mothers, and lend their full support to these mothers irrespective of the infant feeding option that they choose.

A better understanding of the cultural and socioeconomic practices associated with infant feeding will be necessary to optimize interventions for PMTCT program.

1.5 The research question

Why do PMTCT enrolled HIV seropositive mothers who tentatively met the A.F.A.S.S. criteria post-screening and counseling antenatally having opted for exclusive Formula feeding end-up clandestinely breastfeeding?

2. LITERATURE REVIEW

2.1 Background

Current Botswana national PMTCT guidelines state that: “When replacement feeding is *not* Acceptable, Feasible, Affordable, Sustainable and Safe (AFASS), exclusive breastfeeding is recommended during the first six months of life. Based on the principal of informed choice, health workers are encouraged to give HIV infected women the best available information on the risks and benefits of each method, with specific guidance in selecting the option most likely to be suitable for their situation. During antenatal serial visits post-HIV testing and counseling of the pregnant women, one of the pivotal decisions a mother has to make is the choice of preferred mode of feeding for the expected new born child. A thorough assessment of individual and environmental criteria in support of appropriate infant feeding choices when counseling mothers may improve the effectiveness of the AFASS screening criteria.

2.2 Literature

Mother-to-child transmission is by far the largest source of HIV infection in children below the age of 15 years. The prevalence of HIV infected mothers amongst pregnant women attending clinics in Botswana was reported as 39% (BAIS [II] Survey, 2006). The Botswana PMTCT program recommends free formula feed for children born to HIV infected mothers for 12 months. Although advice is given on feeding exclusively with safe transition to the replacement feeds at 6 months for those opting to breast feed.

A recently published paper compared the efficacy and safety of two infant feeding strategies for the prevention of post natal mother-to-child HIV transmission. Conducted in Botswana, the Mashi (milk) study was designed as a randomized 2 x 2 factorial clinical trial, to compare interventions for both prevention prenatal HIV transmission (part 1) and reducing postnatal HIV infection and mortality (part 2).

The findings from (part 2) are summarized here:

Between March 27, 2001, and October 29, 2003, 1200 HIV – positive pregnant women were randomized from four district Hospitals in Southern Botswana (located in the city, one town and two villages). Amongst the 11,388 women originally

screened, the prevalence of HIV was 33% of whom 30% participated in the trial. All of the mothers received Zidovudine from 34 weeks' gestation and during labour. Mothers and infants were randomized to receive single-dose Nevirapine or placebo. Of the 1 200 women, 1193 reached delivering resulting 591 and 588 live first – infants in the formula-fed and breastfed plus Zidovudine groups, respectively. Maternal and infant characteristics were well balanced between both groups ($p > 0.05$) for all comparisons other than sanitation facilities ($p = 0.04$) (Thior et al., 2006). From this research it was concluded that Breastfeeding with Zidovudine prophylaxis was not as effective as formula feeding in preventing post – natal transmission, but was associated with a lower mortality rate at 7 months.

Both strategies had HIV free survival at 18 months. The study revealed relatively high morbidity and mortality rates with formula feeding among infants of HIV infected mothers, with deaths largely due to pneumonia and diarrhea. This demonstrates the risk of formula feeding to infants in Sub – Saharan Africa, and the need for studies of alternative effective strategies. The authors highlighted the need for a careful assessment of the local management of childhood illness (mostly diarrhea and respiratory diseases) before the implementation of a formula feeding strategy for the prevention of mother – to child transmission of the HIV in developing countries.

Abashawl et al (2004), in the NIGAT study whose findings were presented at the International Conference on AIDS 2004, evaluated the efficacy of ARV in preventing HIV transmission through breastfeeding. The research project followed up both breastfeeding and non-breastfeeding HIV seropositive women. Findings from this study led to a conclusion that in the absence of sufficient resources for safe alternative feeding options, exclusive breastfeeding is recommended for HIV seropositive women (Abashawl et al., 2004).

Botswana infant and young child feeding Guidelines (2008: 98 - 104) recommends:

- For the first 6months of life, the guidelines recommend exclusive feeding or exclusive formula feeding depending on the HIV status of the mother.

- Exclusive formula feeding is recommended for HIV – infected women when it is **A**cceptable, **F**easible, **A**ffordable, and **S**afe for the mother and baby.

“Exclusive” in this regard meaning no additional foods or liquids including water may be given to the infant. Medicines and vitamins are fine if prescribed by the doctor.

Mixed feeding definition:

- Giving a breast fed child any other liquids or solids such as infant formula, water, soft porridge etc during the first six months of life.
- Giving the formula fed child any other liquids or solids during the first 6 months of life.

Botswana Infant and Young child feeding Recommendations

Table 1:

Client situation	Feeding recommended from 0 – 6 months	Feeding recommended from 6 – 24 months
HIV positive women for whom formula feeding is AFASS	Exclusive formula feeding no added foods or liquids and no breast milk	Formula until 1 year plus complementary foods
HIV positive women for whom formula is not AFASS	Exclusive breastfeeding no added foods or liquids (including formula)	Early cessations of breast feeding at 6 months with transition to formula plus complementary foods
Women of unknown HIV status	Exclusive breastfeeding with no added	Breastfeeding until 2 years and beyond

(encouraged to have an HIV test)	foods or liquids (including formula)	plus complimentary foods
HIV negative women	Exclusive breastfeeding no added foods or liquids (including formula)	Breastfeeding Until 2 years and beyond plus complementary foods

Source: The Botswana National PMTCT Guidelines, 2008.

Early cessation of breastfeeding at 6 months for HIV – infected women AFASS must be ensured before weaning. While still breastfeeding, teach the child to expressed milk from a cup and start replacing breastfeeding with cup feeding. Transition to formula is recommended once baby taking all feeds by cup to make sure no mixed feeding. The weaned infant must be closely monitored as the period of weaning is a vulnerable time in terms of infections, development of malnutrition and death.

Current international guidelines on infant feeding for HIV positive mothers promote replacement feeding (infant formula or animal milk) or exclusive breastfeeding (with no supplements of any kind). A mixed feeding pattern, where breastfeeding is combined with other milks, liquid foods or solids, has been shown to increase the risk of HIV transmission and is strongly discouraged (Ilf et al., 2005).

Prevention of Mother-to-Child Transmission (PMTCT) programmes is rapidly expanding throughout sub-Saharan Africa, with several key intervention pillars: voluntary counseling and testing (VCT), anti-retroviral prophylaxis and infant feeding counseling. However, inadequate training of health workers, particularly PMTCT counselors, related to the relative risks associated with infant feeding in the context of HIV, the feasibility and safety of replacement feeding, lack of culturally sensitive counseling tools and the stigma associated with both replacement feeding and exclusive breastfeeding make appropriate and effective infant feeding counseling difficult (Korniz-Booher et al., 2004).

According to previous research, mothers' adoption of and adherence to the recommended feeding methods is also a problem. A study in Nairobi, Kenya, that aimed to determine feeding practices and the nutritional status of infants born to HIV-1 infected women, for example, reported that 31% of the HIV positive, counseled mothers participating in the study practiced mixed feeding six weeks after delivery (Nduati et al., 2000).

One of the major challenges facing HIV seropositive women in adopting and adhering to current recommendations is access to good quality information. Research shows that many counselors are not adequately informed about how to protect infants from HIV vertical transmission and may not even be aware of the existence of updated guidelines (de Paoli, 2002). Few have received sufficient training on counseling in the context of HIV, and PMTCT programmes generally lack counseling tools and other resources. Staff shortages and the associated lack of time to counsel properly, even for those adequately trained in infant feeding counseling are further barriers to the provision of informed choices (Ehrnst, 2005).

