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**KWAZULU-NATAL**

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**INYUVESI  
YAKWAZULU-NATALI**

**Microbicide acceptability and utility study**

**Investigating perceptions of men and women across urban and  
rural settings in Durban and Nelspruit**

**LONDEKA S. MBEWE  
(210547513)**

Supervisor: Dr Eliza Govender

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Master of Social Science

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# COLLEGE OF HUMANITIES

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## **Dedication**

To my late mother Margaret Khathazile Mbewe (Nconco), whose memory has been the greatest source of inspiration to me.

To my late grandfather John Alasimo Mbewe, thank you for instilling in me the love and appreciation for education. Here's to fulfilling the dream you had for me.

May this thesis also be a source of inspiration to my nieces and nephews; that they too can achieve whatever they set their minds on.

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## Abstract

Women remain disproportionately infected by HIV, accounting for more than half of the global infected population. Biologically women are more susceptible to HIV infection than men, however, their vulnerability is aggravated by various socio-cultural, structural and economic factors. Women in Sub-Saharan Africa carry a significant burden of the epidemic, making up 56% of all adult infections in the region, and up to 70% of all global infections. Young women aged 15-24 (AGYW) are hardest-hit by HIV, reportedly making up 25% of all new infections in the region, despite constituting only 17% of the adult population.

Despite the alarming infection rates, prevention options for women remain limited. Available methods such as the male and female condom have proven to be impractical for women, disregarding gender power dynamics that deny women the power to initiate or negotiate safe sex practices. Given the limitation of these prevention methods, the field of HIV has shifted focus to developing prevention methods that allow women autonomy over their protection against sexually acquired HIV. Microbicides are female-initiated biomedical prevention technologies designed to reduce women's reliance on male partner's cooperation or consent for use. Currently, there is no licensed microbicide product for public use, however, a couple of microbicide agents (the tenofovir gel and dapivirine ring) have demonstrated efficacy in clinical trials. Various microbicide agents are still undergoing clinical trials, coupled with a large volume of complimentary qualitative studies that examine possible barriers and facilitators for acceptance and utilisation in real life settings.

This study investigates the perceptions of microbicides amongst men and women across urban and rural settings in Durban and Nelspruit, South Africa. The study aims to identify the factors that may impede or facilitate microbicide use amongst women. The study also builds on a paucity of literature on studies assessing the impact of male involvement, and its impact on acceptance and uptake of microbicides amongst women. This study aims to contribute to the body of knowledge on the various contextual factors to consider when introducing microbicides across diverse populations.

The study employed a qualitative research approach, using focus group discussions as a data collection method. The data was collected from purposively selected men and women aged 18-55 from eight urban and rural settings in KwaZulu-Natal and Mpumalanga; provinces with the highest HIV prevalence in South Africa. The data was transcribed and analysed through thematic analysis, which was used to develop themes that emerged. Drawing from the Social Ecological Model of Communication and Health Behaviour (SEMCHB), identifying the community as an interrelated entity that has great influence in shaping an individual's health behaviour. The study applied the Culture-Centred Approach (CCA), which proposes that health intervention

programmes should be designed in a way that is consistent with a community's cultural framework.

The study found that even with initiatives to empower women, societal structures and masculinity still hold great influence on women's decisions to adopt new prevention methods as they find it necessary to consult with men regarding decisions about their sexual health. Male involvement is questionable, demonstrating potential for acceptance and male partner support, while also posing a threat on women's autonomy for protection against sexually acquired HIV.

The study argues that while male involvement can promote acceptance and adherence to microbicides in some contexts, this may be detrimental in other contexts, affecting sustainable adherence and subjecting women to social harms such as intimate partner violence.

**KEYWORDS:** HIV, Women, Microbicides, Vulnerability to HIV infection, HIV prevention.

## List of Acronyms and Abbreviations

|                |   |
|----------------|---|
| <b>ABC</b>     | Abstain, Be Faithful, Condom use                              |
| <b>ABY</b>     | Abstinence and Be Faithful Among Youth                        |
| <b>AGYW</b>    | Adolescent Girls and Young Women                              |
| <b>AIDS</b>    | Acquired Immunodeficiency Syndrome                            |
| <b>ARV</b>     | Antiretroviral  |
| <b>ASPIRE</b>  | A Study to Prevent Infection with a Ring for Extended Use     |
| <b>AVAC</b>    | Global Advocacy for HIV Prevention                            |
| <b>CAPRISA</b> | Centre for the AIDS Programme of Research in South Africa     |
| <b>CCA</b>     | Culture- Centred Approach                                     |
| <b>CCMS</b>    | Centre for Culture, Communication and Media Studies           |
| <b>CDC</b>     | Centers for Disease Control and Prevention                    |
| <b>CGHE</b>    | Center for Health and Gender Equity                           |
| <b>OHRPP</b>   | Office of the Human Resource Protection Program               |
| <b>FACTS</b>   | Follow-on African Consortium for Tenofovir Studies            |
| <b>FGD</b>     | Focus Group Discussions                                       |
| <b>FGM</b>     | Female Genital Mutilation                                     |
| <b>FIPM</b>    | Female-Initiated Prevention Method                            |
| <b>FSW</b>     | Female Sex Workers  |
| <b>GBV</b>     | Gender Based Violence   |
| <b>GCM</b>     | Global Campaign for Microbicides                              |
| <b>HIV</b>     | Human Immune-virus  |
| <b>HRW</b>     | Human Rights Watch  |
| <b>HSRC</b>    | Humanities and Social Sciences Research                       |
| <b>IGS</b>     | Intergenerational sex   |
| <b>IOS</b>     | International Organization for Standardization                |
| <b>HSV-2</b>   | Herpes Simplex Virus Type 2                                   |
| <b>IJWH</b>    | International Journal of Women's Health                       |
| <b>ISS</b>     | Interpretive Social Science                                   |
| <b>KZN</b>     | KwaZulu-Natal   |
| <b>KZN DOH</b> | KwaZulu-Natal Department of Health                            |
| <b>KFF</b>     | Kaiser Family Foundation                                      |
| <b>MCP</b>     | Multiple Concurrent Partners                                  |
| <b>MMC</b>     | Medical Male Circumcision                                     |
| <b>MP</b>      | Mpumalanga  |
| <b>MTN</b>     | Microbicide Trials Network                                    |
| <b>MSFI</b>    | Male Supported Female Initiated                               |
| <b>NGO</b>     | Non-Governmental Organisation                                 |
| <b>PATH</b>    | Programme for Appropriate Technology in Health                |
| <b>PLHIV</b>   | People living with HIV  |
| <b>PrEP</b>    | Pre-Exposure Prophylaxis                                      |
| <b>SANAC</b>   | South African National AIDS Council                           |
| <b>SALGA</b>   | South African Local Government Association                    |
| <b>SEMCHB</b>  | Social Ecological Model of Communication and Health Behaviour |
| <b>STI</b>     | Sexually Transmitted Infections                               |
| <b>TWP</b>     | The Well Project  |
| <b>TS</b>      | Transactional Sex   |
| <b>KZN</b>     | University of KwaZulu-Natal                                   |
| <b>UNAIDS</b>  | The Joint United Nations Programme on HIV and AIDS            |
| <b>UNFPA</b>   | United Nations Population Fund                                |
| <b>UNFPASA</b> | United Nations Population Fund South Africa                   |
| <b>UDP</b>     | Umsebe Development Planners                                   |
| <b>USAID</b>   | United States Agency for International Development            |
| <b>VOICE</b>   | Vaginal and Oral Interventions to Control the Epidemic        |
| <b>WHO</b>     | World Health Organisation                                     |



