



**REPORT ON PMTCT COMPREHENSIVE COMMUNITY INTERVENTION
PACKAGE INCLUDING MALE INVOLVEMENT, INFANT FOLLOW-UP, PEER
SUPPORT, PARTNER VIOLENCE AND INFANT FEEDING IN NKANGALA
DISTRICT, MPUMALANGA PROVINCE**

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1. INTRODUCTION

With around 2.7 million people becoming infected with HIV in 2010, there are now an estimated 34 million people around the world who are living with HIV, including millions who have developed AIDS (UNAIDS, 2011). Studies have shown that there is much that can be done to reduce AIDS impact beginning with the transmission of HIV (UNAIDS, 2011). In 2010, around 390,000 children under the age of 15 became infected with HIV, mainly through mother-to-child transmission. Therefore HIV continues to weigh heavily on maternal and child mortality in some countries. About 90% of children living with HIV reside in sub-Saharan Africa where, in the context of a high child mortality rate, AIDS accounts for 8 percent of all under-five deaths in the region (ibid). Access to services for preventing the mother-to-child transmission of HIV has however increased and South Africa has achieved almost 90% coverage of treatment to prevent mother-to-child transmission of HIV, transmission to infants has therefore been drastically reduced (UNAIDS, Report on Global AIDS Epidemic, 2010).

1.1 The Intervention setting

The community interventions were conducted in Nkangala District of the Mpumalanga Province. Nkangala district has a population of 1.121 839 people (2008/9). The district has a HIV and syphilis prevalence of 31.8%. It was estimated that 90% of the population was dependent on the state for the provision of all their health services (Department of Health, 2008). The primary health care utilization rate of 2.2 visits per person per year has been constant from 2008 to 2009. The nurse clinic workload is currently 19.6 patients per day. Caesarean section rate in district hospitals is 77.6% at Nkangala. HIV prevalence among antenatal care (ANC) clients is 25.4. Stillbirth rate is 27. The delivery rate in health facilities fluctuated around 77.6% and the current rate of 67.9% for 2005 is well below the South African average (Health Systems Trust, 2008/9).

1.2 HIV prevalence in Mpumalanga

Mpumalanga is ranked the second highest in the prevalence of AIDS in South Africa (HSRC Report 2008). The antenatal HIV prevalence in Mpumalanga province was

estimated to be 34.6% in 2007/8 and 35.5% HIV prevalence observed in 2008/9. Nkangala district has a antenatal HIV prevalence (25.4%) in 2008/9 (Health Systems Trust, 2009).

1.3 Rationale for the intervention

The HSRC proposed to work with the Mpumalanga Department of Health to provide technical support and strengthen PMTCT service implementation at 80 PMTCT sites in six sub districts of Nkangala at Mpumalanga. All the 6 sub districts at Nkangala have been covered in the study.

The HSRC, together with its CDC partners, proposes to assist the Government of Mpumalanga province to maximize the knowledge gained so far in implementation of previous interventions programmes to increase the participation of women in the PMTCT programme and to increase its effectiveness. The study will complement the existing national programme on the prevention of mother-to-child transmission of HIV, and heed the international call to make women and children a priority in the fight against the epidemic.

In partnership with the Mpumalanga Department of Health, the purpose of the intervention is to provide technical support and strengthen PMTCT service implementation at all sites in Emalahleni, Emakhazeni, Dr JS Moroka, Delmas, Steve Tshwete and Thembisile sub districts.

1.4 PMTCT GOALS AND OBJECTIVES

The goal of the PMTCT component is to strengthen programmes to prevent HIV transmission from mother to child in Nkangala District in Mpumalanga.

The objectives were to:

- i) Expand the PMTCT programme support to a total of existing PMTCT sites at Nkangala.
- ii) Increase the number of pregnant women who receive confidential HIV counselling and testing (CT) and who receive their results;
- iii) Increase the number of pregnant women provided with a complete course of antiretroviral therapy in a PMTCT setting;
- iv) Monitor the number of children in Nkangala district in Mpumalanga who become infected with HIV during the first year of life;
- v) Increase the number of eligible women of childbearing age enrolled in wellness and/or treatment programmes;
- vi) Increase the number of babies born to HIV-positive women who are tested for HIV by PCR at 6 weeks to 6 months;
- vii) Increase the number of babies born to HIV-positive women who are tested for HIV antibodies at 12 to 24 months;
- viii) Increase the number of infants born to HIV-positive women receiving infant formula;
- ix) Increase the number of infants born to HIV-positive women exclusively breast fed.

This report aims to provide findings of the PMTCT comprehensive community intervention package which includes male involvement, infant follow-up, peer support, intimate partner violence and infant feeding. The results for each intervention will include the following: introduction, methodology, results and conclusion.

2. MALE INVOLVEMENT IN PREVENTING MOTHER-TO CHILD TRANSMISSION AT NKANGALA DISTRICT IN MPUMALANGA PROVINCE

2.1 Background

Based on a baseline assessment on prevention of mother-to-child-transmission of HIV (PMTCT) in Mpumalanga (Peltzer et al., 2009), lack of male involvement was identified as one of the important barriers in PMTCT implementation. Throughout all stages of programmes for PMTCT, high dropout rates are common. Increased male involvement and couples' joint HIV counseling/testing during antenatal care (ANC) seem crucial for improving PMTCT outcomes (Theuring et al., 2009). This programme has been reported to be convincing in terms of feasibility and effectiveness (Rely et al., 2003). For example, in Abidjan, Cote d'Ivoire prenatal couple counseling and testing improved couple communication on sexual risks among both HIV positive and negative women (Desgre'es-Du-Lou et al., 2009). In Nairobi, a study conducted among women attending ante-natal clinics indicated that a partner participation in Voluntary Counseling and HIV Testing (VCT) and couple counseling increased the uptake of nevirapine and formula feeding (Farguhar et al., 2004). In Rwanda and Zambia, couple counseling and testing has led to increased condom use, reduction in HIV/AIDS and STI's (Jones et al., 2009; Joseph, 2004).

While this programme seems convincing in terms of feasibility and effectiveness (Rely et al., 2003), it still experiences some challenges with regard to the uptake and adherence of the service, with the main cause being men's poor involvement in the programme. Theuring et al. (2009) notes some imbalances between male's attitude regarding the benefit of being involved in PMTCT and their low participation. The study conducted in Tanzania, within the Mbeya Region, among men in an attempt to understand men's perspective regarding their involvement on PMTCT and ante-natal care (ANC) programmes, identified various factors which serves as barriers to men's involvement in these programmes (Theuring et al., 2009). Firstly, lack of information and knowledge about the PMTCT services. The study found that informants have knowledge but lack particular information that men are called upon to attend those services with their partners. Furthermore, time

inflexibility of those men heavily burdened with earning a family's subsistence (Theuring et al., 2009).

To address these problems, invitation letters were sent to male partners on behalf of health facilities and handed out to all women participating in ANC without their partners, and, this approach seemed promising in terms of increased partner participation in ANC. In terms of being flexible with regard to time in accommodating men to also attend the clinic, a recommendation was made to offer services after working hours or during weekends (Theuring et al, 2009), and also to ensure that waiting time for men and couples were reduced (Bolou et al. 2007).

Cultural barriers to male participation were also identified such as men's disregard concerning their importance of being involved in ANC/PMTCT services, describing ANC as a female responsibility. A study conducted in Lusaka, Zambia indicated that men are decision makers at home and they feel undermined if they are to be called by health workers to attend a clinic programme and thus they decide not to accompany their wives to attend ANC and PMTCT (African Development Bank, 2009). In Botswana, 58% of women were not married and as a result it became difficult to involve their men in PMTCT programmes. And the impression was that health facilities were generally unfriendly to men. However, with mobilization using the radio and other multimedia campaigns on "peer father programme", male involvement rose from 4% to 11% (African Development Bank's Comprehensive Report, 2009). Furthermore, incentives served as a motivating factor for men to recruit more males to get involved in the PMTCT programme (African Development Bank's Comprehensive Report, 2009). Ayuo et al. (2009) found from a qualitative study in Kenya that Couple HIV Counseling and Testing (CHCT) could be enhanced by improving awareness of CHCT, reduction of stigma and fear of results of CHCT utilization, location of centre where it is likely to be associated with HIV testing, qualified professional staff and minimal waiting times.

In (South) Africa, a large proportion of HIV infections occur within stable relationships, either because of prior infection of one of the partners or because of infidelity. In five

African countries at least two-thirds of couples with at least one HIV-positive partner were HIV serodiscordant; in half of them, the woman was the HIV-positive partner. Hence, there is an urgent need to define strategies to prevent HIV transmission within couple relationships. HIV counseling and testing have largely been organized on an individual and sex-specific basis, for pregnant women in programmes for prevention of mother-to-child transmission of HIV. A couple-centered approach to HIV counseling and testing would facilitate communication about HIV status and adoption of preventive behaviors within couples. In order to stimulate and strengthen HIV prevention efforts, increased attention is required to promote prevention and testing and counseling for couples in stable relationships (Desgrées-du-Loû & Orne-Gliemann, 2008). Prevention programmes such as Voluntary Counseling and Testing (VCT) that target marital and cohabiting couples have been successful in reducing transmission following counseling (Allen, Karita, N’Gandu & Tichacek, 1999; Roth, Stewart, Clay, van der Straten, Karita & Allen, 2001), but protocols are needed for the context of PMTCT and to maintain long term risk reduction (Bunnell et al., 2005). Like other health behaviors, an HIV diagnosis may increase condom use only temporarily (Allen et al., 1999); partners may not disclose their serostatus (Simbayi, Kalichman, Strebel, Cloete, Henda & Nqeketo, 2007), protect an uninfected partner or restrict transmission of potentially resistant virus between HIV seropositive partners (Kalichman, 2007).

In South Africa and among other non-African populations, condom use is often the most consistent outside the marital relationship (Chimbiri, 2007). Long term changes are difficult as sexual risk reduction within the primary relationship requires both sexual partners to make significant changes in their sexual practices and to agree to adhere to their use (Kalichman, Cain, Zweden & Swain, 2003). The majority of sexual risk reduction interventions have targeted only one member of the couple or relied on single session “couples counseling,” assessing short term (6 months or less) outcomes. In addition, interventions often target only one member of the couple, or couples in seroconcordant relationships.

Previous research in the US and Zambia found that gender specific group sexual behavior interventions enhance the acceptability and use of sexual barrier products (male and female

condoms) among HIV seropositive men (Jones et al., 2005) and women (Jones et al., 2004, 2006, 2009). Existing studies have found that seronegative men and women in serodiscordant relationships represent a unique population within those couples living with HIV.

The Reproductive Health Research Unit (RHRU) University of Witwatersrand, in partnership with the Frontiers Program of the Population Council, and the Kwazulu Natal Department of Health conducted a three-year operation research study titled “Men in Maternity” in the EThekweni district. The study was completed in July 2003. The intervention was based at the clinics. One of their strategies was introducing couple counseling and the partners should accompany the pregnant partner twice during pregnancy and once post delivery (Kunene et al., 2004). The intervention demonstrated its feasibility in that couples took the opportunity to attend the counseling. Male involvement and communication reflected positive response to men becoming involved in almost all aspects of the ANC process with some hesitation around labor and deliver. The number of couples that attended the group couple counseling sessions declined overtime from an initial high of 80 couples per month to under 40 per month by the third month of the intervention and to 20 couples or less during the latter month of the intervention period (Kunene et al., 2004).

2.2 Aim and Objectives

2.2.1 Aim: the aim of the intervention is to involve men in PMTCT so as to increase its uptake and adherence by pregnant women

2.2.2 Objectives

- To recruit and encourage men to attend the PMTCT programme together with their partners.
- To conduct educational intervention sessions on issues pertaining sexual risk reduction and couple communication on sexual issues including HIV/AIDS and PMTCT

2.3 Methodology

2.3.1 Study area

The project was implemented in 9 clinics three sub-districts of Nkangala District Municipality of Mpumalanga province. The sub-districts are Dr JS Moroka, Emalahleni and Steve Tshwete. In Emalahleni the intervention was implemented Beatty clinic. In Steve Tshwete the intervention is implemented in two clinic Nasaret, Extension 8 and Simunye clinics. In Dr JS Moroka the clinics are Nokaneng, Vaalbank, Valchfontein, Marapyane and Mametlhake.