Even in areas where replacement feeding is an option, counseling practices are poor. In Khayelitsha, South Africa, healthcare workers (in this instance, registered professional nurses) were inadequately trained regarding knowledge about feeding options available to HIV infected mothers. Worryingly, HIV-infected mothers were not given a choice regarding breastfeeding. All mothers were told not to breastfeed and all complied with this advice. Mothers were not provided with sufficient information regarding the safe preparation of Formula feeds, and feed quantity and frequency were not discussed. Interestingly, bottle-feeding was not associated with detrimental social effects and most fathers were supportive of this practice (Chopra et al., 2000).

In Khayelitsha, 62% of HIV-infected mothers were aware of the risk of HIV transmission through breast milk. However, the majority of mothers who breastfed their infants introduced other liquids. Other milks were introduced by 52% of mothers within the first month of feeding. Within 3 months, 82% of mothers had introduced other milks to their babies. In Khayelitsha, HIV-infected mothers all believed that they would definitely transmit the virus to their infant if they breastfed, and they were

clearly not prepared to do so. Infant feeding practices in these communities clearly need to be improved.

Results from West Africa reinforced the notion that HIV-infected women are inadequately counseled about infant feeding options and are often not in a position to make and implement an informed choice (Desclaux et al., 2010). A similar study carried out in Northern Thailand by Talawat et al.(2002), also included women of unknown HIV status amongst the participants but showed comparable results in terms of their overall advantage ratings for breastfeeding versus formula feeding (AIDS Care, 2002).

These mothers are given ambiguous messages regarding breastfeeding, because the health services traditionally promoted the message that “breast is best”, irrespective of the mother’s HIV status.

3. THE METHODOLOGY

3.1 Research design

A non-experimental quantitative research design was used in this study. This research design is a descriptive type of research study that collects quantitative data to describe the variable of interest (Christensen, 2007). A survey was conducted among HIV seropositive women who visited the Baylor Family Model Clinic over a period of 3 months spanning 1st September to 30th November 2011.

According to Christensen (2007), a survey is a field study in which an interview technique is used to gather data on a given state of affairs in a representative sample of the population. Direct contact must be made with individuals whose characteristics, behavior, or attitudes are relevant to the investigation.

3.2 Data sources

The research team carried out a quantitative survey by use of a structured questionnaire administered by the healthcare worker (the Doctor or Nurse) on women attending for antenatal and HIV palliative care at Baylor Family Model Clinic in Gaborone.

The study was aimed at evaluating attitudes and perceptions towards infant feeding practices for both breastfeeding and non-breastfeeding HIV seropositive women who are registered for maternal and child health care under the National PMTCT Program.

3.3 Data collection techniques

From September 1st to November 30th 2011, two groups of women were enrolled into this study after giving their informed consent. 120 women with HIV infection who had delivered in the past 1 year and were attending Well Baby Clinics (Group 1), and 80 pregnant women with confirmed HIV infection in antenatal care who had received at least one counseling session of post-HIV test counseling (Group 2).

Baseline data on socio-demographic characteristics, HIV/AIDS vertical transmission knowledge and attitudes toward infant feeding was collected. For modes of feeding (breast, or formula), four characteristics were investigated: convenience, cleanliness,

cheapness, and safety. In order to grade the perceived advantages of formula feeding and breastfeeding for these four characteristics, we designed a four point Likert scale with the answers: no advantage rating =0, little advantage rating = 1, some advantage rating=2 and most advantage rating =3. The overall rates for breastfeeding and formula feeding were compared using the *t*-test.

3.4 Sampling techniques

Indirect recruitment of participants was done with the help of Registered Nurse (Mrs. Bonnie Kgathi) who works at Baylor Family Model Clinic PMTCT Program.

She informed all the women already registered for the PMTCT program (with confirmed HIV-positive status) that presented themselves for Maternal and Child Healthcare services from the 1st of September 2011 up to 30th November 2011 about the Research Project and requested for volunteers to participate in the research study.

Informed consent was subsequently obtained from those women who volunteered to participate in the questionnaire-based survey after being briefed in both English and Setswana languages about the scope of the Research study. Both English and Setswana versions of the questionnaire and consent forms were available, and participants were offered help with interpretation and/or clarification of concepts as needed from the attending nurses and the Research Doctor.

Each participant was given about 30 minutes to complete the questionnaire, see Appendix 1 attached.

3.5 Definition of key terms, concepts and variables

The Botswana National Guidelines for the prevention of Mother to Child Transmission of HIV (2008: 78 – 84) recommends:

- For the first 6months of life, exclusive feeding or exclusive formula feeding depending on the HIV status of the mother.
- Exclusive formula feeding is recommended for HIV – infected women when it is Acceptable, Feasible, Affordable, Sustainable and Safe for the mother and baby.

“Exclusive” in this regard meaning no additional foods or liquids including water may be given to the infant. Medicines and vitamins are fine if prescribed by the doctor.

Mixed feeding definition:

- Giving a breast fed child any other liquids or solids such as infant formula, water, soft porridge etc during the first six months of life.
- Giving the formula fed child any other liquids or solids during the first 6 months of life.

3.6 Data analysis and interpretation

Descriptive statistics were used for describing the sample’s demographic characteristics. Frequencies and percentages were computed to describe attitudes and perceptions of HIV seropositive women towards infant feeding options. Statistical analysis methods were used to measure associations using the Epi-Info Program version 3.5.1. Associations between social factors and perceived advantages of different infant feeding practices were determined using chi-squares. The *p*-value was set at < 0.05 for statistical significance. A statistician (Dr. Lillian Okui) assisted with data analysis and interpretation.

3.7. Ethical considerations

3.7.1 Confidentiality

Any information that is obtained in connection with this study and that can be identified with the participants will remain confidential and will be disclosed only with the participants’ permission or as required by law. Confidentiality will be maintained by means of using codes on questionnaires and by posting the completed questionnaires. I will be the only person who will open the post box. The completed questionnaires will be kept in a locked cupboard in my office and no one except me will have access to the cupboard. The questionnaires will be destroyed six months after the study.

Data was captured on my personal computer which is password protected.

Anonymity will be maintained at all times.

3.7.2 Informed consent

As per Informed Consent form attached: see Appendix II – both English and Setswana versions availed.

3.7.3 Dealing with potential stigmatization

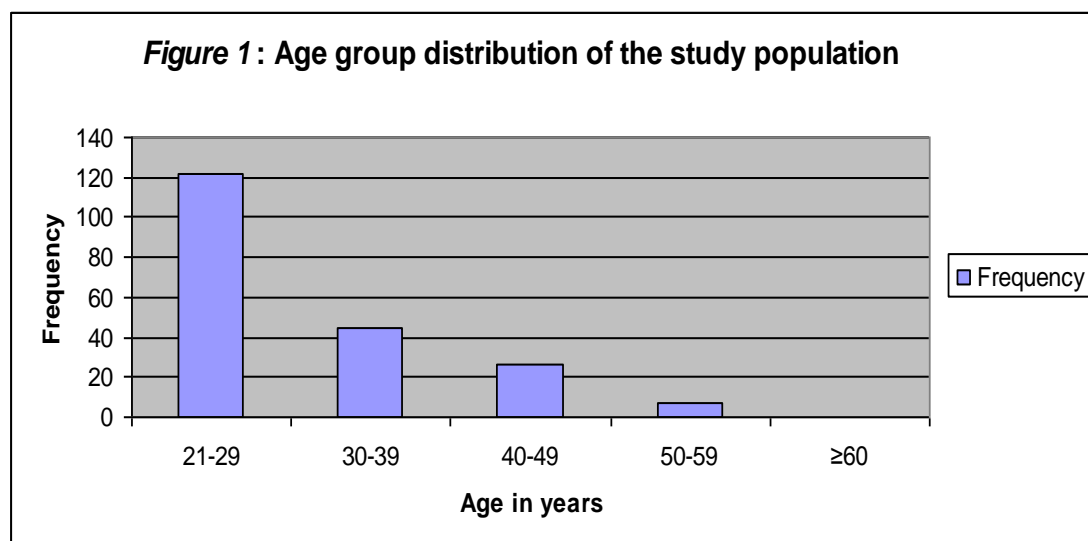
All the women who were asked to volunteer to participate in this research study had to have received at least one counselling session after receiving their confirmatory HIV-positive result, hence no adverse events or emotional harm was expected from completing the survey questionnaire. However, in case of any unforeseen negative feelings or emotional disturbances arising, the affected respondents were offered free further counselling on-site by the research doctor and nurse. Referral to a Psychologist based at the Baylor Family Model clinic free of charge would be facilitated where necessary.