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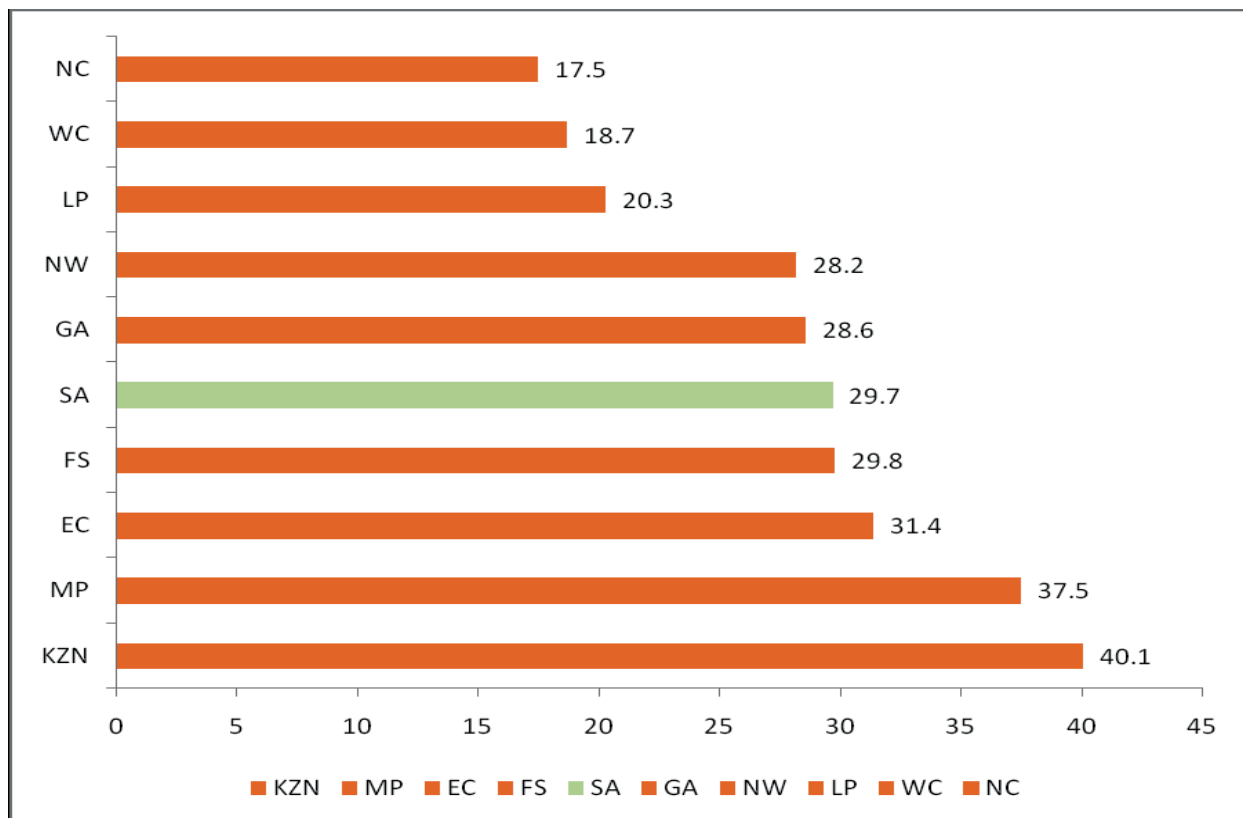
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# CHAPTER ONE: INTRODUCTION

## Introduction

The Human Immunodeficiency Virus (HIV) remains the greatest health problem globally (WHO, 2016). Despite current preventive and educational interventions, the epidemic continues to grow rapidly; becoming widespread in many parts of the world. Approximately ninety percent of the world's infections occur in developing countries due to underdeveloped socio-economic and political structures that drive risky sexual behaviour and shape vulnerability to HIV infection (Avert, 2015). Sub-Saharan Africa (SSA) is the epicentre of the global pandemic in Africa (Avert, 2015), reported to be home to 70% of the global HIV infected population (UNAIDS, 2016; Kaiser Family Foundation, 2016). Southern and Eastern Africa have the highest HIV profiles in SSA, accounting for about 46% of all new HIV cases and over 52% of all people living with HIV globally (KFF, 2016). South Africa in particular has one of the highest HIV prevalence in the world (Avert, 2015); with an estimated 6.19 million people living with HIV (PLHIV) in 2015 (Statistics South Africa, 2015); the largest HIV population number by country in the world (WHO, 2015). The overall HIV prevalence was approximately 11.2% of the total South African population, while there was an estimated 16.6% prevalence for adults aged 15–49 years only (Statistics South Africa, 2015).

While the HIV prevalence is generalized within South Africa, infections vary across provinces and population groups), as some are more critically affected than others (South African National AIDS Council), 2014). Figure 1.1 illustrates HIV prevalence by province in 2013.



**Figure 1.1:** HIV prevalence by province, South Africa, 2013. Source National Department of Health (2013)

The statistics above show that there is provincial variation amongst the prevalence, ranging from 40.1 % in KwaZulu- Natal (KZN), to 17.5% in the Northern Cape (NDOH, 2013). KZN was the highest HIV infected province, followed by Mpumalanga (MP) at 37.5% prevalence rates in 2013. Furthermore, the districts with the highest prevalence within KZN 2013 were, namely; iLembe- 45.9%, UMkhanyakude- 44.1%, eThekwini -41.1%, Umgungundlovu- 42.5%, Ugu at 41.1% and UThukela 40.0%, and in MP, Gert Sibande at 40.8% (NDOH, 2013).

In terms of population groups, females of reproductive age (15- 49) bear the greatest burden of infections (Statistics South Africa, 2015), with prevalence peaking amongst adolescent girls and young women (AGYW) aged 15- 24 years (SANAC, 2014). Antenatal reports from NDOH (2013) have shown KZN and MP women to have carried a disproportionate burden of infections between 2009 to 2013. In 2009, KZN women accounted for 39.5% followed by MP women at 34.7 %, and 40.01 and 37.5 of the national female prevalence in 2013. Both provinces have maintained HIV

prevalence increase of between 1.8% to 2.7% during the 5year provincial prevalence trend (NDOH, 2013).

This disproportion in infections amongst women is a result of various biological, cultural, socio-economic and structural factors that increase women's vulnerability to infection (Ramjee and Daniels, 2013; Nxumalo *et al*, 2014; Mwaura, 2008). These factors are premised on gender inequities that perpetuate male dominance in most spheres of women's lives, including sexual issues; while encouraging submissiveness and passivity amongst women (WHO, 2007; Parker, 2012). Such gender roles and norms, structural and economic imbalances deny women the power to negotiate safe-sex practices, thus leaving them vulnerable to infections. Prevention methods such as condoms and management strategies that encourage individual behaviour change such as the "Abstinence, Be faithful and Condomise" (ABC) approach therefore have been insufficient in preventing HIV acquisition amongst women; as they often have limited control over the decision to abstain from intercourse, be in monogamous relationships or abstain from intercourse (Alliance for microbicide development, 2006; Kline and Oken, 1992).

Given these limitations, biomedical options that offer women control over their protection against HIV infection have been proposed. These include the production of Pre Exposure Prophylaxis (PrEP) which are antiretroviral-based products such as pills or injectables that are prescribed to be used before exposure or possible exposure to HIV by both men and women (SANAC, 2014). PrEP includes microbicides which are topical products such as gels, and intravaginal rings that can be applied to the vagina or rectum to reduce HIV and STI acquisition (Abdool Karim *et al*, 2010; Shattock and Rosenberg, 2012; Vanpouille *et al*, 2012). Microbicides are presented as the first female-initiated HIV prevention methods that have the potential to allow women control over their sexual health. Women can gain this control through the possibility of discreet use thus reducing reliance on male partner's consent for protection against HIV (Stein 1990; Kelly *et al*, 2015; Ryan *et al*, 2015). The possibility of new HIV prevention options will broaden women's choices while also making prevention possible for diverse female populations globally (Shattock and Rosenberg, 2012; Stein, 1990). Currently, the daily oral Truvada is the only PrEP product that is licensed for use (UNAIDS, 2016). While there remains no female-initiated PrEP product (microbicide) that is licensed for use (AVAC, 2016), some microbicide products (tenofovir gel and dapivirine ring) have demonstrated potential in efficacy in preventing HIV amongst women. A number of microbicide agents are still undergoing clinical trials (AVAC, 2014).



Moreover, microbicides are regarded as both biomedical and social science products therefore they require health and social motivation across all levels of society (Montgomery and Pool, 2001; van der Straten *et al*, 2014). The decision to accept and utilise microbicides occurs within the larger structures of family, intimate partners, social networks, community and society (Storey and Figueroa, 2012). Therefore, it is crucial that extensive research to understand perceptions towards these prevention methods are conducted before they become available. Men are influential in acceptance or use of female-centred programmes (Lanham *et al*, 2014). This underpins the importance of acquiring both a male a female's perspective to women's use of microbicides. Furthermore, understanding men and women's perspectives will assist in identifying which microbicide products may be suitable for different users in their respective contexts. Communication therefore has an important role in examining how the various factors meet to influence acceptance and uptake of microbicides (Airhihenbuwa, 2005). Socio-behavioural research must also be at the centre of all developmental stages of new prevention technologies.

This study explores the perceptions of men and women across urban and rural settings in KZN and MP in order to identify possible barriers to acceptance and utilisation of PrEP products amongst women. The study further explores the impact of male involvement in microbicides as female-initiated prevention methods (FIPM) for HIV.

## **Background of the study**

Despite the growing prevalence, HIV prevention options for women remain very limited (Tallis, 2002; Amazu, 2005; Ayanga, 2008). Available prevention methods such as the male and female condom have proven insufficient in preventing HIV amongst women, due to disregarding the underlying factors that influence women's ability to adopt and/or adhere to behavioural prevention measures (Ogunlela, 2014). This highlights the urgency of prevention methods that enable women to have agency over their sexual health (Ryan *et al*, 2015).