2.3.2 Recruitment and training of the field workers

The 32 field workers with grade 12 certificates plus additional qualifications with the knowledge of HIV/AIDS and STIs were invited from Nkangala district with the assistance of the clinic managers. They participated in 5-day training on HIV/AIDS, STI, PMTCT, safer sex and sexual negotiations. In addition cognitive behavioral training was incorporated into the training which dealt with issues of communication with partner about sexual issues, breathing exercises and role play was incorporated into the training to evaluate the understanding of the trainees. After the training 24 field workers were employed to facilitate the male involvement in PMTCT to clinics near where they stay.

2.3.3 Procedures

Several recruitment strategies were used to involve men in PMTCT, for example, during health talks in the clinics, a community health worker informs pregnant women about the male involvement project and those that are interested in participating are informed to bring their partners along when they come for their ANC visits. In addition invitation letters are given to the woman to deliver it to her partner so that if they are interested in the intervention they show up at the clinic together. Trained male community workers conducted door-to-door campaign within the clinic catchment area and invite males whose partners are pregnant to take part in the ANC visits. Men who had pregnant women were given an appointment card with a participation number on it so that when they visit the clinic they could indicate that they have been recruited from the community. Men's forums

in the communities were used as a platform to invite male to the male involvement intervention.

2.4 Intervention

The design of the intervention is guided by the theories of reasoned action (intentions influence attitudes and subjective norms which influence beliefs about behavior; Fishbein & Ajzen, 1975) and planned behavior (perceived behavioral control influences intentions and behavior; Ajzen, 1985) as predictors of sexual barrier use (Albarracin, Johnson, Fishbein & Muellerleile, 2001). Within this model, it is hypothesized that sexual behavioural intentions and HIV-related knowledge influence attitudes and perceived norms regarding barrier use and coping strategies. Perceived sexual self efficacy, control of sexual behavior and barrier use are also anticipated to influence risk reduction strategies and future sexual behavior (Dancy & Berbaum, 2005).

The intervention (n = 10 participants per gender-specific group) was developed from feedback from pilot studies with men in the US and Zambia, and has been described in earlier journal literature (Jones et al., 2006; 2008; 2009). The two-hour sessions emphasize participation and experimentation with PMTCT and sexual barriers and provide an opportunity for practice, feedback, and reinforcement of sexual risk reduction strategies. Participants engage in skill building in a supportive environment utilizing communication techniques, negotiation skills, and experiential/interactive skill training to expand and reframe perceptions of barrier use and to increase self-efficacy and skill mastery. Material is presented utilizing the conceptual model of the theory of reasoned action and planned behavior (Albarracin, Johnson, Fishbein & Muellerleile, 2001) which suggests that 1) perceived behavioural control over situations will influence the intention to engage in behavior and behavior itself as a predictor of sexual barrier use, 2) personal intentions for specific behavior influences attitudes about specific issues and subjective norms regarding issues, which 3) influences beliefs about those behaviours. Thus, the perception of control over sexual behaviour will influence the intention to use condoms, and the intention to use condoms will influence attitudes about condom use and perceptions of norms regarding condom use, which will influence beliefs regarding using condoms.

Facilitators will be trained over two weeks gender matched male and female lay counsellors and health care staff trained in the administration of the intervention.

2.4.1 Intervention sessions

Session One addresses HIV/STDs, safer sex, barrier use, reproductive choice and self efficacy. The HIV/STD and safer sex segment informs the participants about the need for safer sex regardless of serostatus (HIV reinfection/transmission, infection with HIV/STDs) and the health implications for participants and their partners. This segment includes a discussion of the hierarchical method of sexual barrier use (NY Hierarchy). Male and female condoms are introduced as the most effective forms of sexual protection. Informational handouts, created specifically for high risk men and women, will demonstrate the correct method of use and cover the most commonly asked questions concerning these products. The handouts are followed by hands-on demonstration of both products, including practice with placing male and female condoms on/in models. The female condom is also illustrated with anatomical charts to clarify procedures for insertion.

Session Two will deal in detail with PMTCT, retesting at 32 weeks, dual therapy, HAART, infant feeding, etc. Discussion focuses on the specific stages, prenatal care, delivery, postnatal care, infant feeding, infant HIV testing, family planning. The reproductive choice segment responds to the desire of many participants to have children and therefore have not been using any sexual protection. Participants are taught to reduce their potential exposure to infection by providing protection during the time when pregnancy is unlikely, thereby encouraging them to use sexual barriers during the majority of the reproductive cycle. The reproductive choice issue concerning reducing overall exposure to infection by narrowing the “exposure window” to the few days of fertility per month is in response to women in our previous programs who indicated they had given up all forms of protection, because they wished to become pregnant.

Cognitive/behavioural skill training and communication skills in relationships (Baucom & Epstein, 1990) are introduced in the context of awareness building and cognitive reframing, heightening participants’ awareness of their reactions to barrier use and partners in their sexual relationships and reframing automatic thoughts that may impede barrier use and

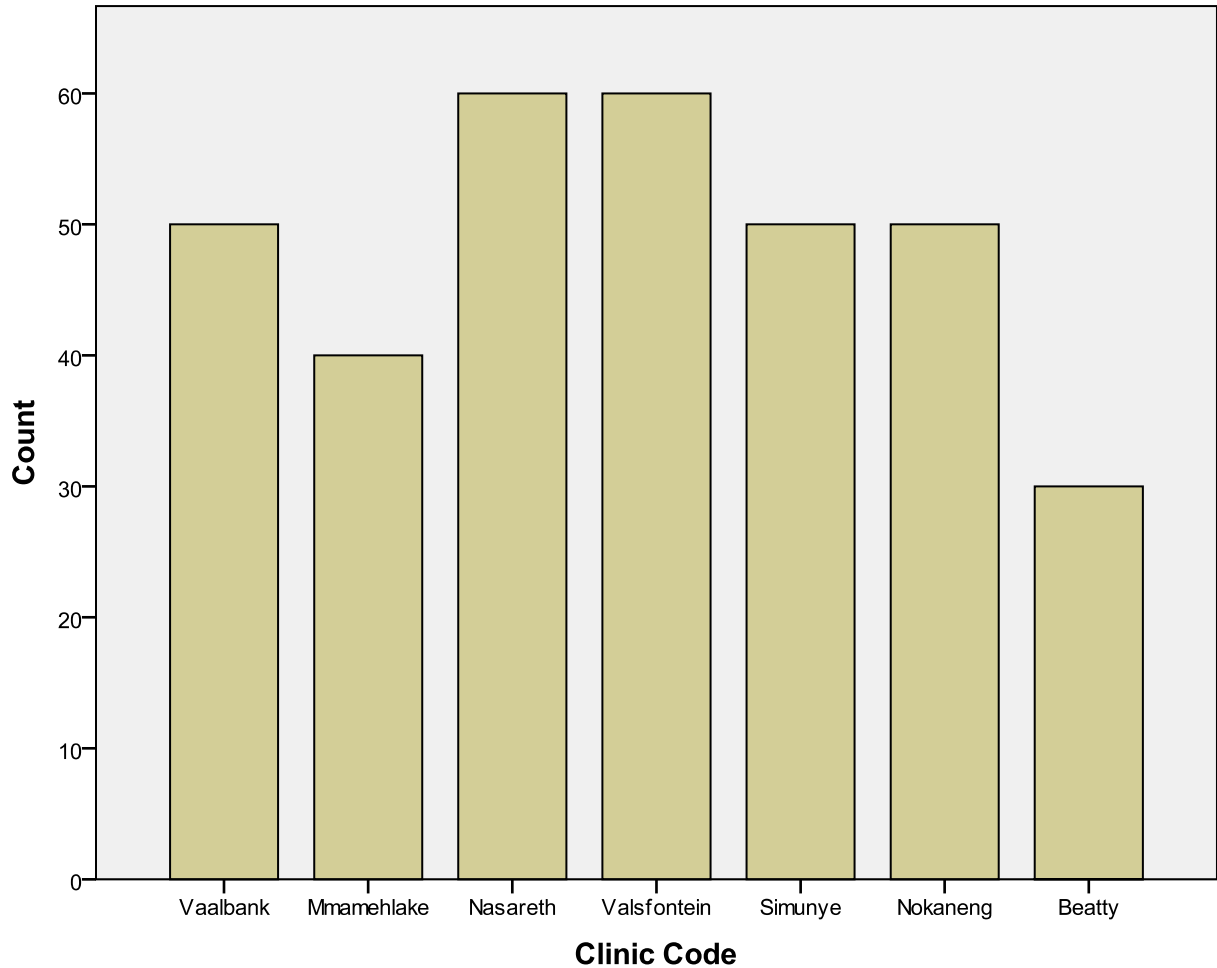
communication (Quina et al., 2000). Participants will learn self management techniques (e.g., learning to recognize antecedents of conflict).

Session Three. The session follows a similar format to Sessions One and Two. Participants are encouraged to discuss their experiences with the products, and the reactions of partners and problems encountered. Cognitive/behavioural skill building focuses on sexual negotiation and open communication techniques in relationships. Skill building focuses on sexual negotiation, influencing (Noar, 2002) and positive communication (e.g., expressing appreciation, avoiding blaming and contempt; Frei & Shaver, 2002). Cognitive/behavioural skill training exercises and role plays use the experiences of the participants in problem solving and cognitive restructuring, and participants are guided in applying cognitive restructuring skills to practicing safer sex and improving self efficacy (Sillers, Roberts, Leonard, Dun, 2000). At the conclusion of the session, participants complete an immediate post intervention questionnaire.

2.5 Results

The intervention recruited 170 couples with a mean age of 27.20 (SD= 7.42). At the beginning of the recruitment 292 women were interested to participate but only 190 managed to bring their partners along. 20 women were then lost to follow-up and only 170 couples remained and participated in the 3 intervention sessions. 75% of the couples were never married and 57% were unemployed.

Fig 1. Recruitment by clinic



Information about HIV testing and condom use in the last sex and last three months was asked from participants at the beginning of the intervention and at the end. With regards to HIV testing only 99% of the women tested and 62% of the men tested. In addition 32.5% of the women said they tested HIV positive and 9.5% of the men tested HIV positive. Couples were asked by fieldworkers if they had used condoms during last sex and in the past three months and only 20.6% women said they used condoms on their last sex 18.8% in the last three months. For the men 24.7% and 27.9% used condoms in the last sex and in the last three months respectively.

At the end of the intervention the same information about HIV testing and condom used were asked and the results were as follows: 100% of the women had tested and of those 32% tested positive and 70.7% of the men tested and 17.3% tested positive. Condom use at

last sex was 45.6% for the women and 50.6% for the men and condom use in the last three months was 18% for the women and 28% for the men.

2.6 Challenges

Recruitment and retention were the major challenges the intervention experienced. This shows that men are still not yet ready to visit clinics with their pregnant partners.

2.7 Conclusion

The intervention showed some success in involving men in PMTCT and getting them to come to the clinic with partners and getting tested for HIV. The other highlight of the intervention is that at the beginning of the intervention only 61.8% men had tested for HIV and at the end 70.7% had tested. In addition condom use at last sex increased from 24.7% at the beginning of the intervention for men to 50.6%.

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3. INFANT FOLLOW-UP INTERVENTION

Implementation study on early HIV infant diagnosis and early antiretroviral treatment for infants of mothers who have gone through the Prevention of Mother to Child Transmission of HIV (PMTCT) programme in Nkangala District Mpumalanga

3.1 Introduction

Follow-up of infants born to HIV positive mothers is crucial for the success of the Prevention of mother to child transmission of HIV. One of the goals of the PMTCT is to reduce the risk of postnatal transmission of HIV (National Department of Health, 2010). In a survey conducted at Mpumalanga Province in Gert Sibande district facilities, lack of infant follow-up was identified as one of the important barriers in PMTCT implementation (Peltzer et al., 2009). The study found that among 311 HIV infected women 61.7% had their infant tested for HIV between 4 to 8 weeks. A large proportion of mothers (38.3%) had been missed by PMTCT early infant diagnosis programmes. Provision and uptake of postnatal services are weak links in the continuum of care for women and their babies. Most women and their newborns are lost to the health system after childbirth; yet, immunization rates for Bacille Calmette-Guérin (BCG) and three doses of diphtheria, pertussis and tetanus (DPT3) paradoxically remain high (76 and 65 percent respectively), suggesting that families are still within reach of formal health care services (Peltzer & Mlambo, 2010).