4. RESULTS AND DISCUSSION

4.1 Demographic information

- **Age distribution**

A total 200 out of the 250 self-administered questionnaires were completed and submitted during the 3 months period of the survey. Baseline data on socio-demographic characteristics, HIV/AIDS knowledge and attitudes towards infant feeding practices were collected. The majority of participants were aged between 18 – 29 years (see Figure 1).



The majority of the participants were aged between 21 – 39 years (see Figure 1), with 61% of the participants were aged between 21 – 29 years, representing the young women of reproductive age most affected by HIV infection in Botswana. 22.5% were aged 30 – 39 years; 13% were aged 40 – 49 years; 0.035% were aged 50 -59 years and none of the women participants were aged 60 years or more. These data closely mirror the age distribution trends as per the Botswana National PMTCT Register (Botswana National PMTCT programme, 2009).

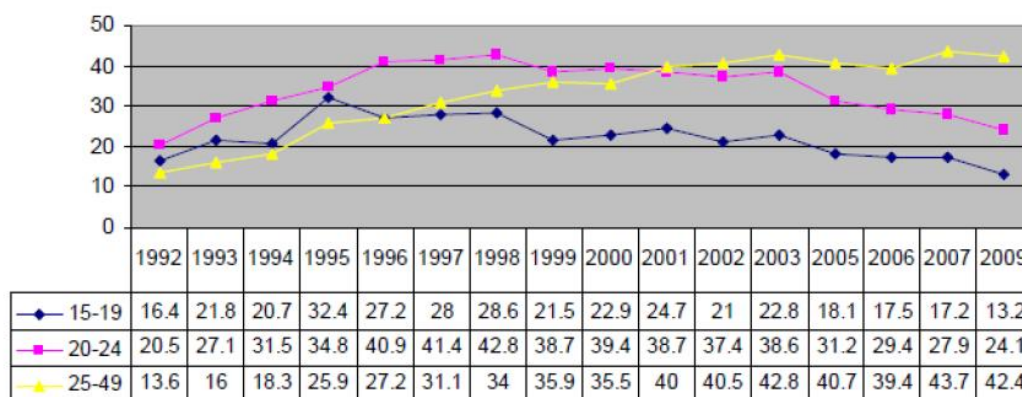
There are several limitations in the study methodology that require consideration when interpreting study findings. Information was gathered through a self-administered questionnaire based survey conducted only on those HIV sero-positive

women who volunteered to participate in the survey. Prevailing social norms and a perception of possible stigmatization may have influenced the responses.

The women were not selected randomly but we believe that our “indirect” recruitment of volunteer participants as they presented for their routine maternal and child health services over the 3 months study period did not introduce a major bias.

Socio-demographic characteristics of the study participants were similar to those of all women attending for maternal and child health services throughout the nation (Botswana Ministry of Health, Second Generation HIV Sentinel Surveillance Report, 2009).

Figure 2: Trends in age-specific HIV prevalence rates, pregnant women 1992–2009



Source: Botswana Ministry of Health, Second Generation HIV Sentinel Surveillance Report, 2009

The fact that the exercise of completing the questionnaire itself was done within the confines of the Baylor Family Model Clinic may have introduced some element of bias where participants’ responses were aimed at “pleasing” the healthcare workers, although not necessarily reflecting on their actual perceptions. To allay any such fears or anxieties I made sure that reassuring statements were explicitly repeated during the study briefing clarifying that any information collected was purely anonymous and strictly for academic purposes only.

Women in the postnatal group with HIV infection (Group 1) attending the Well Baby Clinic may have been biased towards formula feeding since clinic based post-natal clinics are the distribution centres for free formula milk. This group of women may not be truly representative of all postnatal women with HIV infection countrywide.

Finally, misinterpretation of some aspects of the survey questionnaire appears to have been present despite the readily available help from the nurse and the researcher to provide any clarifications. Questions in which multiple responses were possible were often answered by a single response.

- **Marital status**

The majority of the women participants were either single (49%) or in some form of de facto relationship (co-habiting, separated, divorced or widowed) [28%]. A notable minority (23%) were married either under customary or statutory law. The relationship status of the study participants is shown in Figure 3 and Table 2 below:

Figure 3: The relationship status of the study participants

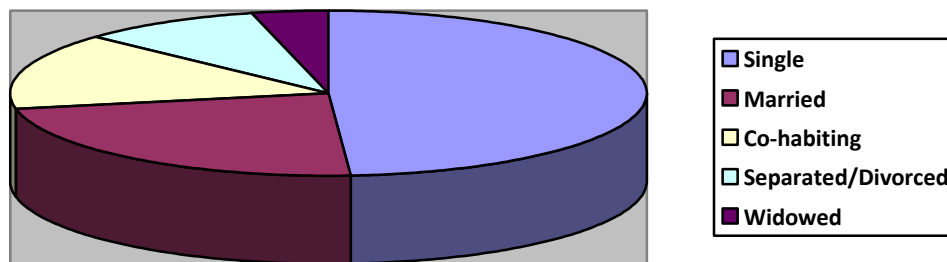


Table 2: The relationship status of the study participants

Relationship status	Frequency (n = 200)	Percentage (%)
Single	98	49
Married	46	23
Co-habiting	30	15
Separated / divorced	18	9
Widowed	8	4

A greater majority of the study participants were notably single (49%), hence the sole decision makers when it comes to choosing their infant feeding practices.

- **Employment status:**

65% of the study participants were formally employed, 6.5% self-employed, 14% being students, and 3.5% had retired. 11% of these women were unemployed, depending mostly on their partners' income for their livelihood.

More than half of the women surveyed were working formally or self-employed, with labourer (20%), agricultural worker (7%) and commercial activities (40%) being the most common employment categories.

The distribution of participants according to their employment status is shown in Table 3.

Employment status	Unemployed	Employed (formally)	Self-employed	Student	Retired
Absolute Number	22	130	13	28	7
Percentage (%)	11	65	6.5	14	3.5

Table 3: *The distribution of participants according to their employment status*

- **Parity**

58% of the participating women were multiparous, while out of the 42% in the antenatal group (12%) were expecting their 2nd child, with the remaining (30%) were expecting their 1st child. The previous breastfeeding experiences of the multiparous women were not assessed in this study.

- **Infant feeding method of choice**

When asked the general question on which infant feeding practice they thought was the best method during the first 6 months for your infant; (74%) said Formula feeding, (20%) chose exclusive breastfeeding and only (6%) indicated their best option as mixed feeding. These data may just reflect on the effectiveness of the Botswana National PMTCT Program post-test counselling sessions which are given to all HIV-positive pregnant women as a package starting before delivery during their antenatal visits. The emphasis has traditionally been on avoiding breastfeeding once HIV status

has been confirmed positive; instead go for formula feeding in order to prevent any possible risk of mother-to-child HIV transmission through breast milk.

The Botswana PMTCT programme was piloted in Francistown and Gaborone in April 1999. In July 2000, national rollout of the programme was initiated and all public Healthcare facilities were offering the PMTCT services by November 2001. The National ARV Programme began in 2002 and has been continuously expanding access to HAART for HIV infected Batswana, including women identified as HIV-positive through the PMTCT programme.