While microbicide products have the potential to empower women to have increased control of their protection against HIV, their effectiveness may not be achieved if the socio-economic, structural and gender related factors that influence women's susceptibility to infection are not addressed (Schuler *et al*, 2013). Clinical and socio-behavioural research reveals challenges with acceptability (Lanham *et al*, 2014), adherence (Avert, 2016), belief in product due to partial efficacy (Shattock and Rosenberg, 2012; Orner *et al*, 2006), partner dynamics (Mantell *et al*, 2009; Woodsong, 2004; Montgomery *et al*, 2015), and stigma against ARV-based products (Blashil *et*

*al*, 2015; Van der Straten *et al*, 2014). These are trends that are likely to occur with microbicide use in real-life settings.

Men are generally more educated, they have greater wealth, greater political influence, with fewer restrictions on behaviour as compared to women (WHO, 2007). Such structural advantages allows men dominance and power to make decisions on women's behalf, including their sexual health (Parker, 2012). Therefore men may prevent women from adopting positive health behaviours such as the use of microbicides (MTN, 2016).

Research suggests that addressing the health aspect while disregarding the underlying contextual factors that foster unsafe behaviour is an ineffective approach, likely to hinder the success of new intervention programmes (Taylor, 1993; Airhihenbuwa and Obregon, 2001; Durden and Govender, 2012; UNAIDS, 2016). There remains a need for extensive socio-behavioural research and communication strategies to compliment biomedical interventions, in order to understand and address the factors that may stand as barriers to women's acceptance and up-take of microbicides. There also remains a gap in research regarding the impact of male involvement in microbicides as female-initiated prevention methods.

### **Purpose of the study**

The purpose of this study is to uncover men and women's perceptions of microbicides in order to identify the underlying factors that can prevent women from accepting or utilising microbicides as an HIV prevention method. Part of this study is to investigate the impact of male involvement in the acceptance and utilisation of microbicides. The rationale for male involvement in the study is based on the observation that while women express lack of power in negotiating safe sex practices with their male partners, there is only limited research exploring a male's perspective on this matter. A number of studies reveal that the limitations of current prevention methods such as condoms are due to disregarding the underlying influential factors that shape sexual behaviours. According to Montgomery and Pool (2011), it is imperative that extensive socio-behavioural studies on male involvement are conducted while microbicides are still in the development stages. Understanding a male's perspective alongside those of women will provide in-depth insight on the factors that influence women's sexual behaviour, as well as identifying which products will be relevant and suitable for potential-users (Nota, 2016).

This study builds on a number of perception studies conducted in KZN, assessing perceptions of microbicides across the province, while also touching on MP as a new research province in the field. The study also seeks to build on a paucity of literature on studies assessing the impact of male involvement in microbicide acceptance and use. The findings of this research will therefore contribute to the body of knowledge on the various contextual factors to consider when introducing microbicides across diverse populations.

## **Research Objectives and Questions**

The main objective of this study is to:

- a) To investigate men and women's perceptions regarding microbicides as a female-initiated HIV prevention method.
- b) Identify the underlying socio-cultural, economic and structural factors that may impede acceptance and utilisation of microbicides as an HIV prevention method.
- c) Explore the impact of male involvement in acceptance and use of microbicides.

As such, the following research questions drive this study:

- a) What are the perceptions of men and women regarding microbicide as a female-initiated HIV prevention method for women?
- b) What are the underlying factors that can influence the acceptance and utilization of microbicides by women?
- c) What is the influence of male involvement, and can involving men increase women's acceptance and utilisation of microbicides as an HIV prevention method?

## **Structure of dissertation**

The dissertation consists of six different yet coherent chapters that address the questions listed above. The chapters are as follows:

*Chapter One* provides a landscape of the current HIV statistics globally (36.7 million infections), and more particularly in South Africa (6.9 million infections). The chapter also provides a brief background of the study, the purpose of the study, as well as the goals and objectives the study set out to uncover.

*Chapter Two* presents a detailed account of the global HIV prevalence amongst women, delving particularly into the prevalence and incident rates amongst South African women. It also provides a detailed background of the underlying factors that perpetuate women's susceptibility to HIV infection, while presenting the history of prevention approaches and methods for women to date. This chapter also introduces microbicides as a possible future HIV prevention method for women, discussing the development of the field to date, looking at their purpose, use and barriers. The chapter also discusses the issue of male involvement in a female-initiated prevention method (FIPM), exploring similar studies in light of providing motivation for involving men in a study based on products that are designed for women.

*Chapter Three* presents the Socio-Ecological Model of Communication and Health Behaviour (SEMCHB) and the Culture-Centred Approach (CCA) as the conceptual and theoretical frameworks that inform this study. The SEMCHB is employed as a holistic approach, suitable for studying the interrelated socio-cultural, economic, and structural factors that influence individual health behaviour change, while CCA is employed to examine the cultural views (values, beliefs) of men and women in order to identify the barriers and facilitators of microbicides as a new female-initiated prevention method (FIPM) in the various study settings.

*Chapter Four* presents the research methodology employed in this study. This includes a discussion of the research paradigm, the research approach, the study design, data collection method, study sample, sampling technique, study context and setting, data analysis method, as well as the challenges and limitations of the study.

*Chapter Five* provides a presentation and analysis of the qualitative data obtained through focus group discussions (FGD) conducted between men and women across urban and rural settings in Mpumalanga (MP) and KwaZulu-Natal (KZN). The data is presented, analysed and discussed under four thematic categories that relate to the subject matter of the study. The chapter concludes by presenting a summary of the findings obtained from the analysis.

*Chapter Six* provides a discussion of the findings under each of the study's objectives and explained through the literature and theory in the previous chapters

*Chapter Seven* presents the conclusions and recommendations drawn on the basis of the findings.

## **CHAPTER TWO: LITERATURE REVIEW**

### **Introduction**

A large volume of literature has been written on the HIV AND AIDS epidemic and substantially on the subject of microbicides. This chapter reviews literature on (1) HIV prevalence amongst women, (2) women's vulnerability to HIV infection, (3) The underlying factors that increase women's vulnerability to infection, (4) The limitations of currently available strategies and methods for HIV prevention, (5) the introduction of new biomedical HIV prevention technologies (Past, current and future advancements in the development of microbicides and (6) Male involvement in microbicide use.

### **HIV amongst women**

HIV remains the greatest health problem for women, reported as the leading cause of death amongst women of child-bearing age globally (UNAIDS, 2016). Women have remained the fastest growing HIV infected population group since the epidemic's inception in the early 1980's (Kaiser Family Foundation, 2016). In 1990, statistics showed a 25% disproportion of female to male HIV infections globally (Taylor, 1993). These disparate statistics have dramatically increased over the years, with over half of the adult population living with HIV being accounted for by women in 2015 (KFF, 2016; UNAIDS, 2015). Women have a generally high incidence and prevalence rate than men (UNFPASA, 2014; SANAC, 2014). In Africa alone, women make up more than 70 percent of the population living with HIV (WHO, 2010). As Sub-Saharan Africa (SSA) is the hardest-hit region (UNAIDS Fact Sheet, 2014), it is no surprise that women in this region have carried the greatest burden of HIV for over two decades now (KFF, 2016). Adolescents girls and young women (AGYW) aged 15-24 in particular make up 25% of all new HIV infections among adults in SSA, but represent only 17% of the adult population (KFF, 2016). About 450 000 (380 000–530 000) new infections were documented in SSA amongst AGYW in 2015, this translating into approximately 8600 new weekly infections (UNAIDS, 2016).