Globally most HIV-infected children are diagnosed very late in the course of illness or not at all. The rapid progression of HIV in children means that many die in infancy or early childhood from common preventable and treatable childhood conditions and opportunistic infections. Fifty percent of HIV-positive children die before their second birth day if not treated (WHO/UNAIDS, 2006; Newell et al., 2004). The high mortality rate stems partly from the fact that until lately, children's HIV status was rarely diagnosed at an early age (ideally, six weeks), and subsequently, not treated – despite the increasing availability of life-prolonging ARVs that would have helped them survive and lead a relatively healthy life (UNICEF, 2008). Thus, it is critical to get them on treatment within the first year of life.

Prompt diagnosis of HIV infection is, therefore, vital, so that ART can be started as quickly as possible (WHO/UNAIDS, 2006). Early initiation of HIV treatment in HIV-infected babies is associated with a significantly reduced risk of early death. Antiretroviral treatment is now available, but only a small minority of children needing treatment receives it, an estimated 32 000 South African children in 2007 (UNICEF, 2008). Children are under-represented among those receiving ART (Orne-Gliemann et al., 2008) despite evidence of the benefits of early treatment initiation (Violari et al., 2008). All infants below 12 months of age who have confirmed HIV infection should be started on ART, irrespective of the clinical or immunological stage (WHO, 2008).

Early definitive diagnosis of HIV requires virologic testing such as polymerase chain reaction (PCR). The highly sensitive and specific PCR tests directly for viral DNA and allows diagnosis at 4-6 weeks after birth, facilitating improved management of the baby's health. It is now part of standard HIV care in South Africa (Department of Health, 2005; 2008). The dried blood spot (DBS) PCR method, instead of liquid blood PCR, allows specimens to be easily collected via a simple heel prick, and more importantly, to be done and stored in rural settings (UNICEF, 2006).

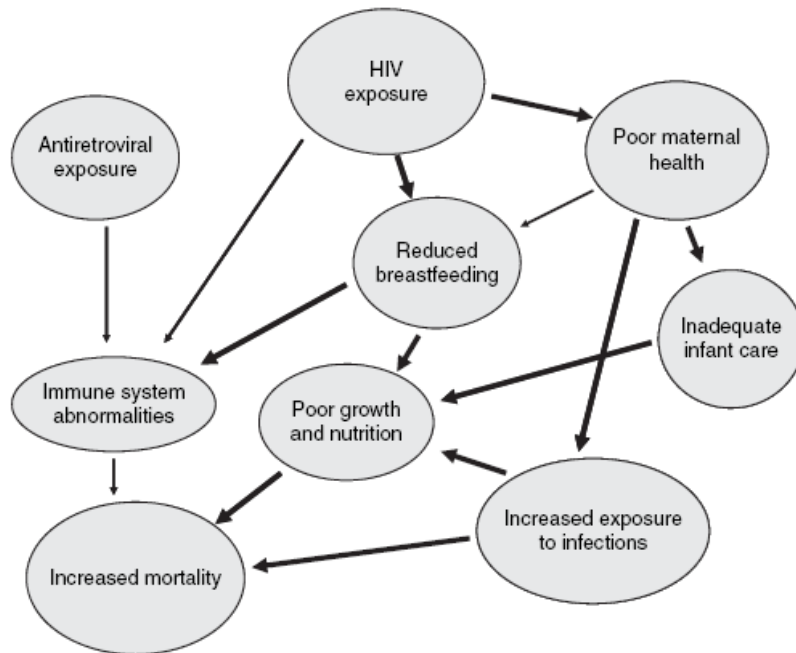
McCoy et al. (2002) found in a national-level situational analysis of the Prevention of Mother to Child Transmission of HIV (PMTCT) programme in South Africa that factors such as socio-economic factors (poor mobility, long distances and the cost of transport) led to poor infant follow-up. Sherman et al. (2004) found that it is due to prolonged follow-up of large numbers of predominantly HIV-uninfected children that has resulted in poor infant follow-up rates at government pilot sites. Although there are different views as to what the cause may be, Jones (2005), agreed that there was a need to identify reasons for poor follow-up of HIV-exposed children in PMTCT programs which would be a potentially important component of improved service provision for HIV-infected children and their families. In 2009, factors such as long distances and the cost of transport are still the main reasons women are unable to attend the follow up at the health facilities. Providing effective care for mothers and newborns during the early post-natal period has the potential to generate the greatest gains in survival and health of any period in the continuum of care (Lawn, 2006). In areas where adult HIV prevalence has reached hyper endemic levels, many infants remain at risk of acquiring HIV infection. Timely access to care and treatment

for HIV-infected infants and young children remains an important challenge. Despite progress in delivering decentralized HIV services to a rural sub-district in South Africa, substantial unmet need for treatment remains. In a local setting, very few children were initiated on treatment under 1 year of age and steps have now been taken to successfully improve early diagnosis and referral of infected infants (Cooke et al., 2009). Lazarus et al. (2009) studied starting HIV-positive babies on antiretroviral treatment in Soweto, and found that having a baby on ART improved their own health care motivation, but the daily reminder that it provided of the baby's status and still possible death and the prospect of their own death constituted a heavy emotional burden.

The increasing success of prevention of mother-to-child HIV transmission programmes means that, very large numbers of HIV-exposed, uninfected (HIV-EU) children are being born. Any health problems that these children may have will thus be of enormous public health importance, but to date have been largely neglected. There is some evidence that HIV-EU African children are at increased risk of mortality, morbidity and slower early growth than their HIV-unexposed counterparts. A likely major cause of this impaired health is less exposure to breast milk as mothers are either less able to breastfeed or stop breastfeeding early to protect their infant from HIV infection. Other contributing factors are parental illness or death resulting in reduced care of the children, increased exposure to other infections and possibly exposure to antiretroviral drugs. A broad approach for psychosocial support of HIV affected families is needed to improve health of HIV-EU children. High quality programmatic research is needed to determine how to deliver such care (Filteau, 2009).

Approaches to improving health and development of HIV-EU children

Figure 1 summarises potential mediators of the poorer health and survival of HIV-EU, compared with unexposed, children.



A review written for WHO recommends a broad approach for psychosocial support of children and families affected by HIV (Richter 2006). There is potential for using the health services, particularly programmes for prevention of MTCT, as a means of accessing such families. It should be possible to include care and support of HIV-EU children within this context. Many of the interventions designed to support either the mother or any HIV-infected children will at the same time benefit HIV-EU exposed children (Filteau, 2009). Medical support includes improving maternal health, including by providing ART, providing mothers with iron-folate or other micronutrient supplements and providing prophylactic antibiotics against opportunistic infections for infected mothers and for infants before HIV status is known. As there is evidence that orphans and vulnerable children can be protected within families and communities (Richter 2006; Parikh et al. 2007), programmes to support HIV-EU children should build on these successes by providing food, financial or community support for extended families caring for HIV-EU children. These children should also be involved with other children in group play, school or other activities, which promote cognitive and motor development (Filteau, 2009). Exposure to HIV is the main problem and cannot be avoided entirely; however, maternal health interventions, including ART, can reduce the intensity of exposure to virus.

In the end, the most challenging problem in the area remains how to promote the best infant feeding options for children whose mothers are HIV-infected. It seems that the feeding mode that is associated with lowest MTCT – early exclusive breastfeeding followed by weaning onto AFASS foods as soon as is feasible – is the mode which best promotes health of HIV-EU children (Filteau, 2009). Kieffer et al. (2009) implemented an active follow-up of infants in Swaziland and found that this initiative doubled the proportion of infants in this group that initiated ART. Collection of contact information and assigning staff to conduct active follow up through phone calls dramatically increased the proportion of infants initiated on ART. Owiso et al. (2009) used community health workers to ensure adherence to HIV care and treatment amongst a pediatric population in Kenya and found improved pediatric enrollment and retention rates and caregiver retention rates.

According to the South African PMTCT guidelines (Department of Health 2005) postnatal follow-up of mother and infant include the following objectives:

- HIV diagnosis – PCR at six weeks
- Identify all HIV infected infants that are eligible for HAART and initiate such therapy according to guidelines.
- Ensure safe infant feeding practices for all infants and monitor weight gain and growth.
- Cotrimoxazole for HIV exposed babies and HIV positive babies.
- Clinically assess all mothers for anaemia and send blood specimen for haemoglobin measurement if pale.
- Treat anaemia in consultation with a doctor trained in HIV & AIDS.
- Assess and treat symptoms and signs of postnatal infection.
- Prior to discharge, follow up activities should be discussed with the mother in order to facilitate the infant's access to appropriate care.

Infants should be followed up according to the South African IMCI clinical case management guidelines:

- Weekly during the first month of life at the nearest clinic.
- Monthly thereafter until the age of twelve months.

During the first post-delivery visit:

- If the infant is being formula fed, the health care worker should check the method of cleaning utensils and mixing formula. Formula preparation should be demonstrated only to HIV-positive women who after counselling have chosen not to breastfeed.
- If the infant is being breast-fed, the pattern of feeding, attachment, positioning and mother's breast health must be checked.
- HIV-exposed infants should be tested for HIV at six weeks of age.
- ALL HIV-exposed infants who are awaiting confirmation of their HIV status at 6-weeks should start CTX prophylaxis whilst awaiting their HIV test results.
- All infants identified as being HIV positive by early testing should be investigated further as soon as possible by checking RNA PCR (viral load), CD4 cell count, CD4 cell percent, and undertaking a baseline clinical staging as part of their baseline assessment.
- HAART should be initiated in HIV infected infants as per the revised paediatric guidelines (2007).
- HIV exposed infants should be followed up AT LEAST monthly in the first year of life and 3-months thereafter, regardless of their mode of feeding.
- At six, ten and fourteen weeks and at nine months and eighteen months all children should be immunized according to the South African EPI schedule.

Children not identified by PMTCT programme (active case finding):

- Immunization visits up to 14 weeks of age should be used to identify babies whose mothers are of unknown HIV status.
- All opportunities should be used to diagnose HIV in infants who display relevant signs and symptoms.
- Mothers should always be encouraged to take up an HIV test.

3.2 Aim

This study therefore aims to conduct follow-up intervention of infants born to HIV positive mother in order to increase early HIV infant diagnosis and early antiretroviral treatment for infants.

3.3 Methodology

3.3.1 Study Setting

This study was part of the larger PMTCT study which aimed providing comprehensive community intervention package including male involvement, infant follow-up, peer support, intimate partner violence and infant feeding to the Nkangala District, in Mpumalanga Province. The infant follow-up intervention was implemented in the two (2) sub-districts of Nkangala District of the Mpumalanga Province namely Dr JS Moroka and Emalahleni. This intervention was specifically implemented in ten (10) PMTCT facilities (4 CHCs; 4 clinics and 2 hospitals).

3.3.2 Sampling and Procedure

A purposive sampling was used to select HIV positive mothers who had just given birth at the hospitals and Community Health Centers (CHCs). Study participants were purposely selected due to the nature of the intervention. In total, 250 HIV positive women were recruited to participate in the intervention and only 210 HIV positive women agreed to participate in the study. The other 40 women declined to participate in the study due to fear of discrimination and stigma related to HIV. Other reason for not participating was due to non disclosure of their HIV status to family and sexual partners. Participants were recruited at the two (2) hospitals and four (4) CHCs immediately after giving birth. Follow up sessions took place at four (4) CHCs and four (4) clinics where the women received postnatal care services.

HIV positive mothers were screened after delivery and recruited to participate in the study by the healthcare providers. Health care providers from the selected health facilities were asked to inform HIV infected mothers at the maternity ward about the study. Every second consecutive HIV infected mother with an infant was invited to participate in the study through referrals by the health care providers. These individuals were asked to inform HIV infected mothers who had just given birth about the study and encouraging them to volunteer. An HSRC researcher explained the study consisting of a postnatal home visit and monthly support counselling at the clinic or at home. Participants were informed

about the study and requested to participate in a confidential interview concerning their health and social situation and a number of counseling sessions.