The PMTCT programme initially used voluntary HIV counselling and testing to identify HIV infected women. HIV testing became routine in January 2004 following President Mogae's Christmas message to the nation in which he stated that HIV testing would be "routine but not compulsory" and encouraged all Batswana to take advantage of HIV-related health services provided by the government. When it was first rolled out in 2001, the PMTCT programme provided the drug Zidovudine (AZT) to pregnant women from 34 weeks of gestation.

In 2003, single-dose of Nevirapine (sd-NVP) was added at labour and delivery for the mother and AZT for 4 weeks to the infants and free infant formula feed until one year of age to HIV-exposed infants. In April 2005, the AZT prophylaxis protocol was changed to start at 28 weeks of gestation. In early 2008, ARV guidelines, together with the drug component of all HIV-related programmes, such as the PMTCT and TB programmes, were reviewed and renamed the "2008 Botswana National HIV/AIDS Treatment Guidelines".

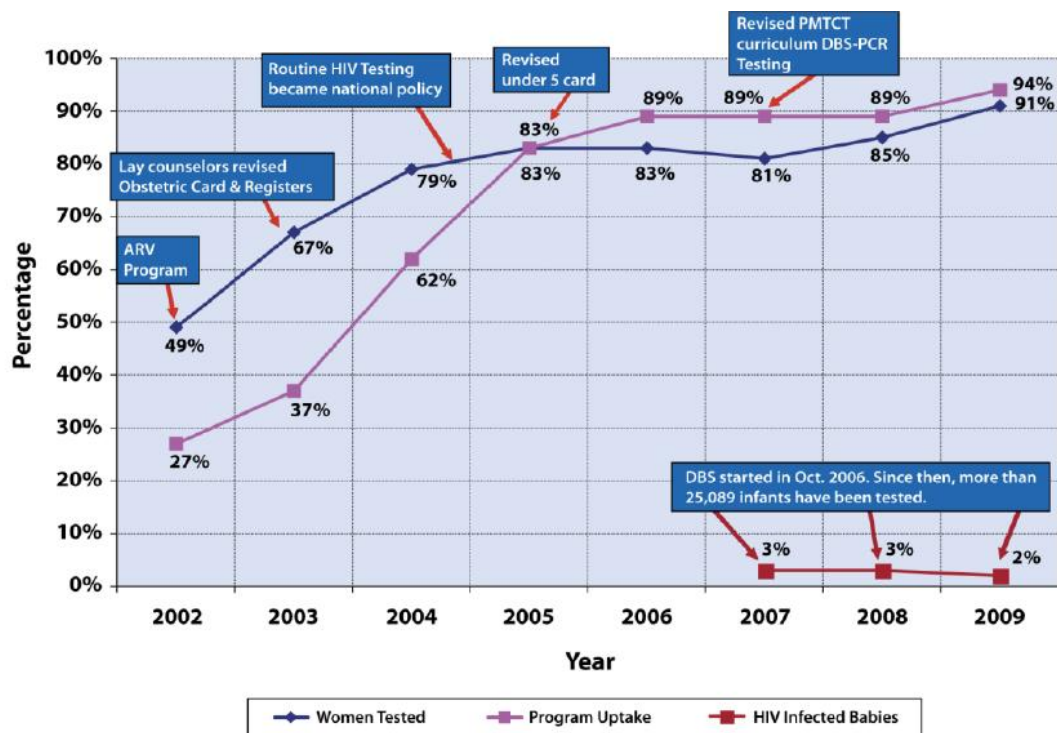
In these guidelines, the CD4 cell count cut-off point for initiation of HAART for all eligible people – including pregnant women – was increased from 200cells/ μ L to 250 cells/ μ L (WHO Clinical Stage 3 or 4) and sd-NVP was recommended only for women who were on AZT for less than 4 weeks. In 2010, the Government of Botswana decided to initiate the national rollout of triple ARV prophylaxis to pregnant women and breastfeeding mothers not eligible for HAART. Botswana has an average of 43 000 deliveries per year (PMTCT Programme data, 2009). With an HIV prevalence rate of 31.8% among pregnant women (Sentinel Surveillance, 2009), an average of 13

674 HIV infected women deliver every year. Assuming a 40% MTCT rate, without PMTCT interventions, 5 470 of these infants would be infected.

Use of the interventions described in the Botswana National PMTCT Guidelines is expected to reduce the number of infected infants to 410 – 547 per year (assuming a 3 – 4% transmission rate). These data suggest that implementation of Botswana's PMTCT programme as per the 2011 National Guidelines will prevent 4 923 – 5 060 infant HIV infections per year (Botswana National PMTCT Guidelines, 2011).

Much of Botswana's success in lowering the rates of new HIV infections in children can be attributed to the PMTCT programme. A decade of rolling-out the National PMTCT services has proven the programme – which includes the provision of antiretroviral drugs and adopting safer infant feeding practices – to be highly successful, with rates of mother-to-child-transmission (MTCT) dropping dramatically from 40% without any intervention to 3 – 4 % at present.

The success of this National PMTCT program is reflected on the graphs below – Figure 4.



Source: Botswana National PMTCT Guidelines, 2011.

Figure 4: PMTCT Programme trends 2002 – 2009

Botswana remains one of the countries most severely affected by HIV with a national prevalence rate of 17.6% (BAIS III, 2008). The prevalence rate in women is higher than in men: 20.4% versus 14.2%. The national prevalence among pregnant women aged between 15 and 49 years old was 31.8 % (Sentinel Surveillance, 2009). It is remarkable to note that Botswana has achieved among the world's highest coverage of HIV treatment , delivering antiretroviral drugs in 2010 to more than 94.5% of those who needed the medications (UNAIDS Global AIDS Epidemic Report, 2010).

4.2 Attitudes towards infant feeding practices

For breastfeeding, the mean advantage rating for each characteristic examined (convenience, cleanliness, cheapness and safety) was high and close to maximum (2.8, 2.8, 2.9 and 2.9, respectively) – see Table 4.

Table 4: Infant feeding advantage rating among the two groups

	<i>Group 1</i> <i>(n = 80)</i>	<i>Group 2</i> <i>(n = 120)</i>	<i>Total</i> <i>(n = 200)</i>	<i>p</i> ^a
Infant feeding advantage ratings ^b				
Breastfeeding				
		2.8		2.8
2.8	NS			
		2.8		2.9
2.8	NS			
		2.9		2.9
2.9	NS			
		2.9		2.9
2.9	NS			
		11.3		11.4
11.4	NS			

Formula Feeding

	Convenience	2.0	1.8
1.9	NS		
	Cleanliness	2.1	1.9
2.0	NS		
	Cheapness	0.7	0.4
0.6	NS		
	Safety	2.1	1.5
1.8	0.002		
	Combined score	6.8	5.6
6.3	0.02		

^a Value for inter-group differences; ^b rating: 0 = no advantage; 1 = little advantage; 2 = some advantage; 3 = most advantage; NS = not significant.

The combined rates for breastfeeding for each of the two groups of women were also similar 11.4 for Group 1 and 11.4 for Group 2.

In contrast, for each characteristic, formula feeding was rated much lower (1.9, 2.0, 0.5, and 1.8, respectively), and the combined scores differed significantly among the two groups ($p = 0.02$): postnatal women with HIV infection (Group 1), rated formula feeding the highest (combined score of 6.8 in Group 1 versus a 5.6 in Group 2); and the score for “safety” in this group was significantly higher in Group 1 (2.1) than in Group 2 (1.5).