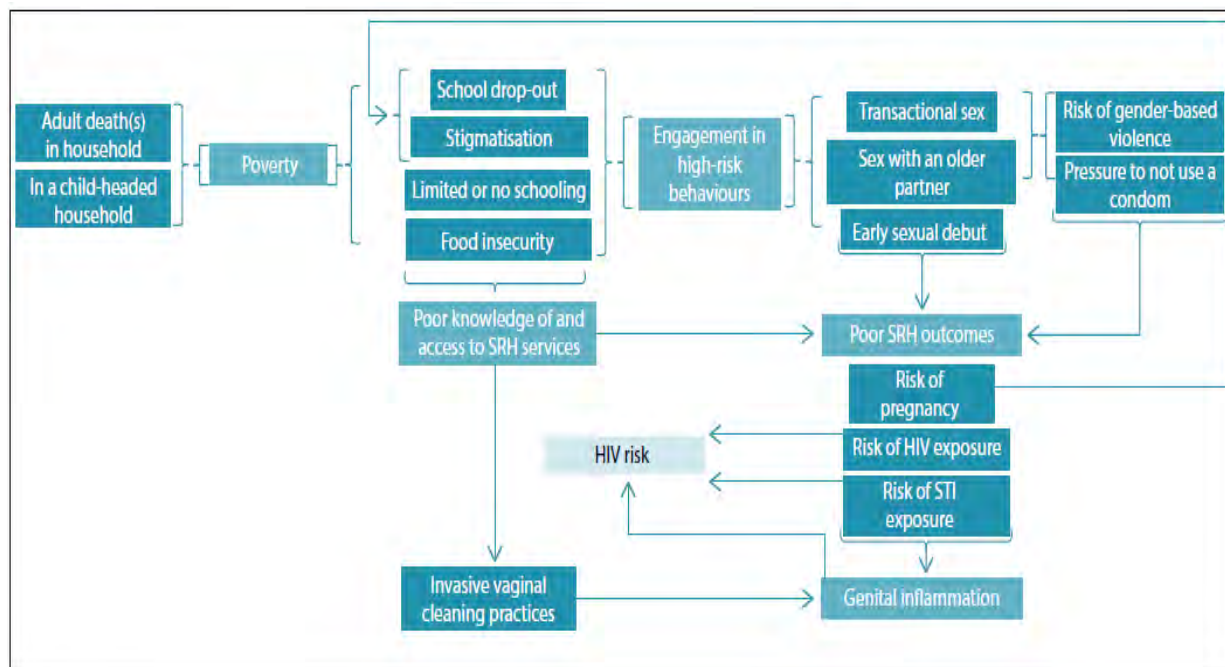
Most alarming is the high prevalence rate amongst South African women. In 2010, population-based zero-surveys and sentinel surveillance of pregnant women reported an increase of HIV infection amongst women aged 30- 34, with a prevalence of 42.6% nationally (UNAIDS, 2012). In 2013, the national prevalence amongst antenatal women was 29.7% (NDOH, 2013). The survey further found no indication of statistical difference in the national HIV prevalence estimates amongst antenatal care attendees between 2004 to 2013 (NDOH, 2013). In 2012, The Humanities

and Social Sciences Research (HSRC) estimated that incidence rates had increased amongst females of reproductive age (aged 15- 49) in 2012 (SANAC, 2014), while recent reports from Statistics South Africa (2015) revealed that one-fifth of South African women in their reproductive ages were HIV positive.

While South African women are generally highly infected, women in some age groups maintain high prevalence and incidence rates than others (Kharsany *et al*, 2012). In 2012, the HSRC reported a particular peak amongst adolescent girls and young women (AGYW) aged 15–24 (SANAC, 2014). The new National Strategic Plan (NSP) (2012-2016) has identified adolescent girls and young women (AGYW) to be amongst the most vulnerable population groups to HIV infection in the country (UNAIDS, 2016). HIV incidence is said to be highest for women in these age groups, who are likely to get infected five to seven years earlier than their male peers, despite boy's early sexual debut as compared to girls (Abdool-Karim and Humphries, 2008; Dellar *et al*, 2015a). There has been a 6% decline in new infections amongst AGYW between 2010 and 2015 however, infection rates are still significantly high (UNAIDS, 2016). Approximately 7500 new HIV infections occur in AGYW each week, a rate two and a half times that of their male counterparts (UNAIDS, 2016). Additionally, one third of AGYW are likely to have been infected with HIV by the age of twenty (Dellar *et al*, 2015a). This highlights an urgent need for effective intervention programmes, particularly for key populations such as AGYW. According to Abdool Karim (2014), reducing the HIV burden amongst AGYW would move us a step closer to achieving an AIDS free generation. UNAIDS asserts that achieving the goal of reducing HIV infections amongst AGYW to below 100 000 by 2020 requires comprehensive approaches tailored to fit local contexts (UNAIDS, 2016). This includes combination of biological, structural and behavioural interventions (Dellar *et al*, 2015a; UNAIDS, 2016).

### **Women's vulnerability to HIV infection**

Biologically women are more susceptible to HIV infection than men. Their vulnerability however is heightened by various socio-cultural, structural and economic factors that perpetuate women's susceptibility while also denying them power to protect themselves against infection (Ramjee and Daniels, 2013; Nxumalo *et al*, 2014; Mwaura, 2008). Figure 2.1 illustrates the various factors that increase women's vulnerability to HIV infection.



**Figure 2.1:** Network of factors that amplify risk of infection for South African Women, (Dellar *et al*, 2015b)

### ***Women’s biological vulnerability to HIV infection***

Women’s increased susceptibility to HIV infection is attributed primarily to their physiology/ biology (Quinn and Overbaugh, 2005; James, 2008). Their increased susceptibility can be explained by a number of factors, explained comprehensively by UNAIDS;

*the larger surface area of the vagina compared to the penis, increased mucosal HIV exposure time, the potential for micro-abrasions and tears of the vagina or cervix, the higher concentration of HIV in semen than vaginal fluids, the increased expression of HIV co-receptors in cervical cells (compared to foreskin cells), and high levels of activation of the immune cells in the female genital tract (UNAIDS, 2016).*

Women’s biology plays a major role in women’s increased vulnerability to infection. The area where the penis enters a woman’s body has many CD4 cells which HIV holds on to (AIDS.Gov, 2014). This is more severe in young girls whose genital tracts are immature, having fewer layers of mucous membrane therefore posing an increased possibility of the HIV-virus entering their bloodstream (James, 2008). Furthermore, male semen carries a higher viral load than vaginal discharge (James, 2008). The vagina retains seminal fluids therefore it is prone to fungal

infections and sexually transmitted infections (STIs), thus increasing women's chances of infection (Okemwa, 2008; AIDS.Gov, 2014). Physiological differences therefore makes transmission of the virus through heterosexual sex more efficient from men to women than vice versa (Okemwa, 2008; Higgins *et al*, 2010). Furthermore, the potential for viral infection in the female body is said to be heightened between 5 to seven days after ovulation, a time considered to be a window period in which the woman has an even higher susceptibility to HIV infection (Ramjee and Daniels, 2013).

### *Bacterial Vaginosis and STIs increase HIV vulnerability*

Bacterial vaginosis (BV) has long been identified as one of the factors that heighten the risk of HIV vulnerability amongst women. (Taha *et al*, 1998; Hillier, 1993; Myer *et al*, 2005; Passmore *et al*, 2016). BV occurs when there is a disturbance in normal vaginal flora called lactobacilli, and an increase in vaginal pH, which incapacitates the vagina from constraining potentially harmful bacteria while also facilitating the growth of STIs (Macdonald *et al*, 2007). Although BV is not classified as an STI, it is associated with sexual activity as it often occurs after intercourse with a new sexual partner or a frequent change of sexual partners (Mitchell, 2004). Other causes of BV include the use of spermicides, lubricants, vaginal douching (Scholes *et al*, 1993; Mitchell, 2004), and particularly in the African context this includes various vaginal practices (Low *et al* 2011; Beksinska *et al*, 1999). A study in the late 1990's found that approximately 50% of African women were prone to BV, which made them more susceptible to HIV infection (Taha *et al*, 1998). In a recent cohort study (Passmore *et al*, 2016), African women were found to have a high inflammatory profile that contributes to the high risk of HIV acquisition.

Recent findings reveal that persistent genital inflammation (GI) increases women's risk of acquiring HIV (Masson *et al*, 2015; Passmore *et al*, 2016). Although the major cause of GI hasn't been elucidated, a fraction of it can be attributed to BV (Taha *et al*, 1998; Hillier, 1993; Myer *et al*, 2005) and asymptomatic STIs; which are likely to remain untreated thereby leaving women at risk of infection (Masson *et al*, 2015; Passmore *et al*, 2016). In this study, GI was associated with lower genital tract inflammation caused by BV and asymptomatic STIs, as they activate HIV target cells and disrupt the vaginas defensive bacteria (Passmore *et al*, 2016). The study also found that inflammation of the genital tract creates an environment that allows for reproduction and establishment of permanent infection (Passmore *et al*, 2016). Latest findings from CAPRISA revealed that South African women with an overgrowth of *Prevotella bivia* had an increased risk of HIV infection that is almost 13 times higher than those with low levels or absence of this vaginal



bacteria (Williams *et al*, Forthcoming). This causes GI, therefore it resembles BV in increasing women's vulnerability to HIV infection (Williams *et al*, Forthcoming). Another study found that in the absence of lactobacilli, Gardnerella vaginalis (GV) becomes dominant in the vagina, therefore raising the vaginal pH balance (Burgener, Forthcoming).

Thus far, the treatment of BV and STIs has been inadequately managed in Africa, hence the high HIV prevalence amongst women (Passmore *et al*, 2016). According to the Centre for the AIDS Programme of Research in South Africa (CAPRISA) (2016), these findings (Williams *et al*, Forthcoming; Burgener, Forthcoming) are key to realizing a significant impact on the spread of HIV in women in South Africa. Determining which women need treatment for BV will be made easier as both PB and GV raise vaginal pH, making them easy to detect (CAPRISA, 2016). These possible interventions however need to be complimented by effective treatment of asymptomatic STIs and BV as well as efficient educational programmes on vaginal health and hygiene for women at high risk of HIV infection (Passmore *et al*, 2016).