After the first interview at the hospital or CHC, the HSRC researcher gave the participants a referral card that they had to take to the clinic where they receive postnatal care services. A follow-up meeting was coinciding with the mother's first visit at the clinic around 1 week post delivery. At this first home/clinic visit, mothers were provided with a lesson on immunization and the importance of a clinic visit for postnatal care. The second supportive counselling sessions was on infant feeding, the third session was on stigma and HIV disclosure, the fourth session was on co-trimoxazole preventive treatment and early infant HIV diagnosis. For mothers with an HIV positive infant counselling on ART and ART adherence was also included in session 5. For each follow-up clinic visit, the mothers received R50 transport reimbursement. To all HIV infected mothers the support programme was offered even if they did not wish to take part in the study. Ethical approval was obtained from the Human Sciences Research Council Ethics Committee.

3.3.3 Recruitments and training of community workers

Intervention participants were recruited over a six-month period and had participated in the study for five (5) sessions. The components of the intervention included recruitments and training of the community workers to implement it in the ten (10) healthcare facilities. After permission to conduct the study was granted, the researchers recruited the community workers through the healthcare provider staff in the two sub-districts. The selection criterion for community workers was as follows: post matric qualification, fluency in both English and native language (Tswana); HIV positive women who have been through the PMTCT programme and disclosed HIV status. In terms of the training, the community workers were trained for four (4) days on basic HIV and AIDS, PMTCT, infant feeding, HIV disclosure strategies, Infant PCR testing, ARV treatment and importance of postnatal care. In total, fourteen (14) community workers were trained to assist with the implementation of the intervention.

3.3.4 Description of the intervention

Where newborns whose mothers have received services for preventing mother-to-child transmission are commonly lost in follow-up, community strategies are developed to improve case follow-up through the period where testing determines the child's HIV status and HIV treatment and adherence. This included developing planned agreement for a home visit if the mother does not return for follow-up. HSRC researchers were involved in identifying possible cases of infant HIV and refer for testing and to provide follow-up care and support for infants who have HIV.

Support programme intervention activities (UNICEF, 2008) implemented by specifically trained HSRC researchers include:

1. Counselling for infant feeding choices. Promote safe infant feeding. Community health workers will reinforce messages that ensure the consistent use of safer feeding practices. Where possible, refer women living with HIV for counselling about infant feeding or, if counselling is not available, provide clear advice about infant feeding in their circumstances.
2. Make sure that children who are exposed to or have HIV are immunized. HSRC researchers explain to the mothers about the importance of immunization. HSRC researchers advise mothers to keep the child's health card in a safe place and ensure that the health record is passed to future guardians as part of the preparation when a parent is terminally ill.
3. Sustaining long-term delivery of co-trimoxazole preventive treatment; raise awareness of the benefits of co-trimoxazole preventive treatment the child exposed to or infected with HIV and provide with simple advice to ensure the child gets the appropriate daily dose.
4. Early determination of infection status of infant through follow-up visits and infant testing counselling.
5. Long-term delivery antiretroviral therapy, improve treatment literacy and support for adherence. Improved understanding among caregiver of treatment regimens, side effects and the importance of adherence, with age appropriate information.

3.3.5 Measures

This was purely an intervention and therefore we used HIV exposed infant (0-12months) follow-up form to capture both primary and secondary indicators.

The primary indicators included:

- Number of PCR tests done
- PCR test results for infants

To assess if the baby was tested for HIV, mothers were asked if the child was taken for PCR testing at 6weeks and the response was a “yes or no”. To check the HIV status of the infant, mothers were asked the HIV status of the child and the response was “negative or positive”. For this two primary indicators, the lesser the number of infants who test positive during PCR, the more that outcome is attributed to the success of the intervention.

The secondary indicators included:

- Number of HIV positive mothers recruited to participate
- Number of mothers agreed to participate in the intervention
- HIV disclosure by the mother
- Infant feeding method

The number of HIV positive women who were recruited to participate in the study and the number of women who agreed to participate was used to measure the acceptance and non acceptance of the intervention. HIV disclosure was measured by indicating that the mother has disclosed her HIV status to. The mothers were asked whom did they disclose their HIV status to? In order to assess the infant feeding method, the mothers were asked to report on the chosen method for infant feeding.

3.3.6 Data Analysis

Data was entered in SPSS database version 19.0. Descriptive analysis was conducted to measure the frequency of participation in intervention activities.

3.4 Results

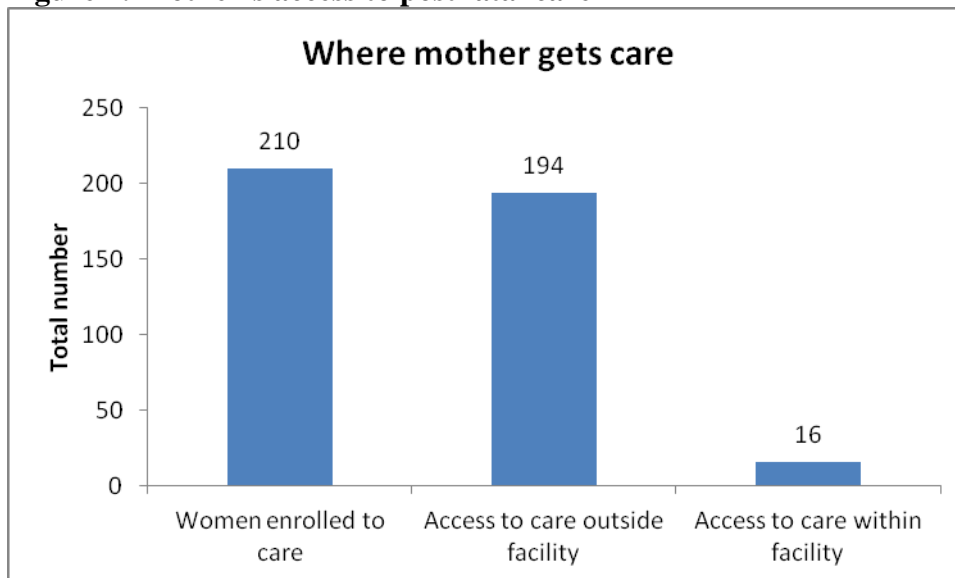
3.4.1 Sampling characteristics

The study consisted of a total of 210 HIV positive mothers who had just given birth. Only mothers who were aged between 18 and above were eligible to participate in the study. The high number of recruitments came from the two hospitals in the study. The women recruited were coming from the catchment areas where the health facilities were situated.

3.4.2 Mother access to postnatal care

Figure 1 below shows the total number of mothers recruited on the study. It also shows that more women get postnatal care from the outside facility where they gave birth (n=194)

Figure 1: Mother's access to postnatal care



3.4.3 PMTCT interventions in mother and child

Mothers were asked to indicate the PMTCT interventions that they were already receiving with their infant. The table below shows that a high number of women received only sdNVP+ AZT (n=130), followed by those who received dual therapy of sdNVP (n=80). Very few participants indicated that they are not receiving PMTCT interventions. In terms of infants PMTCT interventions, almost an equal number of mothers indicated that their

infants received sdNVP + AZT (n=69) and sdNVP (n=67). There is also a high number of mothers who indicated that their infants did not receive any PMTCT interventions (n=47).

Table 1: PMTCT interventions for mother and child

PMTCT interventions	PMTCT interventions in mother	PMTCT interventions in infant
sdNVP	80	67
sdNVP + AZT	130	69
sdNVP+AZT+3TC	45	
HAART	18	
None	11	43

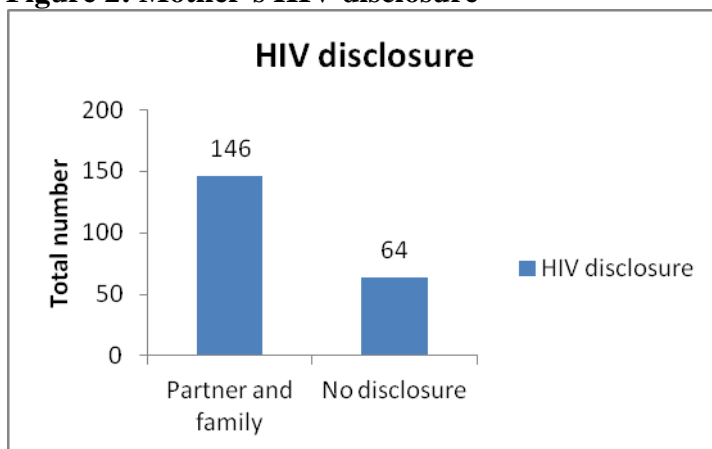
3.4.4 Infant feeding practices

Infant feeding practices were also assessed in order to check the possibility of mixed feeding and this was done during the first week of giving birth. Most of the HIV positive mothers were breastfeeding (n=146) and 64 women were bottle-feeding.

3.4.5 HIV disclosure

The mother’s HIV disclosure was also assessed in order to get information about the people they felt comfortable with. The results shows that more participants had disclosed their HIV positive to their partners and family which included mostly mothers, aunties and sisters (n=146), only a few did not (n=64). Reasons for not disclosing were that partner already died or they were afraid of being stigmatized.

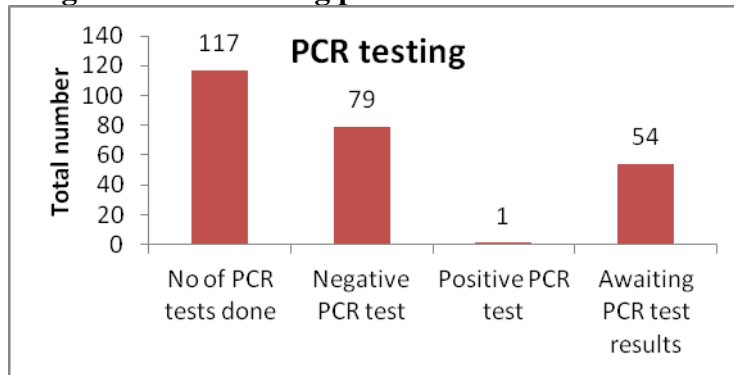
Figure 2: Mother’s HIV disclosure



3.4.6 Infant PCR testing practices

The primary indicators for this intervention to get total number of babies who were PCR tested and received their results. The results for PCR testing are looking very positive as they show a high number of mothers who took their infants for PCR testing at 6weeks post delivery (n=117). The table below shows that there was only one (1) HIV positive result. Only 54 participants were still waiting for their PCR test results by the time the study came to an end.

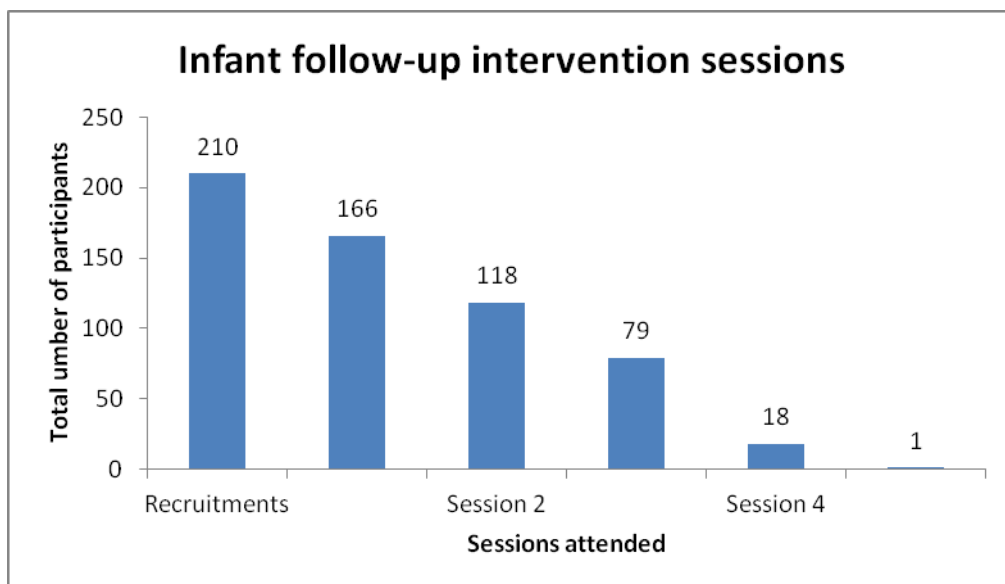
Figure 3: PCR testing practices



3.4.7 Infant follow-up sessions attendance

The table below shows the number of sessions that was attended throughout the intervention. The infant follow-up sessions were structured to coincide with the PMTCT processes. The first session was on the importance of postnatal care. In this session, women were encouraged to attend postnatal care services in order for the child the child to get the ARV prophylaxis. According to figure 4, a total of 210 HIV positive mothers were recruited in the project. About 166 women attended session 1, 118 for session 2, 79 session for 3, session 4 had 4 participants and the last session, had one HIV participant.