For each characteristic, breastfeeding was considered more advantageous than formula feeding ($p < 0.0005$ for each). Reporting on circumstances under which the women surveyed would not breastfeed, postnatal women (Group 1) were much more likely to identify HIV infection as a reason not to breastfeed than those in the antenatal group (Group 2) (74% versus 27%; $p < 0.0001$) – see Table 4.

Almost all women (99%) agreed that in general breastfeeding is best for infants less than 6 months age; however, 95% agreed that women with HIV infection should not breastfeed their infants to prevent mother-to-child HIV transmission.

74% of the antenatal women intended to Formula feed their child in the first 6 months of infancy, while 20% of the women who were already on antiretroviral therapy intended to exclusively breastfeed during the first 6 months. Conspicuously, only 6% of the surveyed women chose “mixed feeding” as their best option during the first 6 months of their child’s life. This may indicate that the message from Botswana healthcare workers during counselling sessions that “mixed feeding” is discouraged for infants less than 6 months of age has been largely well publicized and generally well taken.

Table 5: Attitudes towards infant feeding among the two groups.

	Group 1 (n = 120)	Group 2 (n = 80)	Total (n = 200)
<i>p</i> ^a			
Under what circumstances should mothers not breastfeed? (%)^b			
No breast milk	31.3		48.8
38.6			0.01
Not enough breast milk	17.5		32.6
24.8			0.03
Not healthy	33.8		32.6
32.2			NS
Work outside home	22.5		37.2
29.7			0.04
Has HIV infection	77.5		26.7
54.0			< 0.0001
Do not know	3.8		3.5
4.0			NS
Others	7.5		17.4
11.9			0.04
HIV infected mothers should not breastfeed their infants (%)			
Agree	93.7		96.5
95.0			NS
In general breast milk is best for infants (%)			

Agree		98.7	98.8
99.0	NS		

^a Value for inter-group differences; ^b More than one answer possible; NS – Not Significant.

Several questions were asked on the opinions of mothers who formula fed their infants. A minority of the women (29.7%) said formula feeding could indicate that mothers were working outside the home, whereas the vast majority (71%) thought formula feeding could indicate that mothers were HIV infected.

Postnatal women with HIV infection (Group 1) were slightly, but not significantly, more likely than antenatal women with HIV infection (Group 2) to believe the latter. Ninety-four percent (n= 113) of the postnatal women with HIV infection (Group 1) exclusively formula fed their baby, 5% (n=6) fed their child both breast milk and formula milk, and only one woman (already on long-term antiretroviral therapy) exclusively breastfed her child. The reasons these women gave for formula feeding were: recommended by the doctor (30%), to prevent vertical HIV transmission (66%) or other reasons (4%).

Only 25% of antenatal women with HIV infection (Group 2) planned to breastfeed after delivery, 72% planned to formula feed, while 3% of the group planned to both breastfeed and formula feed “mixed feeding” during the first 6 months of their baby’s infancy. The reasons given by women who planned to formula feed were their known HIV-positive status, their doctors’ recommendation and for the prevention of mother-to-child transmission.

Among all the HIV positive women surveyed, 87% thought that the risk of possible HIV vertical transmission through breast milk was > 50%, while 10% rated the risk of HIV vertical transmission as ranging between 10 – 50%, only 3% thought the risk was < 10% and none of them rated the risk as negligible. This shows that generally after the post-test counselling sessions the majority of the HIV infected women appreciated the risk of possible HIV vertical transmission through breast milk.

76% of postnatal women with HIV infection (Group 1) strongly agreed with the statement that breastfeeding is a “healthy” expectation in the community that they live in.

These data brings to light some compelling evidence that all women regardless of their HIV status should be provided with infant feeding options information and counselling during the ANC visits to ensure that they are supported in making the best decision for their situation, whether that decision is to formula feed or to breastfeed.

In Botswana, infant formula is provided at maternal and child healthcare facilities free of charge until the infant is 12 months of age. The government of Botswana recommends that:

1. HIV infected women for whom formula feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) should exclusively formula feed for the first 6 months of life and continue formula feeding until 12 months of age. Complementary feeds should be introduced at six months of age.
2. HIV infected women for whom formula feeding is not AFASS should exclusively breastfeed for the first 6 months of life. At six months, assess the mother’s situation using the AFASS criteria;
 - If formula feeding is still not AFASS, continue breastfeeding until 12 months of age (or until formula feeding becomes AFASS). Complementary feeds should be introduced at 6 months of age.
 - If formula feeding is now AFASS, gradual weaning (over a period of one month) with the introduction of formula feeding. Complementary feeds should be introduced at 6 months of age.
 - Breastfeeding mothers should remain healthy while breastfeeding. Should a breastfeeding mother becomes ill or develops signs of opportunistic infections, she should go to a healthcare facility as soon as possible to determine whether it is safe to continue breastfeeding and be provided with Viral load testing as soon as possible (Botswana National PMTCT Guidelines, 2011).

The option of exclusive breastfeeding thus remains available even to the HIV positive women where formula feeding is not AFASS, or better still with the advent of rolling out universal triple regimen ARVs (HAART) to all pregnant women until cessation of breastfeeding to ensure suppressed maternal viral loads thus reducing the vertical HIV transmission risk.

5. CONCLUSION

This study provides evidence of a strong belief that breastfeeding is still more advantageous than formula feeding even among women with known HIV infection in Southern Botswana. Despite this strong belief, there is still a notably high level of compliance with the Botswana Ministry of Health's PMTCT recommendation that women with HIV infection should formula feed their infant whenever formula is acceptable, feasible, affordable, sustainable and safe (AFASS) criteria compliant (Botswana National PMTCT Guidelines, 2011).

In this study, breastfeeding was considered much more advantageous than formula feeding despite the inherent concerns of possible vertical transmission of HIV through breast milk. The advantage of breastfeeding over formula feeding was greatest for the characteristic of "cheapness", but was also considerable for "safety", "convenience" and cleanliness. Despite the higher advantage rating for breastfeeding including "safety", most antenatal women with HIV infection planned to formula feed, and nearly all the postnatal women participants with HIV infection were formula feeding their infants. These data demonstrate the widespread uptake of the Botswana Ministry of Health's National PMTCT Program recommendation that all women with HIV infection should formula feed their infants.

HIV status had a limited influence on the perception of formula feeding, with slightly higher ratings for "safety" and for the combined rating. The possible recruitment bias could explain partly the fact that postnatal women with HIV infection gave the highest rating for formula feeding, however it is more likely explained by a reinforcement of the HIV prevention advantage of formula feeding through actual feeding.

Women with HIV infection, who are particularly sensitive about their immune status gave HIV infection in the mother as the main reason for not breastfeeding. This suggests that even though the potential for stigmatization exists, formula feeding is still associated with many other reasons, e.g. –mother working outside the home, that have no negative connotations. When asked why they were not breastfeeding, 72% of the postnatal women studied responded that it was because they were HIV-positive.

Although stigmatization is still a concern for many women in Southern Botswana, most were quite open about their HIV status. Indeed through NGOs, people living with HIV/AIDS (PLHWA) groups, and the Ministry of Health's collaborative initiatives through community participation programmes, a high level of community acceptance of people living with HIV has been achieved in Botswana (UNAIDS *Global Report*, 2010).

From the research efforts on my literature review it was clearly demonstrated that very limited literature exists on the knowledge and attitudes towards infant feeding practices specifically among women with HIV infection. As was demonstrated in this study, previous research among the general maternal population in Thailand showed that breastfeeding was the preferred method of infant feeding (Yimyam, 1998).

My study thus clearly demonstrates that having the knowledge of risk of transmission of HIV through breastfeeding does not change the women's perception of the advantages of breastfeeding, a finding which differs with the cultural diffusion theory (Coustoudis *et al.*, 1999). It also shows that most women with HIV infection clearly choose to protect their children from HIV despite their knowledge of the disadvantages of formula milk relative to breast milk and the inherent potential for stigmatization.