The next part of this section will discuss other factors which increase women's biological susceptibility to HIV acquisition.

#### *Hormonal contraceptives influence HIV acquisition*

A large volume of research (Quinn and Overbaugh, 2005; Ramjee and Wand, 2012; Haddad *et al*, 2014; Polis and Curtis, 2013) revealed that the use of progestogen-only hormonal contraceptives, such as depot medroxyprogesterone Acetate (DMPA) and norethisterone enanthate (NET-EN) may heighten the risk of HIV infection amongst women. DMPA is an aqueous suspension of 17-acetoxy 6-methyl progestin administered at a dosage of 150mg/ml by intramuscular depot injection every three months, while NET-EN is administered at a dosage of 200mg/ml norethisterone every two months (Draper *et al*, 2006; Mishell, 1996). Findings from epidemiological research however has been inconsistent as other studies have found either little or no association (Ralph *et al*, 2016; Polis *et al*, 2014). Given insufficient evidence in support of this claim, the WHO strongly advised that progestogen-only hormonal contraceptives should be used in conjunction with condoms (WHO, 2015; UNAIDS, 2012; USAID, 2013).

A recent meta-analysis of 24 studies found that Depo-Provera, a widely used DMPA-based contraceptive in SSA, increases women's risk of acquiring HIV by up to 49% (Brind *et al*, 2015). DMPA is the active ingredient used for an estimated 70% of contraceptives procured by non-governmental agencies such as UNFPA and USAID (Abbamonte, 2016). High contraceptive acceptance is often associated with non-condom use (Abbamonte, 2016). This is especially true

in SSA where hormonal contraception efficacy is high (Population Research Institute, 2016) while the primary mode of transmission is through sexual intercourse due to a decline in condom use (Ramjee & Daniels, 2013). The study also found consistent evidence that DMPA-based contraceptive users acquired HIV at a significantly higher rate than non-contraceptive users (Brind, Condly, Mosher, & Morse, 2015), confirming data from two recent meta-analysis (Ralph *et al*, 2015; Morrison *et al*, 2015), that DMPA increases the risk of infection by 40 to 50% (PRI, 2016).

A possible biological explanation is that DMPA and progesterone weakens the immune system, while thinning the natural epithelial layer, increasing concentration of susceptible cells thus allowing the HIV virus to manifest (Abbamonte, 2016; Goode *et al*, 2014; Brind, 2015). Research also suggests that progesterone treatment reduces the concentration of lactobacilli (Mitchelle *et al*, 2014). As highlighted earlier, a decrease in lactobacilli entails a disturbance in vaginal flora, which causes BV and genital inflammation, which in turn increases the risk of HIV acquisition (Macdonald *et al*, 2007; Hillier, 1993). In light of this evidence, the PRI (2016) suggests revisiting WHO's current recommendation that DMPA be provided without restriction for all women including those at substantial risk of HIV infection. The article further asserts that women are to be informed about the possible risk of infection posed by this hormonal contraceptive. The suggestion for DMPA to be used in conjunction with the condom is perceived as an irresponsible recommendation (Abbamonte, 2016), taking into consideration the high rates of non-condom use, particularly in high incident areas such as SSA.

Whilst there is significant evidence of women's biological susceptibility to HIV infection, their vulnerability is also increased substantially by various cultural, gender, social, structural, and economic factors (Nxumalo *et al*, 2014; Mwaura, 2008).

### ***Culture and women's vulnerability to HIV***

Culture is identified as one of the key factors that influence high infection rates amongst women. UNESCO (2000) defines culture as a set of distinctive spiritual, material, intellectual and emotional features of a society or a social group. In addition, it encompasses aspects such as art, literature, lifestyles, ways of living together, value systems, traditions and beliefs. Culture is also defined as a socially constructed phenomena Culture is also described as a socially constructed phenomena that creates knowledge, beliefs and customs which form individual or group identity within a given society (Wadesango *et al*, 2011). This phenomena is deeply entrenched in all aspects of a society, including local perceptions of illness and health seeking behaviors (Nandoya,

2014; Peterson, 2009). In this research, culture is examined as one of the key determinants towards the HIV crisis amongst women.

### *Cultural gender roles and the spread of HIV amongst women*

One defining characteristic of culture is the notion of gender, defined as “a culturally defined set of economic, social, and political roles, responsibilities, rights, entitlements, and obligations based solely on the physical differences between males and females” (Lanham *et al*, 2014:6). What can be drawn from this definition is that gender is a socio-cultural construct that defines how men and women should interact with each other (Burger, 2005).

Amongst the widely apparent discourses of the gender system is enforcement of a culture of submissiveness, passivity and silence amongst women, while men are often encouraged to be strong and dominant in all spheres of life, including sexual matters (Lanham *et al*, 2014). Such gender norms often make negotiation about sexuality impossible for women (van Damme *et al*, 2008), as good women are said to be passive and uninformed about sexual matters (Weiss *et al*, 2010; Lanham *et al*, 2014; Abdool Karim, 2005). This subordinate positioning of women and the social pressure to maintain innocence is detrimental to their health, restricting women’s access to information on sexual health (Buvé, 2002). As a result, women are often reluctant to seek information regarding their sexuality, or openly discuss sexual matters with their partners, or request the use of protective barriers due to fear of appearing promiscuous (Varga, 1997). For young women, this includes fear of suspicion of being sexually active, therefore they are unable to make informed choices about their sexual health (Ramjee *et al*, 2001; Weiss *et al*, 2010; ICAD, 2006). The notion of gender therefore is used negatively, to serve the needs of men while exploiting and oppressing women (Ackerman, 2008; Ayanga, 2008).

The UNAIDS draws a strong association between the notion of gender and women’s increased susceptibility to HIV infection (UNAIDS, 2014). The WHO (2007) also postulates that cultural gender inequities damage the health of girls and women across the globe, acting as “an indirect yet powerful factor in the sexual spread of HIV” (Murphy *et al*, 2006: 1443). This observation is evident in many African countries that remain patriarchal, enforcing gender roles and norms that deny women control over their own sexuality, or that of their partners (James, 2008; Ramjee and Daniels, 2013; Buvé, 2002; Peterson, 2009). Cultural values and beliefs of gender are deeply entrenched in discriminatory views on the role and position of women in society. These are often carried out through harmful customs and traditional practices such as polygamy, child marriage, female genital mutilation (FGM) (Wadesango *et al*, 2016). Not only do these

phenomena violate women's rights, they leave them vulnerable to diseases such as HIV (Nyathikazi, 2013; Jewkes *et al*, 2010; Kun, 1997; Taha *et al*, 1998).

### *The practice of polygamy and Child marriage*

Culturally, men's sexual power and pleasure is privileged over their female partners (Kelly *et al*, 2015), regularly depicted as irrepressible therefore justifying their risky sexual behaviours (Stern and Bukeima, 2013). The practice of polygamy is a great example of such a cultural practice, where men can have more than one spouse at the same time (Nyathikazi, 2013). This is a cultural practice that is prevalent almost universally across Africa (Njoh, 2016) and it is sanctioned by both cultural and legal systems (Nyathikazi, 2013). Polygamy is considered a major factor in the spread of HIV and AIDS in Africa (Oppong, 1998). Research indicates that polygamy perpetuates HIV, consequences of which are suffered by women and children (Nyathikazi, 2013).

In South Africa, various public figures including the current state president Mr. Jacob Zuma and various traditional leaders practice polygamy (Nyathikazi, 2013). In Swaziland the strong traditional ideologies of polygamy overpower prevention and management interventions against the high infection rates (Mbirimtengerenji, 2007). A study in the North Coast of KZN found that this practice does not necessarily discourage engagement in illicit relationships therefore it may be a risk factor exacerbating the spread of HIV amongst polygamists (Nyathikazi, 2013).

In the 21<sup>st</sup> century, polygamy has since trickled into social norms where it is practiced in informal sexual relationships. In a study conducted in rural KZN, Harrison *et al* (2006) found that male participants were of the opinion that men should not be limited to a single sexual partner. In the same setting, women were expected to have heightened control of their sexual desires. Failure to do so results in being labelled as promiscuous or not meeting the social standards of a 'good woman' (Harrison *et al*, 2006). In another study in the Western Cape, participants strongly believed in the 'male sex drive' discourse, where men's sexual desires are believed to be irrepressible therefore their risky sexual behaviour is permissible (Strebel *et al*, 2012). Women's sexual restriction therefore is naturalised into social and cultural systems, and is sometimes supported by larger structures such as the legal system (WHO, 2007).