Figure 4: Infant follow-up sessions



3.4.8 Infant follow-up intervention timelines

Table: 2: Infant follow-up timelines

Period	Postnatal care processes	Infant follow-up Intervention processes
1-3days		Recruitment at maternity ward
3-10 days	Infant check-up and infant Nevirapine administration	Session1: Importance of postnatal care
6 weeks	PCR testing and baby immunization	Session 2: Infant feeding counseling
10 weeks	PCR test results and immunization	Session 3: HIV disclosure counseling
14 weeks	Infant immunization	Session 4: Cotrimoxazole adherence counseling
18 weeks		Session 5: ART counseling

3.4.9 Challenges

Some of the challenges regarding the implementation of the intervention are listed below:

- Lack of interest by mothers to participate in the intervention.
- Difficulties in reaching patients for follow-up sessions due to wrong contact details and physical address given by the patients.
- Patients not opening up easily to the community workers.
- Patient withdrawal from the intervention.
- Patients complaining about HIV stigma by fellow community members and therefore not adhering to scheduled appointments with community workers.

Intervention highlights as mentioned by the community workers

- Ability to give health talks to the community about PMTCT.
- Better understanding of PMTCT and HIV.
- Developed communication and listening skills.
- Learned to work with the community on health issues and keeping the information confidential.
- Enjoyed giving hope to HIV positive mothers who were discouraged before the intervention.
- Decrease in infant mortality at intervention sites.

3.4.10 Discussion and conclusion

The results reflect key important finding that the involvement of the community care workers on the PMTCT programme leads to an improved adherence to HIV care. This finding concurs with the study conducted by Owiso et al (2009) who found that that improved pediatric enrolment, retention rates and care giver rates by involving community workers. Kieffer et al (2009) also found that allocating staff for conducting patients' follow-ups doubled the proportion of infants on ART. Another significant finding is that quite the majority of participants came back for the infant PCR test results. Knowing the HIV status of the child is critical for the early initiation of ART.

Although there are a number of participants who did not disclose their HIV, most of the participants did inform someone about their HIV status. In most cases the participants informed their partners followed by mothers, aunts and sisters. This finding implies that there is a need to strengthen interventions that deals with stigma and discrimination in

order for the mother and child to receive proper care. The issue of stigma in this intervention is further highlighted by a high number of women who receives postnatal care outside the facility where they gave birth (excluding hospitals since they do not provide PNC services). The results suggest that once the women gave birth, instead of receiving postnatal care at their nearest clinic, or at a CHC where they gave birth, they opt to go to a different site in order to receive postnatal care services where they are not known.

The results further show that the number of women who attended sessions varies. This was due to the time period in between the sessions and the fact that the intervention was only implemented for a period of six (6) months. Therefore, a longer period for this kind of intervention is recommended.

The limitation for this intervention is that we did not assess the infant feeding practices from enrolment until the time the women completed the sessions. Therefore, it is not known if the preferred feeding method changed over time.

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4. PEER SUPPORT INTERVENTION

INTERVENTION: ENHANCING PMTCT PROGRAMMES THROUGH ONE-ON-ONE PEER SUPPORT PROGRAMME AMONG HIV POSITIVE PREGNANT WOMEN IN

4.1 BACKGROUND

According to the World Health Organisation (2006), mother-to-child transmission of HIV can occur during pregnancy, labour and delivery, or during breastfeeding. In developing countries with poor resources, the HIV transmission rates may be as high as 40% if mothers do not know their HIV status, do not receive treatment during pregnancy, and do not follow a strict exclusive feeding choice (Besser, 2006). The high workload of health care workers in South African state health facilities makes it difficult for them to carry out their clinical responsibilities, leaving no time for them to provide the emotional and social support needed by clients for comprehensive and effective HIV/AIDS care.

South Africa has the highest number of women (3.1 million), AIDS orphans (1.2 million) and children below the age of 15 (240 000) living with HIV in the world (Besser, 2006). In 2006, an estimated 38 000 South African children were infected with HIV by their mothers around the time of birth and an additional 26 000 were infected through breastfeeding (DoH, 2007). Although the South African government implemented the PMTCT programme in 2005, studies conducted by the Human Sciences Research Council (HSRC) in investigating barriers to utilisation of PMTCT programmes and mechanisms for improving access in the rural Eastern Cape Province showed that the socio-economic context, poor roads, underdeveloped transport system and poor telecommunications presented significant obstacles to access (Peltzer et al., 2005; Skinner, Mfecane, Gumede, Henda, & Davids, 2005). Several initiatives to increase PMTCT coverage and effectiveness include a Call to Action Towards an HIV-free and AIDS-free Generation issued by government, development partners, civil society, multilateral agencies, research institutions and people living with HIV representatives (UNGASS, 2001).

The efficacy of PMTCT programmes depends on the capacity of the health care system to deliver services and the willingness of women to accept HIV testing and their ability to follow through with PMTCT interventions (Teasdale & Besser, 2008). Essential elements of PMTCT programmes include testing all pregnant women for HIV, CD4 tests to identify those eligible for HAART and ensuring that all women have necessary drugs for PMTCT including those who deliver at home. After delivery PMTCT services must include sustained education and support for safer infant feeding options, co-trimoxazole prophylaxis for HIV positive or exposed newborns, ARV prophylaxis for newborns, HIV testing for infants, family planning, counselling and referral to HIV care and treatment programmes. PMTCT efforts that effectively engage women during pregnancy, offer opportunities to help mothers to protect their infants from HIV infection and can provide the health and life sustaining care for mothers that is critical for their own survival and their children's wellbeing.

Despite efforts to increase access to PMTCT, there are significant barriers in implementing effective public health PMTCT programmes and these include inadequate health care infrastructure, overextended staff etc. Along with health system challenges there are significant social barriers that affect women from accepting HIV testing and treatment as well as common practice of mixed infant feeding which contributes to poorer outcomes for babies. One of the social barriers is stigma (Teasdale & Besser, 2008). Stigma associated with HIV/AIDS causes many people to not disclose their status and fearful of finding more information about HIV and asking for support (Visser, Mundell, de Villiers, Sikkema, & Jeffery, 2005). In South Africa, a huge emphasis has been placed on prevention, vaccine development and medical treatment promotion, paying little attention to psychological support HIV infected people need. In a country where gender discrimination and inequality is still rife, women are made to feel inferior to their male counterparts and disempowered and the situation is worse for women living in traditional African communities (Visser et al. 2005)

One of the ways in which these challenges could be managed is through interaction with people in similar circumstances as these provides a less threatening environment and reduces the anxiety that stigmatized people experience (Visser et al. 2005). HIV-positive women need education, counselling and support during pregnancy (Besser, 2002). According to Besser, education ensures adherence to the chosen feeding practices and ART, while the quality of life of these women is improved through counselling and support. On the other hand, HIV-positive mothers who have recently given birth, who expect support from family, friends, partners and the health care system in making informed decisions about feeding and family planning may not get the support that they need (Besser et al., 2004). In such cases, peer support groups may act as a safe haven for such women to can share their experiences, talk about HIV, and to learn from other infected individuals (Summers et al., 2000). In recognition of this need for support, an education and psychosocial support organisation for HIV-positive women, Mothers-to-Mothers, was founded by Dr. Besser in 2001 (Besser, 2006). He identified some gaps in antenatal care, PMTCT services, and the education, social and economic needs of HIV-positive pregnant women and HIV-positive mothers of young babies.

The Mothers-to-Mothers organisation established 17 sites in KwaZulu-Natal where it provides services five days a week to women attending antenatal clinics (ANC), women who have just given birth, and mothers visiting health facilities for self care and baby care (Baek, Mathambo, Mkhize, Friedman, Apicella, & Rutenberg, 2007). Findings from studies conducted in these sites showed that the Mothers-to-Mothers organisation plays an important role in providing ongoing care for HIV-positive women and their infants. The greater psychosocial well-being and the increase in PMTCT service uptake by women who had participated in mothers-to-mothers support groups show the success of this programme.

The Mothers-to-Mothers programme, recruits HIV-positive women who have used PMTCT services, and trains them on aspects of PMTCT as peer educators and care providers, after which they become “mentor mothers” for other HIV-positive women

(Besser, 2006). Mentor mothers ensure that HIV-positive pregnant women and mothers of young babies receive the necessary medical care, adhere to HIV treatment schedules and the infant feeding practices they have chosen. Education and empowerment are used as means to prevent mother-to-child HIV transmission (MTCT), combat stigma within families and communities, ensure treatment adherence and reduce likelihood of children being orphaned by AIDS. The community outreach programme of Mothers-to-Mothers entails visits to homes of HIV-positive women, encouraging safe sex, family planning, ART adherence and healthy lifestyles, promoting HIV awareness and destigmatization (Besser, 2006).

As the Mothers-to-Mothers programme works with provincial health departments, these support groups are located in clinics that offer medical treatment to HIV-positive women and provide social services that are complementary to medical services (Besser, 2006). This support programme also offers services in delivery suites, postpartum wards, patients' homes and communities. In cases and areas where HIV-positive women are unable to attend antenatal clinics or go to health facilities for delivery, the Mentor Mothers go to those places to provide education and mentoring.

The decision to establish support groups in Mpumalanga came as a result of a needs assessment conducted in the health facilities, in which it was found that only 16 out of 75 clinics in Gert Sibande District had peer support groups (Peltzer et al. 2009). As a result, it was hoped that the establishment of a peer support programme for HIV positive pregnant women would provide them with a forum where they can freely discuss and learn more about HIV and AIDS and how to manage it in an informal and non-intimidating environment. In this programme implementation it was found that many women find it difficult to join a support group. There were several reasons for this. Either there was no support group in their area, or women were ashamed to disclose their status among people from the same village or area. Often there were no support groups for a specific demographic, for example, pregnant women, and some people just could not afford to engage in support groups during their working hours.

In order to cater for the needs of all HIV positive pregnant women this study aims to use a one-on-one peer support programme where pregnant women will be seen individually by peer counselors who will follow them up, providing the education and psychosocial support until their babies are six weeks old.

4.2 Aim and Objectives

4.2.1 Aim

The aim of the sub-project is to strengthen the PMTCT programme in Nkangala district through a one-on-one peer support intervention among HIV positive pregnant women.

4.2.2 Objectives

- To promoting psychosocial support to HIV positive pregnant women.
- To increase the number of HIV positive pregnant women who disclose their HIV status to at least one person
- To increase the number of pregnant women who use condoms when having sex

To increase HIV positive pregnant women's knowledge of HIV transmission, HIV prevention, dual ARV prophylaxis, infant feeding practices

4.3 Methodology

4.3.1 Study Area

The peer support intervention has been implemented in three sub-districts of Nkangala District Municipality of Mpumalanga province. The sub-districts are Thembisile, Dr JS Moroka and Steve Tshwete. In Thembisile the intervention is implemented in four (5) clinics namely: Thembalethu, Vlaklaagte, Kwaggafontein, Kwamhlanga and Empilweni. In Steve Tshwete the intervention is implemented in two clinics (2) namely: Nasaret and Simunye clinics. In Dr JS Moroka the clinics are Pankop, Phake and Mametlhake.

4.3.2 Recruitment and training of fieldworkers

Nurses and HIV/AIDS coordinators in the districts identified HIV positive women who have been through PMTCT programme in the past two years and lived in the communities and have disclosed their HIV status to their family and partners for training as peer supporters. The five day training began with basic training on HIV/AIDS for two days and for the three days training focused on the Peer support intervention. A manual was developed to guide the peer supporters about the sessions that they will conduct with individual clients. In addition contact sheet recording demographic information and other data of the participants was provided to peer supporters after training. A total of number of 16 peer supporters was trained.

4.3.3 Procedures

The clinic managers and lay counsellors in the clinics were informed about the intervention and they gave pregnant women coming for HIV counselling and testing information about the intervention, if women were interested in participating they were referred to peer supporters who came to the clinic on antenatal care days. The women participated in one-on-one intervention sessions with the peer supporter which covered topics like HIV/AIDS, Sexuality and safer sex, PMTCT, Infant feeding, stigma and disclosure and communication. Pregnant women attended the sessions once a month when they were coming for their antenatal care clinic. This intervention received approval from The Human Science Research Council Ethics committee and the Mpumalanga Department of Health gave permission for the intervention to be implemented.