Finally, this study shows that women with HIV infection are able to respond positively to potentially discriminative attitudes such as being questioned why they are formula feeding their infants. Now that interventions to reduce mother-to-child transmission of HIV with antiretroviral therapy are readily available and already being implemented, the question of HIV positive women being allowed to "safely" exclusively breastfeed their infants for the first six months rears its ugly head again. Such recommendations should be prioritized in resource-limited countries like Botswana where HIV prevalence remains high and where formula feeding may not always be safely implementable. Healthcare workers in Botswana should be encouraging more mothers to explore the option of exclusive breastfeeding in HIV-positive women whose viral loads are well suppressed on antiretroviral therapy, especially in poor socio-economic settings where AFASS criteria for formula feeding is not always met.

LIST OF REFERENCES

Abashawl A, Gudetta B, Lulseged S, Awano T, Adamu R, Kumbi S, Isehak A, Coberly J, Bedri A, Sweat M, Ruff A; International Conference on AIDS, 2004 July 11- 16; 15: Abstract no. C12019, Bangkok, Thailand.

Chopra M, Schaay N, Piwoz E. What is the impact of an AZT programme on breastfeeding and infant care counselling and practises amongst health providers and HIV-infected women in Khayelitsha, South Africa? Program and abstracts of the XIII International AIDS Conference; July 9-14, 2000; Durban, South Africa. Abstract MoOrD203.

Coutsoudis A, Pillay K, Spooner E, Kuhn L, Coovadia HM. Influence of infant-feeding patterns on early mother-to-child transmission of HIV-1 in Durban, South Africa. *Lancet*. 1999; 354: 471 – 476.

de Paoli M.M, Manongi R, Klepp K.I. Counsellors' perspectives on antenatal HIV testing and infant feeding dilemmas facing women with HIV in northern Tanzania. *Reproductive Health Matters*. 2002; 10:144–156. doi: 10.1016/S0968-8080(02)00088-5.

Desclaux A, Taverne B, Alfieri C, Querre M, Coulibaly-Traore D, Ky-Zerbo O. Socio-cultural obstacles in the prevention of HIV transmission through breastmilk in West Africa. February 2010: MoOrD205

Ehrnst A, Zetterstrom R. Feeding practices of HIV-1-infected mothers: the role of counsellors. *Acta Paediatr*. 2005; **94**:263–265. doi: 10.1080/08035250510029479. [[PubMed](#)]

Iloff PJ, Piwoz EG, Tavengwa NV, Zunguza CD, Marinda ET, Nathoo KJ, Moulton LH, Ward BJ, Humphrey JH. Early exclusive breast-feeding reduces the risk of postnatal HIV-1 transmission and increases HIV-free survival. *AIDS*: 2005; 19:699 – 708. Doi: 10. 1097/01.aids.0000166093.16446.c9.

Koniz-Booher PBBWAIPWE. HIV and infant feeding : A compilation of programmatic evidence, Published by UNICEF and USAID by the Quality Assurance Project, University Research Co., LLC, Bethesda, MD. (Full text: www.hiv.gov.gy/edocs/compilation_hivinfantfeeding.pdf).2004

Nduati R, John G, Mbori-Ngacha D, et al. Effect of breastfeeding and formula feeding on transmission of HIV-1. JAMA. 2000; 283: 1167-1174.

Rapid advice: revised WHO principles and recommendations on infant feeding in the context of HIV – November 2009.

Rollins. Bland RM, Thairu L, Coovadia HM. Counselling HIV-infected women on infant feeding choices in rural South Africa. In: P. Koniz-Booher BBAWPIJW, editor. *A Compilation of Programmatic Evidence, 2004 (pp 54-55) USAID, UNICEF & QAP-URC (full text: www.hiv.gov.gy/edocs/compilation_hivinfantfeedingpdf)*. 2002

The Botswana National PMTCT Guidelines, 2008.

Talawat S, Dore GJ, Le Coeur S, Lallemat M. Infant feeding practices and attitudes among women with HIV infection in Northern Thailand. AIDS Care. 2002; 14(5):625-31.

Thior et al (2006). Breastfeeding Plus Infant Zidovudine Prophylaxis for 6 Months vs Formula Feeding Plus Infant Zidovudine for 1 month to reduce Mother-to-Child HIV Transmission in Botswana. A Randomised Trial: The Mashi Study. JAMA, 296: 7, 794 – 805.

UNAIDS, Global Report on HIV/AIDS Epidemic Update, November 2010.

www.unaids.org/globalreport/global_report.htm

WHO, UNICEF and UNAIDS. *Towards universal access: scaling up priority HIV/AIDS interventions in the health sector. Progress report 2010*. Geneva, World Health Organization, 2010

(<http://www.who.int/hiv/pub/2010progressreport/report/en/index.html>, accessed 17 May 2011).

APPENDIX I – (a) English Version**THE QUESTIONNAIRE**

A survey of Baylor Family Model Clinic patients' attitudes towards infant feeding practices.

Questionnaire No: _____

DEMOGRAPHICS**1. Age:**

Which age group do you belong to?

21 – 29 Years	30 – 39 Years	40 – 49 Years	50 – 59 Years	Above 60 Years

2. Marital status:

Which option best describes your current relationship?

Single	Married	Co-habiting	Separated/Divorced	Widowed

3. Employment status:

Are you currently working?

Unemployed	Employed	Self-employed	Student	Retired

4. Parity:

How many children do you already have?

0	1	2	3 or more

5. Infant feeding method of choice:

Which one of the following infant feeding practices do you think is the best method during the first 6 months for your infant?

Exclusive Breastfeeding	Formula feeding	Mixed feeding

Below is a list of statements. Some of which you might agree with and/or even find offensive. These statements are designed to provoke a response. Please try to answer all the questions and give your first thoughts on each statement. Do not spend a lot of time weighing-out your answers. There aren't any hidden catches. I just want to hear your opinions.

(i) Please indicate the extent of your agreement or disagreement with each of the statements below:

Do this by placing a tick in the appropriate column.	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1. HIV-infected mothers should not breast feed their infants.					
2. In general, breast milk is best for infants.					
3. Breast feeding in public is a "healthy" expectation in the community that you live in.					
4. Women should discuss with their male partners to decide the best mode of infant feeding for their baby.					
5. The best infant feeding choice should be arrived at post-HIV counselling and testing, based on my Health care provider's medical advice.					

(ii) How would you rate the advantages of formula feeding versus breast feeding for the following characteristics?

Where: *No advantage rating = 0; little advantage rating = 1;*

Some advantage rating = 2; and Most advantage rating = 3

Breast feeding :	Rating:			
- Convenience	0	1	2	3
- Cleanliness	0	1	2	3
- Cheapness	0	1	2	3
- Safety	0	1	2	3

Formula feeding :	Rating:			
- Convenience	0	1	2	3
- Cleanliness	0	1	2	3
- Cheapness	0	1	2	3
- Safety	0	1	2	3

(iii) Under what circumstances should mothers not breast feed?

- No breast milk
- Not enough breast milk
- Not healthy
- Work outside the Home
- Has HIV infection
- Do not know
- Others

(iv) How would you rate the perceived risk of possible HIV vertical transmission through breast milk?

Negligible	<10%	10 – 50%	> 50%

APPENDIX I – (b) Setswana Version**POTSOLOTSO / PATLISISO**

Patlisiso ya ba Baylor family model clinic ka ga mekgwa ya go amusa masea.

Potsolotso yabo _____

DIPALOPALO**1. Dingwaga:**

Dingwaga tsa gago di tsamaelana le dife?

21 – 29 Years	30 – 39 Years	40 – 49 Years	50 – 59 Years	Above 60 Years

2. Seeemo sa gago sa nyalo

Ke efe e e tsamaelang le seemo sag ago sa nyalo?