Young women are forced into early marriages in Africa. This is a cultural practice believed to preserve family honour and a state of a country's civil registration system therefore it is socially approved, and further condoned by larger structures of customary or religious laws (UNICEF, 2016). The latest update from UNICEF (2016) shows that one in four girls in SSA are married before the age of 18, and about 1 in 8 gets married or is living in union before the age of 15. Not

only does this practice violate young girls human rights but, it also puts them at health risk of contracting STIs including HIV resulting from early sexual debut, the risk of being coerced into harmful sexual practices and compromising situations such as sexual exploitation, intimate partner violence (IPM) and abuse (UNFPA, 2016; Hotchkiss *et al*, 2016). In such instances, women do not have the power to negotiate safe sex practices, or to leave the partner placing them at risk of HIV infection due to various socio-economic factors that restrict their independence in most spheres of their lives (Murphy *et al*, 2006; Dunkle *et al*, 2004; Jewkes *et al*, 2010; Prince *et al*, 2005). Women's disadvantaged gender and social positions therefore leave them vulnerable to infection, and it is often not through their own behaviour but as a result of their partner's risky behaviour (Higgins *et al*, 2010).

### *Vaginal practices*

In a context where men's sexuality is deemed irrepressible (Kelly *et al*, 2015), women resort to various vaginal practices in efforts to "enhance men's sexual pleasure, ensure men's fidelity and exercise agency and control in their relationships" (Scorgie *et al*, 2009: 267). A number of studies (Beksinska *et al*, 1999; Scorgie *et al*, 2011; Ramjee *et al*, 2001) reveal South African men's preference for 'dry sex', which includes drying, tightening or warming of the vagina for sexual intercourse (Beksinska *et al*, 1999). Where a woman has excess vaginal lubrication 'wetness' during sex, it is believed that she is promiscuous, has engaged in intercourse with another man, or her vagina is not considered that of a 'good woman' (Scorgie, 2009). A wide variety of products are used, some modern or commercialised medicines, some 'traditional', home-made or traditional herbs and medicines, etc. (Scorgie *et al*, 2011; Kun, 1998; Low, 2011).

Cultural beliefs about sexual health support vaginal practices (Scorgie *et al*, 2011), however vaginal practices have been found to intensify the risk of HIV (Beksinska *et al*, 1999). A recent meta-analysis found that various intravaginal practices such as the use of cloth or paper, insertion of products to dry or tighten the vagina and cleaning with soap were associated with disruption in vaginal flora and high rates of HIV amongst women in SSA (Low *et al*, 2011). As highlighted earlier, a disturbance in vaginal flora results in BV, which in turn causes genital inflammation and heightens the risk of HIV acquisition amongst women (Taha *et al*, 1998; Myer *et al*, 2005; Passmore *et al*, 2016).

Moreover, the practice of dry sex may also result in friction in the genital area, disturbance and thinning of the vaginal walls, and a high probability of the condom tearing (Mswela, 2009). In

South Africa, vaginal practices are most common in KZN, which is also the province with the highest HIV prevalence (Mswela, 2009; Scorgie *et al*; 2009; Gafos *et al*, 2009).

The practice of dry sex and vaginal practices may pose a threat to acceptance and use of future prevention methods such as vaginal microbicides, more so those that have lubricative properties (Woodsong, 2004). In the case where acceptance is achieved, these practices may limit the effectiveness of microbicides. A recent analysis of 3 334 genital bacterial proteins amongst 886 women found that the tenofovir gel- an intravaginal form of microbicide was effective in preventing HIV infection amongst 3 out of 5 women with a healthy lactobacillus or vaginal flora, while little effectiveness was found amongst those with a disturbance in lactobacillus (Burgener, Forthcoming). Follow up laboratory studies showed that *Gardnerella vaginalis*, which predominates in the vagina when lactobacillus levels are low, absorbs tenofovir thereby reducing the availability of the drug to prevent HIV infection (Burgener, Forthcoming).

The promotion of female-initiated prevention methods should include teaching women about the dangers of vaginal practices, and encourage safe cleaning of the vagina such as the use of water only (Low, 2011). There is a need also for better STI and BV management strategies in women at high risk of HIV infection (Passmore *et al*, 2016).

### ***Female Genital Mutilation***

African women's biological vulnerability is also extremely exacerbated by female circumcision or FGM, a procedure whereby "partial or total removal of or injury to the external female genitalia performed for non-therapeutic reasons" (WHO, 1996: 1). This practice bears strong cultural meanings that are linked to women's sexuality and reproductive roles in society (Toubia, 1994). The practice serves to decrease women's sexual pleasure in an effort to discourage women from pursuing sexual contact, also forming part of the cultural socialisation of women into acceptable roles of womanhood (Toubia, 1994; Hrdy, 1987).

Not only does FGM cause excruciating pain and devastating long-term physical and psychological effects on women, it is a violation of their human right and a serious public health problem (Toubia, 1994); and also found to heighten their susceptibility to HIV infection (Hrdy, 1987). A much apparent cause of vulnerability is the conditions under which the procedure is performed, as the same unsterilised instrument is often used to mutilate a number of girls or women, therefore leaving uninfected women highly vulnerable to infection (Brewer *et al*, 2007). Demonstrating the

risks posed by FGM, Brewer and colleagues found that HIV was more prevalent amongst circumcised male and female virgins than uncircumcised virgins in Kenya (Brewer *et al*, 2007).

Moreover, female circumcision increases male-to-female HIV transmissions (Hrdy, 1987). Mutilated women are prone to genital inflammation and bleeding during sex, associated with high risk of HIV infection (Masson *et al*, 2015; Passmore *et al*, 2016), as highlighted earlier. The reduction of the vaginal opening entails forced entry during intercourse, subjecting the woman to vaginal tearing which increases absorption of secretions and HIV (Hrdy, 1987; Kun, 1997).

Given the discussions on cultural and gender roles and cultural practices that perpetuate the spread of HIV, it is apparent that women's susceptibility to HIV is manifest through gender inequities (Harrison *et al*, 2006). The notion of gender therefore should be the initial point to adequately addressing the HIV and AIDS pandemic (Amazu, 2005; Burger, 2005; Prince *et al*, 2005). A gender lens would allow for proper examination of how socio-cultural inequalities combine to create women's vulnerability to HIV infection (Burger, 2005; Prince *et al*, 2005). Strebel *et al* (2012) posit that gender roles are often reciprocal and mutually agreed upon therefore, understanding the gender system from both men and women's perspectives is essential to the success of any sexual behaviour intervention. Furthermore, addressing the positioning of women should be at the forefront of the HIV crisis, starting with changing men's socialization practices by teaching them about women's rights (NDOH, 2012). Women should also be educated about their rights in order to empower them for sexual negotiation and protection (Abdool and Frohlich, 2000). It is greatly imperative therefore, that gender power dynamics are taken into consideration when introducing a new HIV prevention method for women.

### ***Socio-behavioral factors that increase vulnerability***

Socio-behavioural factors have been noted to play a role in the increase of vulnerability of HIV infection in women. Such factors include multiple concurrent partners, intergenerational sex, alcohol consumption and so forth which will be discussed below.

#### ***Multiple Concurrent Partners and Intergenerational sex***

Multiple Concurrent partnerships (MCPs) are increasingly recognized amongst the greatest factors that heighten heterosexual HIV transmission in Africa (Mah and Halperin, 2010). MCPs refer to having multiple or overlapping sexual partners at the same time (Astatke & Meyanathan, 2012). The risk of acquiring infection is closely linked to the number of sexual partners a person

has (Morris & Kretzschmar, 1997). This is explained simply by Parker *et al* (2007), that the greater the number of individual sexual partners an HIV-negative person is exposed to, the greater the chance that they will encounter a person who is HIV-positive (Parker *et al*, 2007).

MCPs increase the size of an HIV epidemic, its growth rate and its persistence within a population (Mah & Halperin, 2010). Mah and Kretzschmar (1997) estimated that an epidemic size could increase by up to 10 times in 5 years if one-half of a population's partnerships are in concurrent sexual relations. This is caused by a growth in the number of people connected in the sexual network, and often the infected person immediately spreads beyond the initial partnership to infect others. The paper further asserts that in concurrent partnerships, earlier partners often remain connected to the subject thus they are at a risk of getting infected if the subject becomes infected by a later concurrent partner (Morris and Kretzschmar, 1997).