4.4 The Intervention

The design of this intervention is guided by the Information-Motivation – Behavioral Skills approach. This approach proposes that information that is directly relevant to the personal practice of preventive behavior, motivation to practice prevention, and behavioral skills for practicing effectively are the fundamental determinants of desirable behavior (adherence to ARV prophylaxis, SIT/HIV prevention, and appropriate infant feeding). The theory suggests that at present, most persons at risk have inadequate information about personal

practice of preventative behavior, insufficient personal and social motivation to practice prevention and inadequate behavioral skills for practicing prevention effectively. On the basis of this analysis the theory designates information, motivation and behavioral skills as critical factors to target for change in intervention efforts to promote preventive and adherent behavior (Fisher, 1997).

The intervention which will be used in this study is a peer support intervention. This intervention will use the IMB model and will be delivered using modifications of procedures developed by Kelly and associates (Kelly, Lawrence, Brasfield & Stevenson, 1991). In this intervention, peer natural opinion leaders, in this particular intervention (HIV positive women who have gone through PMTCT in the past two years and have been specifically trained) will be paired with HIV positive pregnant women attending ANC. The role of the trained peer supporters will be to provide education on general HIV transmission, psychosocial support (motivation), ARV prophylaxis and counsel mothers on disclosure and infant feeding and facilitate mother-infant follow-ups until the baby is six weeks old. The peer supporter and the HIV positive pregnant woman will meet once a month at the clinic. The one-hour one monthly session will emphasize participation and experimentation with PMTCT, provide information on HIV transmission, sexuality and safer sex, stigma, disclosure, family planning, ARV treatment and adherence and infant feeding. Women will engage in skill building in a supportive environment utilizing communication techniques, negotiation skills, and experiential/interactive skill training to help them disclose their HIV positive status to their partners and significant others in their lives and be able to deal with stigma. Newly diagnosed HIV positive pregnant women will be recruited to join the peer support programme when they start their ANC. They will meet with the peers each month when they come for their ANC until they deliver and the baby is six weeks old. The sessions will be facilitated by the peer counselor at the clinic on a monthly basis as the women come for their ANC visits.

4.4.1 Session One: Basic facts about HIV/AIDS

The first session will address basic facts and information about HIV/AIDS. Common terms related to epidemiology of HIV and AIDS will be defined and they include: window

period, CD4 count and viral load. In addition, modes of transmission of HIV and factors contributing to the spread of HIV will be discussed.

4.4.2 Session two: Sexuality and safer sex

Safer sex, barrier use, reproductive choice and self efficacy will be discussed in the second session. The HIV/STD and safer sex segment informs the participants about the need for safer sex regardless of sero-status (HIV re-infection/transmission, infection with HIV/STDs) and the health implications for participants and their partners. Male and female condoms are introduced as the most effective forms of sexual protection. Informational handouts, created specifically for high risk men and women, will demonstrate the correct method of use and cover the most commonly asked questions concerning these products. The handouts are followed by hands-on demonstration of both products, including practice with placing male and female condoms on/in models.

4.4.3 Session 3: PMTCT

This session will deal in detail with PMTCT, dual therapy, HAART, infant feeding, etc. Discussion focuses on the specific stages, prenatal care, delivery, postnatal care, infant feeding, and infant HIV testing and family planning. Mother-to-child transmission will be defined and background information on modes and rate of HIV transmission from mother to child will be discussed. In addition factors that influence MTCT of HIV including high viral load will be discussed as well.

4.4.4 Session 4: Infant feeding

Mothers will be taught about safe infant feeding options such as exclusive breastfeeding and exclusive formula feeding during education sessions. The following options will be discussed with the expectant woman to help her come to a decision about the feeding method for her baby:

Option 1: Exclusive breast feeding for 6 months

Option 2: Exclusive formula feeding if client meets AFASS criteria (acceptable, feasible, affordable, sustainable, and safe)

4.4.5 Session 5: Stigma, disclosure

Session five will look at issues of stigma and disclosure. Sharing one's health status with others can result in being shunned and even discriminated against and many people are weary of doing it. This session will deal with problems women feel make it difficult for them to disclose their status and techniques on how to approach this will be discussed and this include first of all to whom, where when and how to disclose. Possible disadvantages and benefits of disclosure will be discussed.

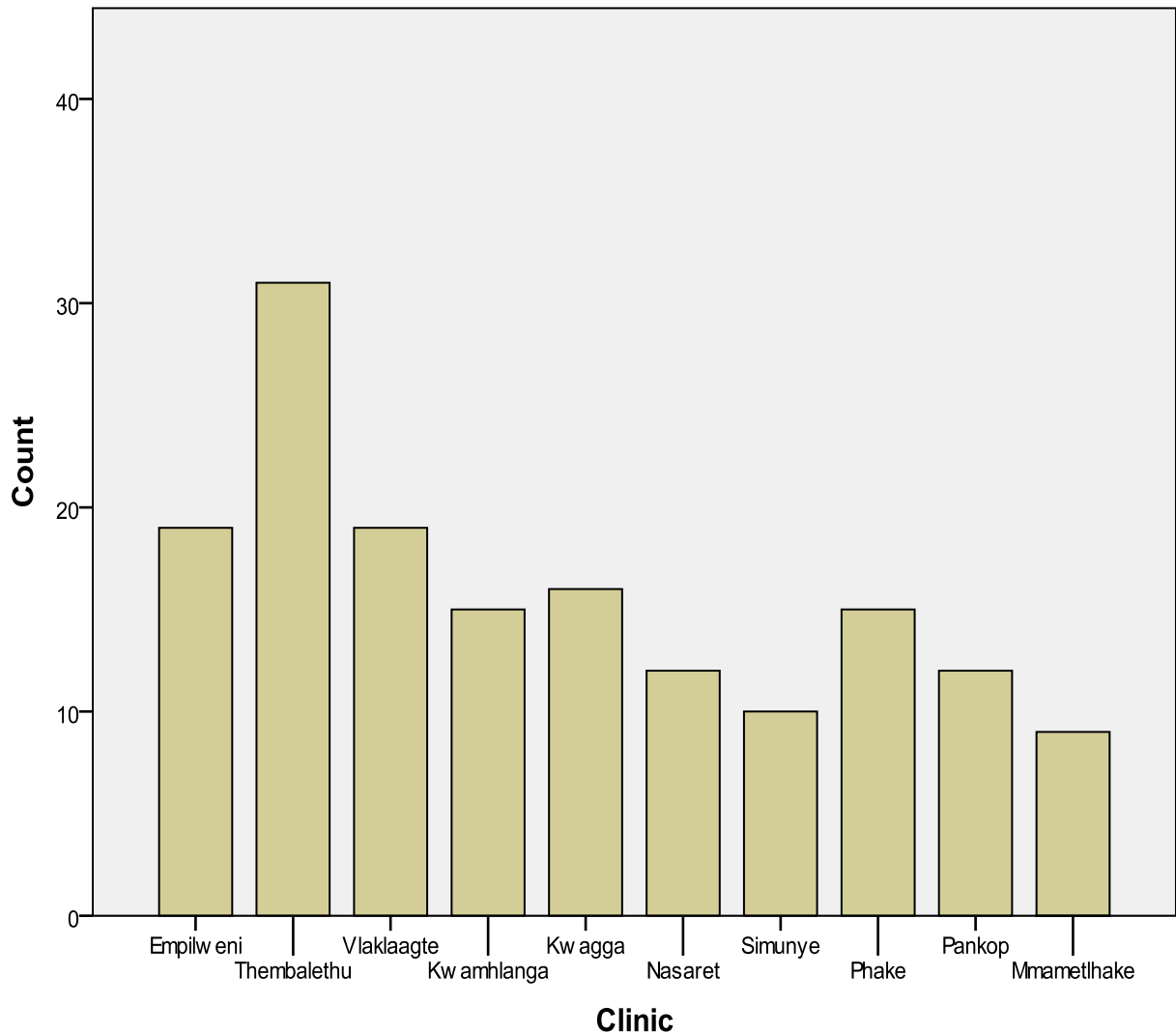
4.4.6 Session 6: Communication

Session six will look at how to introducing the subject of PMTCT to the partner, preventive personal development skills which includes decision making, assertiveness, high self-esteem and negotiation. Here women will be taken through the steps of effective communication to ensure that the message they want to communicate to their partners gets across. Cognitive/behavioral skill training and communication skills in relationships (Baucom & Epstein, 1990) are introduced in the context of awareness building and cognitive reframing, heightening participants' awareness of their reactions to barrier use and partners in their sexual relationships and reframing automatic thoughts that may impede barrier use and communication (Quina et al., 2000).

4.5 Intervention Results

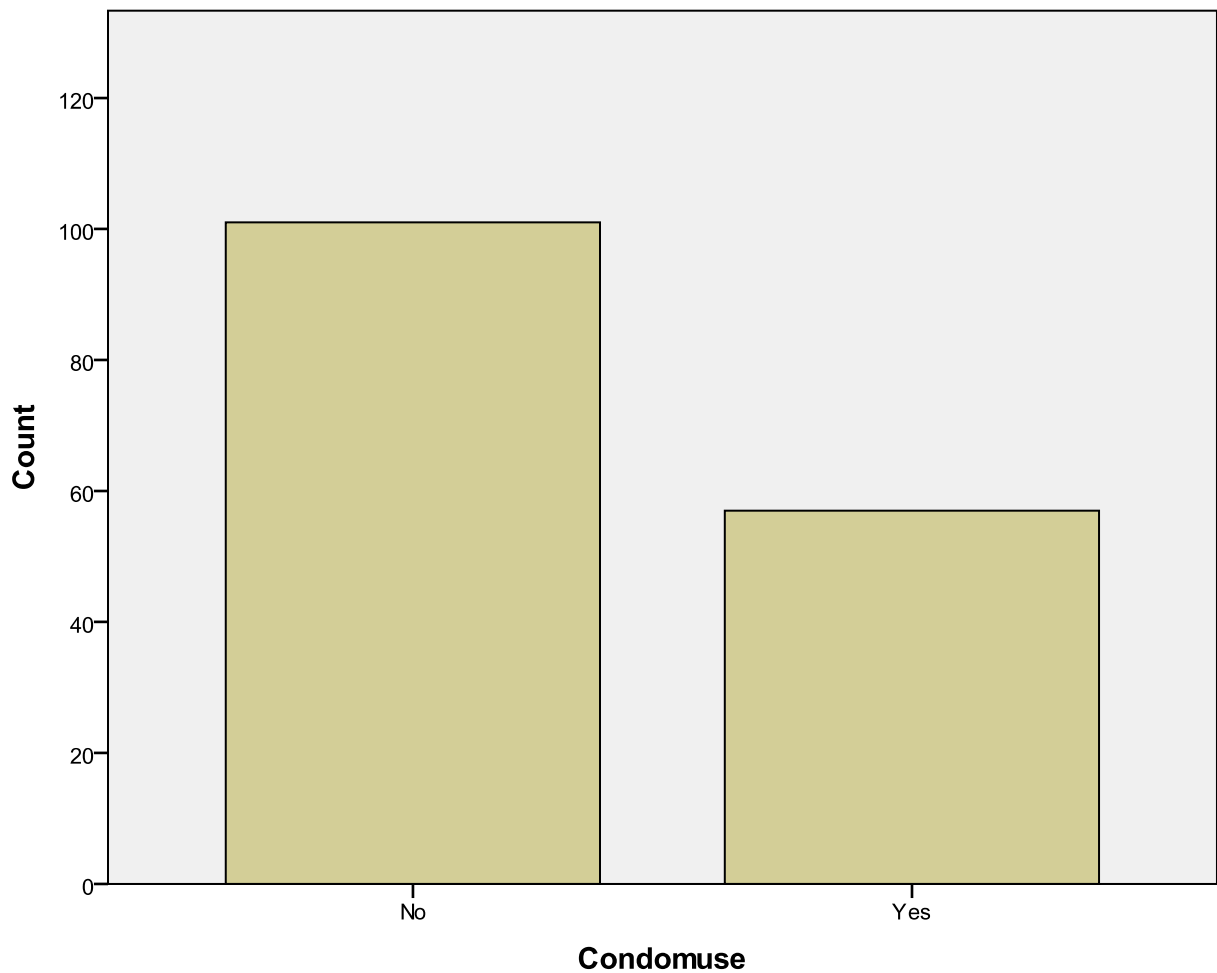
The intervention recruited 158 HIV positive pregnant women with a mean age of 28.77 (SD=5.165) and the gestational age 4.81 (SD=1.293). 44% of the women were Ndebele 82% of the women were unemployed. Almost all the women (96%) had secondary education and were single (74%). 73% had between 1 – 5 children of their own.