Ga ke a nyalwa	Nyetswe	Ke nna le rre yo re sa nyalanang	Ke kgaogane le monna	motlholagadi

3. Tsa pereko:

A o abereka mo bo gampienong?

Ga ke bereke	Ke a bereka	Ke ithapile	Ke moithuti	Ke tlogetse tiro ka bogodi

4. Tsa tsholo:

O na le bana ba le kae?

0	1	2	Boraro ka na go feta

5. Mokgwa wago go amusa losea:

Ke mokgwa ofe wa go amusa losea o o dirisang go amusa losea dikgwedi tsa ntlha tse thataro?

Ke amusa ka lebele fela	Ke amusa ka tami fela	Ke dirsa kamuso ka lebele ga mmogo le tami

DIPOLELWANA

Fa tlase ke dipolelwana tse eleng gore dinwe otlala dumalana le tsone fa tse dingwe o tla ganetsana le tsone. Maikaelelo ke tlwa maikutlo ag gago.

Tweetswee araba dipotso tsotlhe o bo o ntshe maikutlo a gago ka tlhamalalo. Ga se tseo ditlholwa ke gore karabo ya gago e botlhokwa.

(iii) Supa karabo ya gago go dumalana kana go ganetsana:

.Dira jalo ka go tshwaya lebokoso le le tshwanetseng.	Ke dumelana mo go feletseng	Ke a dumelana	Kef a gare	Ga ke dumelane	Ga ke dumelane mo go feletseng
1. Bomme ba ba nang le mogare wa HIV ga ba tshwanela go amusa ka lebele.					
2. Mashi a lebele a siametse losea					
3. Go amusetse losea mo bathong go a amolesega mo bathong ba ba mo tikologong yame.					
4..Bomme ba tshwanetse go buisana le borre ba bone go tsaya tshetso mabapi le mokga wa kamuso.					

5. Batho ba tshwanetse go tlhopha mokgwa wa kamuso ka lebele morago ga go itlhatlhobela mogare le bogakolodi jwa ba bongaka					
---	--	--	--	--	--

(iv) O ka kala jang go amisa ka lebele ga o go tshwantshanya le go amisa ka tami/masi a tini o lebeletse dintha tse di fa tase tse?

Itse gore: *Ga go sena mosola=0 Mosola nyana =1*

Mosola =2 le Mosola thata = 3

Go amusa ka lebele:	Go kala/Matshwao:			
- Mabaka a a go siametseng le bomothofo	0	1	2	3
- Bophepa	0	1	2	3
- Dithwathwatase	0	1	2	3
- Pabalesego	0	1	2	3

Ka moso ka tami kana masi a tini:	Go kala/Matshwao:			
- Mabaka a a go siametseng le bomothofo	0	1	2	3
- Bophepa	0	1	2	3
- Dithwathwa tse di ko tase	0	1	2	3
- Pabalesego	0	1	2	3

(iii) Mosadi ga a tshwanela go amusa ka lebele mo mabakeng a fe?

- Go sena mashi
- Go sena mashi a a lekanyeng
- A sa tsoga
- A sa berekela ko nte ga lapa
- A na le mogare wa HIV
- Ga ke itse
- Tse dingwe

(iv) O ka kala jang maitemogelo a bodiphatsa tsa mogare wa HIV go tswa mo go mmangwana go ya ko loseng ka mashi?

Ga go tswenye	<10%	10 – 50%	> 50%

APPENDIX II – (a) English Version

UNIVERSITEIT • STELLENBOSCH • UNIVERSITY
jou kennisvenoot • your knowledge partner

STELLENBOSCH UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH

Attitudes and perceptions towards infant feeding practices among HIV sero-positive women attending Baylor Family Model Clinic in Botswana.

You are asked to participate in a research study conducted by **Geoffrey Tafaune**, from the Africa Centre for HIV/AIDS management at Stellenbosch University. The results of research will contribute to a thesis for my MPhil in HIV/AIDS management degree. You were selected as a possible participant in this study because you are aged above 21 years, you are a patient at Baylor Family Model Clinic and you were attended at this clinic more than three times in the last two years.

6.1 Purpose of the study

The study seeks to establish the attitudes and perceptions of mothers attending Baylor Family Model Clinic towards infant feeding choices in this current era of HIV/AIDS pandemic.

6.2 Procedures

If you volunteer to participate in this study, we will ask you to do the following things:

Questionnaire

Complete the structured questionnaire given to you by a healthcare worker after being briefed about the research survey and giving your consent to participate. Two registered Nurses and a Doctor (myself) will be readily available within the clinic to assist with any clarifications and/or translation help as needed. Post the completed

questionnaire into the secured post-box at the entrance of Baylor Family Model Clinic. This will take approximately 30 minutes of your time.

6.3 Potential risks and discomforts

There are no potential risks or discomforts. However, in case of any unforeseen negative feelings or emotional disturbances arising, the affected respondents were offered free further counselling on-site by the research doctor and nurse. Referral to a Psychologist based at the Baylor Family Model clinic free of charge would be facilitated where necessary.

6.4 Potential benefits to subjects and/or society

The potential benefits of the study are mainly to Healthcare providers at the Baylor Family Model Clinic and Botswana at large. The study will help the healthcare workers to better understand patient attitudes towards the available infant feeding options. This will help to provide guidelines for the Healthcare workers to better counsel each mother (as an individual) to optimally choose and adhere to WHO recommended infant feeding practices.

The participants will benefit indirectly by receiving quality voluntary counselling and free medical advice on choosing the most appropriate infant feeding options peculiar to their individual scenario.

6.5 Payment for participation

Participants shall receive no payment

6.6 Confidentiality

Any information that is obtained in connection with this study and that can be identified with the participant will remain confidential and will be disclosed only with the participant's permission or as required by law. Confidentiality will be maintained by means of using codes on questionnaires and by posting the completed questionnaires. I will be the only person who will open the post box. The completed questionnaires will be kept in a locked cupboard in my office and no one except me will have access to the cupboard. The questionnaires will be destroyed six months after the study.

Data will be captured on my personal computer which will be password protected. Anonymity will be maintained at all times.

6.7 Participation and withdrawal

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

6.8 Identification of investigators

If you have any questions or concerns about the research, please feel free to contact Geoffrey Tafaune at P.O. Box AD693, Postnet Kgale View, Gaborone, Telephone: +2673694865, Cell phone +26771318770/ +26771446317;
e-mail: taf_geo@yahoo.co.uk or my Study Leader Dr. Thozamile Qubuda at :
Private Bag 7602, South Africa phone number +27218082694
e-mail: tqubuda@sun.ac.za

6.9 Rights of research subjects

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Malenè Fouchè (mfouche@sun.ac.za; 021 808 4622) at the Division for Research Development.

CONSENT TO PARTICIPATE IN RESEARCH

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE
--

The information above was described to me by Geoffrey Tafaune in English and I am in command of this language or it was satisfactorily translated to me. A translator.....was asked to explain in my own language sections that I could not understand. I am in command of this language..... and where necessary it was satisfactorily translated to me. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

Name of Subject/Participant

Name of Legal Representative (if applicable)

Signature of Subject/Participant or Legal Representative

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ and, He/ she was encouraged and given ample time to ask me any questions. This conversation was conducted in English and a translator was used where necessary.

Signature of Investigator

Date

APPENDIX II – b (Setswana Version).

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvenoot • your knowledge partner

STELLENBOSCH UNIVERSITY**TUMALANO YA GO TSAYA KAROLO MO
DIPATISISONG/DITSHEKATSHEKO**

Mekgwa, maikutlo le maitemogelo ka go fepa masea mo bomme baba tshelang ka mogare wa HIV ba ba amogelang ditlamelo ko Kokelwaneng ya Baylor Family Model mo Botswana.