Having a partner with a history of having many sexual partners is also associated with higher levels of HIV acquisition (UNAIDS, 2016). MCPs are closely linked to the high widespread trend of intergenerational sex (IGS) in South Africa. IGS describes a sexual relationship where the partners have a 5 to 10 year age difference (Gregson *et al*, 2002). IGS mainly occurs between older men and younger women, due to a similarly prevalent and harmful trend of transactional sex (TS) which is to be explained further in the discussion. Older men are highly likely to have engaged in many sexual relations with people who may also belong to other sexual connections, which indirectly broadens the sexual networks in which younger women engage (Rangathanan *et al*, 2016). Similarly, Karim and Humphries (2008) observed that the risk of infection in AGWY is increased by the age of the men they have sex with, who are much older and are likely to be infected and to have other sexual relations with whom they are less likely to use condoms. IGS therefore places younger women at a heightened risk of acquiring HIV.

A study conducted with UKZN female students indicated that young women engage in sex with older men and are often unaware of their multiple and concurrent sexual relationships therefore increasing their exposure to risk of HIV infection (Mutinta, 2012). The study further notes that the age gap in such relationships also means that these young women have other sexual relations with men in their age groups, which renders more complications and further amplifies the risk and speed of infection within the sexual network (Mutinta, 2012).

A national survey in 2015 found an HIV prevalence of 29.5% amongst 15-19 year old women whose partner was five years or older, compared to 19.3% of those whom had partners within the



five years age range (Shisana *et al*, 2005). Years later, the survey found a prevalence of 33.7% amongst female adolescents (15- 19) with partners more than five years their senior, compared to only 4.1% amongst their male peers in South Africa (Shisana *et al*, 2012).

Recent findings from a community-wide phylogenetic study conducted by CAPRISA in KZN offers a comprehensive description of the severity of IGS and MCPs in increasing the risk of infections, particularly amongst AGYW (de Olivier *et al*, 2016). An HIV genotyping linked 123 women to 103 men, and only 18 (30.0%) men aged 18-25 were linked to the 43 infections amongst women of the same age groups, while 37 (61.7%) was linked to men aged 25-40 years, and 5 (8.3%) were aged 41-49 years. 16 (39.0%) of 41 probable men linked to women younger than 25 were also linked to women aged 25-40 years (de Olivier *et al*, 2016). The study concluded that older men who engage in sexual relations with multiple younger women are the key feature that drives the sexual networks of transmission in KZN (de Olivier *et al*, 2016). Addressing MCPs and IGS trends amongst older men and younger women therefore is an important element in addressing the high infection rates amongst AGYW.

### *Alcohol consumption*

Numerous studies have shown that alcohol consumption is associated risky sexual behaviours including unprotected sex, multiple partnering and commercial sex (Fritz *et al*, 2011; Kalichman *et al*, 2007; Watt *et al*, 2012; Bryant *et al*, 2007). Alcohol consumption has an impact on sexual decision-making or the capability to negotiate safe sex practices, as it often impairs judgement and diminishes risk perceptions and therefore increasing the likelihood of unsafe sex (Bryant *et al*, 2010; Cook and Clack, 2005).

South Africa is estimated amongst the highest alcohol consumption rates in the world (Parry, 2005). Alcohol is used as a form of socialising, which includes irregular heavy drinking during weekends (Ramjee *et al*, 2016). Implications of these trends are associated with high risky sexual behaviours such as unprotected sex (SANGONeT, 2012). For example, a study found in Cape Town, South Africa found that alcohol intake creates a desire for sex, which often results in unprotected intercourse as it would be unanticipated (Watt *et al*, 2012). In another study (Strebel *et al*, 2014), the use of alcohol was found to undermine intentions to use condoms by both partners. Findings from another study amongst men and women receiving STI treatment in Cape Town, South Africa associated risky sexual behaviour with alcohol use (Simbayi *et al*, 2004).

Alcohol serving establishments (shebeens, taverns, night clubs) are said to be meeting places for sexual partners (Watt *et al*, 2012). According to Watt *et al* (2012), these venues are often male dominated, therefore, they are largely characterised by gender dynamics. Sexual exchange for alcohol is normal and acceptable, sexual harassment is also a common feature in these venues. Moreover, while the consequences of alcohol use are often generalised amongst men, women also experience the social harms of alcohol in multiple ways including intimate partner violence (IPV), sexual coercion and unprotected sex (Fritz *et al*, 2011; Dunkle *et al*, 2004).

Given such behavioural trends, it is critically important to understand the epidemiological context of HIV. This is “the current state and trends in the behavioural and biological factors that determine the transmission dynamics of a given disease and the impact of a specific intervention” (Aral and Cates, 2013: 338). Similarly, Abdool-Karim and Humphries opine that effective prevention of a disease can be achieved if prevention programmes are designed and implemented based on full knowledge of the local epidemic context. For example, the key to risk reduction behaviour amongst South Africans lies in addressing the prevalence of alcohol consumption through interventions aimed at reducing drinking behaviour (Pitpitani *et al*, 2013). Alcohol- serving establishments should be the main points for such interventions, where such behavioural trends are most prevalent (Kalichman *et al*, 2007).

### *Intimate Partner Violence (IPV)*

High rates of IPV cases are identified as the strongest risk factors for HIV infections amongst women in South Africa (Pitpitani *et al*, 2013; Lanham *et al*, 2010; Strebel *et al*, 2012). IPV refers to “physical or sexual assault, or both, of a spouse or sexual intimate” (Campbell, 2002: 1331) that is often subjected upon women (Fritz *et al*, 2011; Dunkle *et al*, 2004; Dworkin *et al*, 2012). According to Ramjee and Daniels (2013), adopting a healthy behaviour (sexual abstinence, condom use) can reduce susceptibility to HIV, however, this is not a reality for many women who have limited control over their lives.

In a South African township, IPV was found to be very common amongst KZN men, carried out for sexual coercion, or to force women into doing certain things they do not wish to do (Harrison *et al*, 2006). Another study conducted amongst 15-24 year olds across the 9 provinces in South Africa revealed that lack of sexual and relationship power was associated with inconsistent condom use (Pettifor *et al*, 2004). In this study, women with low relationship control were often subjected to IPV, and they were highly likely to experience sexual coercion and condom-less sex

(Pettifor *et al*, 2004). In support of this study, various studies (Ramjee and Daniels, 2013; Duffy, 2005; Lanham *et al*, 2014) found that women lack sexual agency, as they often incur abuse for initiating sex, the use of condoms or denying men's sexual advances. As a result, women who experienced IPV are less likely to use protection therefore they often have a heightened HIV incidence and prevalence (Jewkes *et al*, 2010). IPV and sexual coercion limit their autonomy to use preventive methods through fear and intimidation and abuse (ICAD, 2006; Strebel *et al*, 2012).

### *Social norms influence perception of risk*

Social norms and collective behaviour contribute to a rise in an epidemiological situation, standing as the greatest factor that influences decision-making and behaviour (Hoffmann (2010). Social norms are defined as "beliefs, values, and practices of a specific group that are external to individuals, and which exercise pressure on individuals to make them behave in pre-determined ways" (Hoffmann, 2010: 13). Research shows that a person's beliefs play a major role in determining their acceptance of a new prevention method (Mantell *et al*, 2006).

The ongoing transmissions are perpetuated by misconceptions of low risk of HIV infection, despite high-risk sexual behaviours (Thana Khawcharoenporn *et al*, 2014). People often disregard their risk to HIV infection, thinking of HIV as another person's problem (Karim and Humphries, 2008). In 2012, a national survey found that 79.2% of the people who took part on a national antenatal survey believed they were not at risk of acquiring HIV in South Africa (Shisana *et al*, 2012). Examining the South African context, Karim and Humphries (2008) assert that false perception or risk and lack of personalization of the virus perpetuates risky behaviours such as having multiple sexual partners and lack of condom use.

Most concerning is the detrimental norm amongst people in marital and long-term relationships who do not consider themselves to be at risk of acquiring HIV. This misconception is mainly influenced by notions of trust, familiarity, and commitment in such relationships (Smit, 2008; Crowell and Emmers-Sommer, 2001; Woodsong, 2004). This often result in the misconception that barrier methods such as condoms are only ideal for use in short-term or casual relationships (Stern and Buikema, 2013; Kelly *et al*, 2015; LaCroix, 2013; Maharaj 2009; Maharaj and Cleland, 2005). Requesting the use of condoms is often perceived as lack of trust or love for your partner, as found in a study in the Western Cape (Strebel *et al*, 2012). As a result, social norms dictate a norm of discontinuing condom use in longer-term partnerships or marriages, which then impedes

the effectiveness of condoms in the fight against STIs and HIV (Beksinska *et al*, 2012). Women therefore may feel constrained by these norms, as their ability to protect themselves is often related to their perception of what will be supported by the community (Cain *et al*, 2014).

This trend is apparent even amongst young people. The *Mpondombili* project revealed that rural South Africans adolescent boys did not perceive themselves to be vulnerable to HIV, and were of the belief that they could identify the level of HIV risk by a girl's appearance (Mantell *et al*, 2006). The study also found that condoms were not used with steady partners, only with girls they considered likely to be infected. In a similar study in the township of Khutsong, near Carletonville, low perceived risk; peer norms; adult attitudes to condoms and sex; gendered power relations and the economic context of adolescent sexuality were amongst the factors that hindered condom use amongst youth aged 13-25 (MacPhail and Campbell, 2001).