The intervention had six sessions that participants needed to attend and altogether 55% of the women attended all the six sessions and only 45% attended between 1 – 5 sessions. Recruitment of women differed by clinic as the below graph indicates.



The graph shows recruitment results by clinic from December 2010 to September 2011 and they indicate that Themba lethu community health center recruited most of the women followed by Empilweni and Vlaklaagte. Conversations with peer supporters revealed that there was still a lot of stigma attached to being HIV positive because in some clinics some pregnant women refused participate in the intervention because they did not want people to associate them with HIV.

Disclosure of HIV status and condom use were some of the objectives of the intervention and conversations with the women when they were first enrolled into the intervention revealed that 104(65.8%) women had disclosed their status to either partner (44%) or family members including parents and siblings (56%). With regards to condom use only 36.1% of the women mentioned that they used condoms during the last sex act.



4.6 Challenges

Retention was still a major factor during the last quarter of the project, some participants were lost to follow-up and could not be reached on their phones and the only contact that peer supporter had with the participants was through telephone or when they came to the

clinic for their ANC visits. The other challenge faced by the project was the mobility of the participants, some of them when they were recruited were cohabitating with their partners in the area and when they had problems they move back to their maternal homes and continue their antenatal visits at their maternal homes or when they are near their delivery period they preferred to be with their parents rather than with partner.

4.7 Conclusion

The peer support intervention seemed to be successful given the percentage of women who attended all the sessions. 55% of the women completed all their sessions and 45% attended between 1 and 5 sessions. The project proved useful for women because they were able to talk freely about issues that concerned them with people who understood because peer supporters were HIV+ women. Even though stigma was still an issue in some communities many others were able to disclose their status (65.6%) and if the intervention could be provided condom use during pregnancy could go high therefore preventing mother to child transmission of HIV.

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5. INTIMATE PARTNER VIOLENCE INTERVENTION

5.1 Background

The U.S. President's 5-year Emergency Plan for AIDS Relief acknowledged that intimate partner violence (IPV), coercive sex, and gender inequality fuel the spread of HIV/AIDS. There appear to be at least four mechanisms through which HIV and violence overlap in women's lives: (1) violence may increase a woman's risk for HIV infection through forced or coercive sexual intercourse, (2) violence may increase a woman's risk for HIV infection by limiting her ability to negotiate HIV preventive behaviors with her partner(s), (3) among HIV-positive women, those who disclose HIV serostatus to partners may be at increased risk for violence, (4) childhood physical and sexual abuse has been associated with elevated odds of sexual risk-taking behavior in adolescence and adulthood.

According to the Crime Report 2010/2011 South Africa has one of the highest rates of violence against women in the world, with over 195,000 cases of rape reported to police in 2010/2011 (SAPS, 2011). Studies have shown that IPV is the most common form of violence against women worldwide (Garcia-Moreno et al. 2005; Kishor et al. 2004 and Johnson et al., 2007). There is also now evidence that women who experience sexual assault in South Africa, like women in other parts of the world, are at higher risk for HIV/AIDS. Managa, Pengpid and Peltzer (2007) investigated intimate partner violence and HIV risk among women attending primary care health care facilities in South Africa. Results indicate high rates of intimate partner violence and HIV risk: 34% of the women reported a history of having an STI in the past 12 months, 17% had consistently (every time) used a condom with their primary partner in the past three months, and 59% reported knowing that their primary partners placed them at risk for HIV transmission. Combining physical or sexual abuse 28.5% of the women reported that this IPV was perpetrated within the preceding 12 months. Logistic regression identified lower educational level, having had more sexual partners in the past 12 months, primary partner with known HIV risk, frequency of binge drinking among the primary partner and having had an STI as predictors for physical or sexual abuse. Among women who reported a history of physical or sexual abuse in the past 12 months only 26.9% had disclosed their abuse status to their health care provider, and yet, 47.1% of the abused women agreed that a health care

provider should routinely ask the patient about abuse. Phaswana-Mafuya, Peltzer and (2009) found among pregnant women attending primary care services in Mpumalanga that 14% had experienced physical abuse by their partner in the past 12 months. Of those women who had experienced physical abuse in the past 12 months, 44.2% reported minor physical violence perpetrated by the current primary partner in the past 12 months, 31.3% had experienced severe physical abuse, 13.9% sexual violence and 39.3% emotional abuse by their current primary partner in the past 12 months. This study also found that IPV and HIV risk factors are common among pregnant women attending antenatal care in this sample in South Africa. WHO (2007) recommends screening and referral for women in the context of Prevention of Mother to Child Transmission of HIV (PMTCT) who are at risk of or have experienced violence, and the provision of comprehensive management and support for victims of gender-based violence.

Ntaganira et al. (2008) suggest that counselling should be offered to women when testing for HIV and additionally women should be screened for IPV. Maman et al. (2001) support to train HIV counsellors to ask questions about partner violence. Counsellors have an important role to play in helping clients develop safe disclosure plans, including finding out about the role violence plays in their lives. Therefore counsellors need to be trained in how to ask sensitive questions about violence and use this information to foster but not force clients to disclose. Such training must be an integral part of VCT services to ensure high quality. In addition counsellors must be aware of existing community-based programmes to support women living in violent relationships so that they can screen their clients and make appropriate referrals when necessary.

5.2 Objectives

The primary objective of the project is to assess

- the extent of partner violence (severity of abuse and danger risk) among pregnant women who report partner violence and receive a 20 minute intervention on safety behaviors and strategies for dealing with the abuse including local referral sources.

5.3 Methodology

5.3.1 Study setting

Implementation of the intervention took place from December 2011 to September 2011 at sixteen primary health care facilities at Thembisile sub-district in Nkangala District of Mpumalanga Province. This project was implemented at sixteen (16) primary health care facilities at Thembisile sub-district in Nkangala District of Mpumalanga Province.

5.3.2 Procedure

Pregnant women presenting at primary health care clinics were screened for abuse at HIV post-test counseling, and were then given a 20-minute intervention session on IPV only after a positive screen. A follow-up interview was done with the pregnant women 3 months after receiving the intervention.

A screening form was used to collect information about abuse history from the pregnant women. In addition, a Danger Assessment form was administered to determine potential for homicide in the abusive relationship.

5.3.3 Recruitment and training

Eighteen (18) fieldworkers (community workers) were recruited, trained and employed in this project. The first group of nine (9) community workers received a one-day Basic HIV Training and a 4-day training on the IPV intervention from the 22-26 November 2010. The second group of nine (9) community workers received training on the same content from the 28 February to the 4th March 2011. The first group of community workers started screening pregnant women for abuse from December 2010 while the second group started in March 2011.

5.4 Intervention

All the 18 fieldworkers received training on the following intervention which consisted of a 20-minute session that includes:

1. Supportive care: The community worker serves as an available, interested, and empathic listener. Women are encouraged to discuss the violence experienced, life situations, and issues faced;
2. Anticipatory guidance: The women are told what to expect if the woman decided to access legal aid, law enforcement, shelter, or counselling services, as well as the risks associated with leaving the abuser, having the abuser arrested, or applying for a protection order; and
3. Guided referrals: The community worker offers referrals tailored to the woman's needs (e.g., legal aid, shelter, counseling services, etc).

5.5 Analysis

Data was captured and analysed using both Microsoft Excel and SPSS version 19.0. Descriptive analysis was done to determine the characteristics of the sample, while paired sample T-test analysis was done to determine the danger assessment means at baseline and at follow-up periods.

5.6 Results

Over the entire period of the study, from December 2010 to September 2011, a total of 2230 pregnant women were screened for abuse and 160 screened positive. Only 82 women attended a follow-up interview 3 months after receiving the intervention.

Results of the data from the baseline interviews (Table 1) indicate that almost 43% of the abused pregnant women reported that the physical violence increased in severity or frequency over the past 3 months. About 21% reported that their partner forced them to have sex when they did not wish to do so in the past 3 months. More than half (51.6%) reported ever been beaten by their partner while pregnant in the past 3 months.

Table 1: Pre-intervention abuse reports

Abuse Item	N (%)	N (%)
	Yes	No
Has the physical violence increased in severity or frequency over the past 3 months?	68 (42.5)	92 (57.5)
Has he ever forced you to have sex when you did not wish to do so in the past 3 months?	33 (20.6)	127 (79.4)
Have you ever been beaten by him while pregnant in the past 3 months?	82 (51.6)	77 (48.4)

The results of the data from the 3-months follow-up interviews (Table 2) indicates that almost 9% of the abused pregnant women reported that the physical violence increased in severity or frequency over the past 3 months. About 6% reported that their partner forced them to have sex when they did not wish to do so in the past 3 months. Almost 28% reported ever been beaten by their partner while pregnant in the past 3 months.

Table 2: Post-intervention abuse reports

Abuse Item	N (%)	N (%)
	Yes	No
Has the physical violence increased in severity or frequency over the past 3 months?	7 (8.5)	75 (91.5)
Has he ever forced you to have sex when you did not wish to do so in the past 3 months?	5 (6.3)	74 (93.7)
Have you ever been beaten by him while pregnant in the past 3 months?	22 (27.8)	57 (72.2)

Table 3 shows the results of the paired sample t-tests analysis, comparing the pre- and post-intervention danger assessment score means. The pre-intervention danger assessment mean score (M= 6.0366) was higher than the post-intervention mean scores (M= 2.8659), showing a significant difference between the two means ($t = 7.751, d=81; p=0.00$).

Table 3: Danger assessment means

Violence items	Mean	N	Std. Deviation	Std. Error Mean
Total Score (BASELINE)	6.0366	82	3.00799	.33218
Total Score (FOLLOW-UP)	2.8659	82	2.46838	.27259

Discussion

Almost 14% of the 2230 pregnant women who were screened for abuse screened positive. Post-intervention results show that there is a decrease in reports of severity/frequency of physical violence, sexual abuse, and physical abuse, in the past 3 months by 34%, 14.3%, and 23.8%, respectively. Overall, the pre-intervention mean danger assessment was 6.0, which significantly reduced after 3 months to 2.9. The intervention contributed to the reduction in the level of partner violence among pregnant women.

5.7 Conclusion

Screening for IPV during pregnancy is essential. The 20-minute intervention adopted from the March of Dimes protocol can be used as an effective abuse prevention strategy among pregnant women presenting at VCT services.

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6. INFANT FEEDING INTERVENTION

Impact of family intervention in infant feeding practices of mothers at Nkangala district of Mpumalanga, South Africa – a prevention of mother to child transmission of HIV project

6.1 Background

Good nutrition is the cornerstone of health. Infant and young child feeding practices directly affect the nutritional status of children, and ultimately, impact child survival (WHO 2007). Improving infant and young child feeding and care practices in children is therefore critical to improved nutrition, health and development of children (WHO 2007). Growth and development of infants occur rapidly during the first year of life. In fact birth weight triples during the first year of life (Lucas 2004). Brain development also takes place during this growth spurt and it is therefore during this crucial period of growth and development that good nutrition is essential. Inadequate dietary intake at this period poses several health challenges as it is linked to poor immune system and growth arrest.