O kopiwa go tsaya karolo mo dipatisisong tse di tsamaisiwang ke Geoffrey Tafaune , go tswa kwa lekalangeng Aferika la go laola le go sekaseka mogare wa HIV kwa Univesiti ya Stellenbosch. Maduo a dipatisiso tse a tla dirisiwa go tlatsa matshwao a thuto ya me ya go nna Mma ntswitswidi/ moitsaanape wa tsa HIV/AIDS. O thophilwe go tsaya karolo ka gore dingwaga tsa gago di kwa godimo ga masome amabedi le lingwe, o molwetsi/ kana o amogela ditlamelo go tswa mo kokelwanemg ya Baylor e bile o tsile kokelwaneng makgetho a feta ga raro mo dingwageng tse pedi tse di fitileng.

6.1 Maikalelo a dipatisiso/ditshekatsheko

Dipatisiso tse kgotsa ditshekatsheko tse di itebagantse le go utlwa le go thaloganya maikutlo le maitemogelo a bomme ba ba amogelang ditlamelo ko kokelwanemg ya Baylor mabapi le mekgwa ya go fepa masea mo nakong e ya bolwetsi ja HIV/AIDS

6.2 Ditsamaiso

Fa o ithaopela go tsaya karolo mo ditshakatshekong tse, re tla go kopa go dira tse di latelang;

Patlo Maikutlo

Tlatsa patlo maikutlo e o tla e fiwang ke modiri wa kokelwana a sena go go thalosetsa ka ditshekatsheko tse o bo tlatsa lekwalo la tumalano ya gore o ithaopetse go tsaya karolo. Baoki ba ba bedi le ngaka (nna) ba teng ebile ba ikemiseditse go go thusa ka tlholoso efe kana efe e o ka e thokang le go go tolokoelala diforomo tsa patlo maikutlo fa go thokafala. Latlhela patlo maikutlo ee tladitsweng mo lebokosong la poso ko kgorong ya kokelwana ya Baylor. Go tlatsa foromo ya patlo maikutlo go tla tsaya sebaka sa metsotso e e masome mararo ya nako ya gago.

6.3 Diphatsa tse di ka nnag teng

Ga go na diphatsa kana sepe se se belaetsang se se amegang mo tsamaisong e.

6.4 Mosola ma dipatisetso tse mo batsayakarolong le sechaba ka kakaretso

Maduo a dipatisetso tse a tla solegela molemo badiri ba botsogo ba kokelwana ya Baylor le sechaba sa Botswana ka kakaretso. Maduo a dipatisetso tse a tla thusa badiri ba botsogo go thaloganya maikutlo le maitemogelo a baletsi le baamogela ditamelo mabapi le ditsela tsa go fepa masea tse di le teng. Se se tla thusa go tswa ka ditsetla tse di tla thisang badiri ba botsogo go gakolola bomme ba ba nag le masea go kgetha le go sela morago ditseta tsa go fepa masea tse di babaleseng e bile di amogelesega go ya ka setlamo/seelo sa mahatshe sa botsogo (WHO)

Ba tsaya karolo bat la nna le tshono ya go amogela bogakolodi mabapi le go thopa/kgetha ditsela tse di maleba tsa go fepa masea go ya ka mabaka a bone a a hapegileng bongwe ka bongwe.

6.5 Dituelo

Baithaopi kgotsa batsaya karolo ga ba na go amogela dikatso kgotsa dituelo dipe.

6.6 Go babalela dikarabo le kitso mo go faphegileng

Dikgang tsothe le kitso tse di tla amogelwang mo dipatisetso tse e bile dikgona go golagangwa le batsaakarolo bangwe di tla babalelwa ka masisi le bophiri jo bo kwa godimo, di ka anamisiwa fela ka teta ya motsaakarolo yoo kana ka go patelediwa ke tsamaiso ya molao. Go babalela dikarabo ka bophiri le masisi go tla thomamisiwa ka go tshwaa di foromo tsa dipatisetso ka dinomoro sa sephiri gore go sena leina la moithaopi ope lele thagelelang. Ke nna ke le nosi ke nang le teta ya go bula lebokoso la poso lele nang le diforomo tsa patlo maikutlo. Di foromo tse do tla lotelelwa mo

kobotong ka nako tsotlhe mme di tla nyelediwa dikgwedi tse thataro morago ga dipatisiso tse.

Dikarabo tsotlhe di tla bolokwa mo computareng/ sebalamakgolo sa mme se tla nna se babalesegile ka nako tsotlhe.

6.7 Go tsaya karolo le go ikgogela morago

O ka ikgethela go tsaya karolo mo dipatisisong tse. Fa o ikegethela go tsaya karolo, o ka ikgogela morago nako nngwe le nngwe nte le ditamorago dipe. O ka nna wa gana go araba dipotso dingwe tse o sa phuthologang go dia araba mme wa tswela o ntse o le mo tsaya karolo. Motsamaisi wa ditshekatsheko o ka go seegela fa thoko mo ditshekatshekong ga go ka nna le seemo kana mabaka aa mo pateletsang go dira jalo.

6.8 Ka batsamaise ba Dipatisiso

Fa o na le dipotso, dikakgelo kana matshwenyego ka dipatisiso tse o gololesegile go ikgolaganya le Geoffrey Tafaune at P.O. Box AD693, Postnet Kgale View, Gaborone, Telephone: +2673694865, Cell phone +26771318770/ +26771446317; e-mail: taf_geo@yahoo.co.uk kana moeteledi pele wa dipatisiso Dr. Thozamile Qubuda at :Private Bag 7602, South Africa phone number +27218082694 e-mail: tqubuda@sun.ac.za

6.9 Ditshwanelo tsa batsaya karolo

O gololesegeile go ikgogela morago nako nngwe le nngwe mme wa emisa go tsaya karolo nte le ditamorago dipe. Ga go molao ope oo go pateletsang gotsaya karolo mo dipatisisong tse. Ga o na le dipotso mabapi le ditshwanelo tsa gago jaaka motsaa karolo o ka ikgolaganya le Ms Malenè Fouchè (mfouche@sun.ac.za; 021 808 4622) at the Division for Research Development.

MAITLAMO/ TUMALANO YA GO TSAYA KAROLO MO GO DIPATISONG

MONWANA WA MOTSAAKAROLO KGOTSA MMUELEDI

Molaetsa le kitso/ moonno o mo foromong e ke o thaloseditswe ka botalo ke Rra Geoffrey Tafaune ka puo ya sekgoa, ke puo e ke e thaloganyang thata kana o ne wa ranolelwa/tolokolelwa mo puong e ke e thaloganyang. Motolokolodi..... o one a kopiwa go nthaloesetsa ka puo ya gaetsho ditsetla tse ken eng ke sa di tlaologanye. Ke thaloganya puo e ya..... mme ha go thokafalang teng ke ne ka thalosediswa mo go kgotsofatsang. Ke ne ka fiwa tshono ya go botsa dipotso mme tsa arabiwa mo go nkgotsofatsang.

Ke itama go ithaopa go tsa karorolo mo dipatisono tse. Ke filwe moriti wa foromo e.

Leina la moithaopi/motsaakarolo

Leina la Mmueleli (Fa go kgonega)

Monwana wa motsaakarolo/mmueleli

Letsatsi

MONWANA WA MOTSAMAIISA DIPATISISO

Ke ikana ha ke thaloseditse.....mafoko le molaetsa o mo pampering/foromong e, o ne a kgothadiwa a bo a fiwa tshono e ntsi ya go thaloganya le go botsa dipotso. Puisanyo e e ne e tshwerwe ka sekgoa mme e ranolelwa mo dipuong tse di ngwe fa go neng go thokafala.

Monwana was Motsamaisi

Letsatsi