Breast milk is inarguably the best food for an infant. The benefits of breastfeeding are well documented as breast milk confers immune properties and it is easily digested and absorbed by the gastrointestinal tract of an infant. Breast milk is the only milk that contains colostrum, an immune booster for a newborn. Breast feeding is known to significantly reduce infant morbidity and mortality rates by providing optimal nutrition and preventing childhood infections (Thapa & Short 1988; WHO 2000; Coutsooudis & Rollins 2003; Newburg & Walker, 2007). The short- and long term benefits of breastfeeding supersede those of formula feeding as they extend beyond childhood by protecting an infant from chronic diseases later in life (Newburg & Walker, 2007). Breastfeeding is also beneficial in disadvantaged populations where safe drinking water may not be available (WHO, 2000; Read & Committee on Paediatric AIDS 2003; Coutsooudis et al. 2008) and replacement feeding is unaffordable and considered unsafe for the infant's health. Breastfeeding was considered to be the method of choice for infant feeding until the HIV dilemma left a need to relook the benefits of breastfeeding infants whose mothers are HIV-positive, as HIV is

also transmitted through breast milk. However, in healthy populations, breastfeeding remains the best feeding option for infants. Replacement feeding poses potential risks to infants' health in disadvantaged populations, as it is expensive; feeding utensils need to be sterilized and reconstitution of infant formula requires accurate measurements. The high cost of replacement feeds, which makes it unaffordable to disadvantaged populations, does not offer a solution to disadvantaged populations. Several health risks have been documented in formula fed infants. Diarrhoeal outbreaks have been reported in countries where free formula was provided to prevent HIV transmission from mother to child and more deaths were reported (Coutsoudis 2008). The sterility of infant formula is not guaranteed as reports of contamination of infant formula by low levels of Salmonella (Brouard et al. 2007) and toxic chemicals have been documented and reported over the news in China and South Africa¹. Health risks associated with replacement feeding in disadvantaged populations makes it difficult for health workers when advising positive mothers on feeding options as risks outweigh benefits in both instances.

Mother to child transmission of HIV

A well nourished body at any age is capable of fighting infectious agents entering the human body. In South Africa and the African continent, malnutrition still presents a serious challenge to the health of infants and young children. The synergistic relationship between under nutrition and infection leaves exposed children vulnerable. HIV and AIDS has worsened the burden of malnutrition as thousands if not millions of children are orphaned as a result of this pandemic (UNICEF 2008) leaving the infant with caregiver. An infant born to a positive mother is at risk of viral transmission from the mother to the infant. An orphaned infant is exposed to double risk if the caregiver cannot afford safe replacement feeding.

Exclusive breastfeeding for the first six months of life is believed to protect an infant against HIV transmission. Exclusive formula feeding for the first six months of life is also an accepted feeding method that prevents transmission of HIV to an infant (WHO 2000), and it is associated with a three- to fourfold decreased risk of HIV transmission

¹ Media reports

(Coutsoudis et al. 2008). It has also been documented that when compared with formula feeding, where free formula was provided, the combined risk of transmission and death was similar in both breast- and formula fed infants from birth (Coutsoudis et al., 2008).

Reduced transmission was reported with early breastfeeding cessation. These findings endorse the fact that breastfeeding is still a good feeding option in disadvantaged populations. Bahl et al. (2005) review of studies that were conducted in developing countries and found that non-breastfed infants had a tenfold risk of dying when compared with predominantly breastfed infants.

South Africa follows the WHO guidelines of exclusive breastfeeding or formula feeding for 6 months, depending on the mother's choice of feeding option. However, studies that have been conducted in South Africa revealed that 35% to 50% of mothers discontinue breastfeeding before three months and complementary foods are introduced as early as the first to the sixth week of age (Steyn et al. 1993; Richter 1994; Segal & Hirschowitz 1994; SADHS 1998; Ladzani, 2000; Sibeko et al. 2005). The SADHS reported a 10% incidence of exclusive breastfeeding in infants from birth to 3 months. A study conducted at Kwazulu Natal (Kassier et al., 2003) revealed that the mean age for introducing solid foods was at about 6 weeks. Early introduction of solid foods to infants is African culture and research findings have confirmed this practice (De Villiers 1997; Faber et al. 1997; Delpont et al. 1997; Croucher et al. 2000) and this practice continues to be reported in recent studies (Kassier et al. 2003; Sibeko et al. 2005).

The first visit of a mother to a clinic postpartum is at 6 weeks, which means that an education gap exists before a mother introduces solid food to an infant. This study aims to start educating mothers, grandmothers/caregivers immediately after birth to reinforce the essence of exclusive breast or formula feeding for the first six months of life. Kassier et al. (2003) recommended. The challenge that remains is whether mothers understand the essence of exclusive breast feeding.

Early introduction of complementary foods has also been confirmed by studies that were conducted in other African countries (Kerr et al. 2007). Early introduction of

complementary foods emanates from the belief that crying is a sign of hunger (Kassier et al. 2003). Culturally, grandmothers who are main advisors on infant care interpret the crying of an infant as a sign that breast milk is not adequate for the infant² (Kerr et al., 2007). A study conducted in Malawi reported that grandmothers insisted that infants be given complementary foods (Kerr et al. 2007). Early introduction of complementary foods has been associated with gastroenteritis, respiratory infections and malnutrition and ultimately mortality due to poor sanitation and mainly carbohydrate diets (VanDerslice et al. 1994; Latham 1997). In South African health care services, health and nutrition education is offered mostly to mothers during pregnancy and well baby clinics. There is little or no involvement of grandmothers or caregivers in health and nutrition education. There is no logically planned nutrition education programme to ensure that the education programme achieve specific objectives at the end of the third trimester or end of the first year of life of an infant etc.

The intervention phase of this study will empower pregnant women, mothers and grandmothers/caregivers with specific knowledge on nutrition during pregnancy and the first years of life. Grand mothers/caregivers will attend health and nutrition education sessions both at the clinic and during community meetings. The purpose of the intervention is avoid conflicting messages to pregnant women and mothers by empowering grandmothers and caregivers to share the same knowledge and to apply best practice in infant feeding. Morbidity and mortality may decline as a result of safe and healthy infant feeding practices.

Several studies have been conducted on infant feeding practices in South Africa and the rest of the continent. Gaps that have been identified by these studies include inadequate knowledge of infant feeding by health care professionals and inability to teach the lower socioeconomic class at their level (Kassier et al. 2003). The authors found that there were constraints to safe formula feeding choice due to safe and clean water problems and stigmatisation. The clinic staff was cited as the most important source of information, followed by the grandmother. One of the findings was that some mothers lacked infant care

² Oral sources

support. In this study women will be encouraged support each other as they reside at the same community. Field workers will teach and offer support both at the clinic and at community level. Upon delivery of an infant, field workers will visit the mothers and assist with breastfeeding such as positioning of the baby, care of nipples and problems with breastfeeding. For mothers who opt to formula feed, field workers will assist in ensuring that the environment is safe for formula feed preparation and storage. Mothers, grandmother/ caregivers will be taught through demonstrations on how to prepare safe formula feeds. Most health and nutrition education is done in health facilities (top-down approach) and grandmothers/caregivers are excluded whereas they influence the mother's choice of feeding options. Meyer et al. (1994) investigated the role of family support in newborns and the authors found the strategy to be useful. However family support did not go beyond the newborn stage. Kerr et al. (2007) found that disregarding family power dynamics in child feeding and care practices opens gaps in child care and it should not be left to chance. It is in this light that this study focuses on family intervention in infant feeding and care practices.

6.2 Aim and Objectives

6.2.1 Aim of the study

To investigate the impact of an intervention in improving feeding practices of mothers in rural areas and to develop interventions aimed at preventing mother to child transmission of HIV and AIDS through infant feeding practices.

6.2.2 Objectives

The objectives of this study were to investigate:

- Mothers' knowledge of healthy infant feeding practices in order to promote healthy infant feeding practices
- Pregnant women's opinions on infant feeding options
- Infant feeding practices of mothers who are HIV positive
- Infant feeding practices of mothers who are HIV negative

The intervention phase of this study aimed to empower pregnant women, with specific knowledge on nutrition during pregnancy and the infants' first years of life. The purpose of

the intervention was to avoid conflicting messages to pregnant women and mothers by empowering them to share the same knowledge and to apply best practice in infant feeding.

Benefits of extending health and nutrition education in order to:

- reduce mixed feeding
- promote exclusive breast- or formula feeding
- reduce transmission rate of HIV through infant feeding in HIV positive mothers

6.3 Methodology

6.3.1 Study area

The Emalahleni and Steve Tshwete local municipalities have been selected as intervention sites for this project at Nkangala district of Mpumalanga province. A total of nine clinics from both municipalities were involved in the study.

6.3.2 Participants

Pregnant women who are attending antenatal care services from the third to sixth month were eligible for the study. Pregnant women who participate in the project were recruited during antenatal clinic days by trained community workers at the nine health facilities. Pregnant women with a confirmed HIV positive status and those with a confirmed negative status were eligible for the project.

6.3.3 Community workers

There were six community workers based at four clinics in Emalahleni district and six community workers in five clinics at Steve Tshwete district. The community workers were stationed at the local clinics where they taught sessions mainly based on nutrition.

6.3.4 Training

A week long training was conducted with the 12 community workers in November 2010. Training focused on teaching nutrition to pregnant mothers to empower them and improve healthy infant feeding practices for infants. The topics included: (1) Nutrition during pregnancy, (2) Infant feeding options, (3) Infant feeding theory and practice - breast and

replacement feeding, (4) Food safety and hygiene. A refresher workshop was conducted again in April 2011.

6.3.5 Procedure

The nine primary care clinics were randomly selected by HSRC researchers for the study at the two local municipalities by using random number tables. Two community workers were appointed at each primary health care clinic. Fifty pregnant women identified at first ANC visit was selected at each primary health care clinic in the two local municipalities (n=500) to participate in the study. The sample was selected from the local clinics. The clinic sister informed pregnant women about the study. Women that showed interest in participating in the study was referred to the community workers for enrolment into the study. Each participant had to attend at least four sessions. The trained community workers have been conducting group training sessions on nutrition to pregnant women at the health care clinics as well as during home visits when required. Participants were also informed that participation is voluntary. For each follow-up clinic visit the mother received a R50 transport reimbursement.

6.3.6 Ethics approval

Permission to conduct the study was obtained from HSRC Ethics committee, Centers for Disease Control (CDC) South Africa and Mpumalanga Department of Health.

6.4 Intervention

Topics

The sessions covered the following topics: (1) Nutrition during pregnancy, (2) Infant feeding options, (3) Infant feeding theory and practice - breast and replacement feeding, (4) Food safety and hygiene.

The intervention sessions included information on:

- healthy eating during pregnancy
- the theory of infant feeding – different feeding methods
- how to breast feed a baby (positioning, hygiene), advantages and disadvantages
- how to prepare infant feeds when you return to work

- how to reconstitute formula feeds, hygiene, measurements, advantages and disadvantages (only those that opted to formula feed)
- introduction of solid foods
- feeding young children
- food hygiene and safety

Teachings also included demonstrations

6.5 Challenges

Community workers report their main challenge currently is women not returning for their follow-up sessions at the clinic. This may be due to them moving to stay in another area or town. Also, some women enter the clinic just to receive a clinic card but then give birth at hospital, thus they have only been seeing these women at the recruitment stage.

6.6 Intervention Results

A total of 548 women enrolled in the study and only 268 mothers (who had given birth) attended sessions. Altogether 67.6% (n=181) of the sample attended up to four sessions, with 49,3% attending between 3-4 (n=132) sessions and 18.3% (n=49) attending between 1-2 sessions. A total of 87 (32.5%) mothers attended 5 and more sessions. Only mothers who were aged between 18 and 45years were eligible to participate in the study.

Four feeding categories were made: (1) exclusive breast-feeding ONLY, (2) exclusive formula feeding ONLY, (3) mixed feeding (breastfeeding + infant formula) and (4) mixed feeding (porridge + milk). After attending the nutrition sessions, women were asked to indicate their current feeding option. More than half of the sample indicated ONLY exclusively breastfeeding their babies, with 22.8% ONLY formula feeding and 15.7% mix-feed their babies (6% breastfeed and giving infant formula and 9.7% giving porridge and milk). Women were also asked about condom use, 55.6% indicated using condoms and 29.9% not using condoms.

Table 1: Feeding options (n=268)

<i>Exclusive breast-feeding ONLY</i>	<i>Exclusive formula feeding ONLY</i>	<i>Mixed feeding (breastfeeding + infant formula)</i>	<i>Mixed feeding (porridge + milk)</i>	<i>Are you using condoms Yes/No</i>
153 (57.1%)	61 (22.8%)	16 (6%)	26 (9.7%)	Yes: 149 (55.6%) No: 80 (29.9%)

6.7 Conclusion

The Infant feeding intervention programme seem to be effective since the majority of the woman either exclusively breastfeed or formula feed their babies. There is a concern though related to those women who still mix-feed their babies. Health care workers must be empowered to counsel mothers effectively to optimize maternal infant feeding practices, particularly in HIV-prevalent resource-poor settings.