Contrary to this belief, findings indicate that new HIV infections in women are prevalent in marriages or long-term relationships (UNFPA and PATH, 2006). Women within these relationships are unable to suggest condom use even when they suspect their husband has multiple partners as doing so is associated with infidelity or suspicion of infidelity (Sedibe *et al*, 2014). For example, the use of condoms was found to be a problem in a study in the Western Cape, where it is believed that 'real men' do not use condoms, therefore it was often difficult for women to negotiate the use of condoms (Strebel *et al*, 2012). Although there has been considerable progress in women's empowerment for sexual negotiation in some contexts, some women, particularly married and cohabitating women are compelled to rely on monogamy for protection against HIV infection (Woodsong, 2004). Condom use has proven to be an ineffective recommendation amongst people with such beliefs, particularly for women as being in a monogamous relationship does not guarantee much protection against HIV as they get infected by their husbands (Fleischman, 2004; Cohen, 2004).

The Khutsong study (MacPhail and Campbell, 2001), found evidence that although some young people attempted to behave in counter-normative and health-enhancing ways, this was hampered by the dominant sexual norms in the community. Hoffmann (2010) postulates that health enabling social norms and collective behaviour must be introduced within communities, this means addressing health detrimental social norms while offering supportive norms and behaviours that empower and enable the expression of healthy behaviour. There is a need also for further research on understanding how social norms of relationships influence sexual behaviour.

According to Becker *et al* (2004), exploring and addressing the prevalent norms and attitudes regarding long-term married couples and steady partnerships and the use of protection would be useful for future prevention methods.

### ***Structural and economic factors that perpetuate women's vulnerability to HIV***

Over the years, economic and structural disadvantage has been associated with the high rates of HIV amongst women (Ackerman and de Kerk, 2002; Beksinska *et al*, 2012; WHO, 2007; Mbirimtengerenji, 2007; UNAIDS, 2016). These factors have much complexities which vary amongst individuals (Ackerman and de Kerk, 2002). In this study, the focus is much on poverty amongst women, linked closely to lack or limited access to education which consequently creates unemployment and in turn financial dependence on men (Jangu, 2014; Mbirimtengerenji, 2007).

### ***Educational constraints***

Limited access to education and economic opportunities is amongst the key factors that increase women's vulnerability to HIV infection (Jangu, 2014; Abdool Karim and Frohlich, 2000). The WHO (2007) observes that generally men have greater wealth, greater political influence, more educated, with fewer restrictions on behaviour as compared to women. Many women are deprived of access to basic education, pressured to leave school due to financial constraints which require them to contribute to household chores or income generation (ICAD, 2006). In some African societies, girls are withdrawn from school when they reach puberty as a means to protect them from sexual contact from male pupils or teachers (Mbirimtengerenji, 2007).

Cultural gender roles of male dominance are still very pervasive in South African communities (Strebel *et al*, 2012). In their study, Strebel *et al* (2012) found that generally women stay at home and raise families while men work and provide for their families. In turn women were expected to be submissive to their husbands and men to be the decision-makers in the household (Strebel *et al*, 2012). For women, denied access to education translates into poverty and in turn financial dependence on men (Mbirimtengerenji, 2007). This is especially true in countries such as South Africa, where about 80% of young women have not completed secondary education while a third are illiterate (Avert, 2015). Consequently, South Africa has high unemployment and low economic activity amongst women than in men (Statistics South Africa, 2011).

Moreover, a person's level of education influences their capability to practice health-promoting behaviors, the greatest determinant being access to resources, as education often secures better standard of living (Cutler and Lleras-Muney, 2010). People with little or no education often have limited access to safe-sex information such as condom use, prevention of STI's and HIV, etc (Buvé, 2002). Results from a demographic and health survey conducted in SSA associated early sexual debut amongst 15-19 year old girls with lack of education (Doyle *et al*, 2012). In South Africa, this is evident in the prevalence of risky behaviours such as having multiple sexual partners and lack of condom use, the decline in voluntary counseling and testing (VCT) (Abdool Karim and Humphries, 2008). Amongst young women, this is made apparent by high cases of teenage pregnancy and untreated STIs (Karim and Humphries, 2008).

UNAIDS (2016) asserts that increasing girls' and young women's educational achievement can result in better HIV, sexual and reproductive health outcomes, as schools are efficient vehicles for comprehensive sexuality education. Similarly, ICAD (2006) asserts that basic education is imperative in empowering girls to adopting productive and positive health behaviours that limit their susceptibility to infection. A combination prevention strategy that blends the biomedical, behavioural, and structural factors in HIV prevention interventions is of urgent need (UNAIDS, 2016). Accordingly, the 2030 Agenda for Sustainable Development (ASD) aims to empower young girls and women by improving socio-economic and structural opportunities- greater access to education, health care, greater access to good-quality education, employment, health care and achieving gender equality (UNAIDS, 2016).

### *Transactional sex*

The HIV epidemic is intertwined with gender relations and poverty in South Africa (Ackerman, 2008). As a result, phenomena such as Transactional sex (TS) are widespread and are largely identified as a key drivers of HIV particularly amongst AGYW (UNAIDS, 2016). "Transactional sex is defined as a non-commercial, non-marital sexual relationship whereby sex is exchanged for money and/or gifts" (Rangathanan *et al*, 2016:1). TS therefore entails a sexual sex relationship between people who are either regular or main partners (Dunkle *et al*, 2010). TS mainly occurs in intergenerational partnerships. As highlighted earlier, such relationships often involve an older men and younger women (Gregson *et al*, 2002; Karim and Humphries, 2008).

A study in a rural community in rural South Africa found that over 14% young women between the ages of 13-20 reported engaging in TS (Rangathanan *et al*, 2016). While 21.1% of participants

who took part in a study exploring determinants of HIV in Soweto also agreed to having sex with a non-primary male partner in exchange for material goods or money (Dunkle *et al*, 2004). It is evident that in TS, it is predominantly men who provide the material benefit and women receiving them in exchange for sex, a reflection of many HIV prevalence communities (Macpherson *et al*, 2012; Dunkle *et al*, 2004). TS therefore is an expression of the economic imbalance between men and women in South Africa.

While TS is often perceived negatively, Murphy asserts that the motivation for commercial sex is mainly due to the need for survival (Scott *et al*, 2005; Buvé, *et al*, 2002). Many households in Africa are headed by unemployed women, who due to unemployment or low paying jobs, they often resort to commercial sexual transactions as a means to provide for their families (Mbirimtengerenji, 2007; Ackerman and de Kerk, 2002). TS is also heightened by the high rates of migration within South Africa, where men often leave their places of birth in search of employment in neighboring countries or regions. They often have other partners in the cities they work in, which sometimes leads to divorce or reduction in monetary remittances to their families, in which case women resort to TS to support their families in the men's absence (Mbirimtengerenji, 2007). For women with limited access to recourses, TS is used to help advance their education, gain employment or business opportunities (Dunkle *et al*, 2007). It is apparent that poverty is a key determinant of sexual trade in South Africa, compelling women to engage in risky sexual behavior in pursuit of money and resources for survival (Mbirimtengerenji, 2007).

In some cases however, the decision to engage in TS has little to do with poverty as it would be oriented around financial or luxurious lifestyle gains, such as obtaining expensive clothing or expensive cellular phones, as found in a study amongst young women in Durban, KwaZulu-Natal (Leclerc-Malala, 2004). Similarly, a study in the Eastern Cape found that women engaged in TS to achieve higher status in youth cultures which prioritize conspicuous consumption (Dunkle *et al*, 2007). Material deprivation therefore seems to be the key driver of sexual risk taking behaviour amongst young South African women (Kamndaya *et al*, 2014).

Moreover, Parker (2012) asserts that power dynamics are determined by money in sexual relationships. The one who has money, in this case men, have the power to control when, where and how sex occurs, while women are lacking of such power (Parker, 2012). A study in Swaziland found that young women who engage in TS do not initiate condoms as it is understood as the man's decision as they pay for the sex, while in unprotected sex works as leverage for an even

higher payment (Tobias, 2001). Kaufman and Stavrou (2010) refer to this as sexual leverage, where the person providing the money or gifts somehow feels a sense of entitlement to the receiving person's body. A study exploring the predictors of TS in the Eastern Cape, South Africa found that women believed that accepting financial assistance from a man meant they had to accepting sex on his terms, which often meant non-condom use (Dunkle *et al*, 2007). It is evident that women find it difficult to negotiate condom use where there is financial gain, as doing subjects them to violence or the greatest consequence of financial deprivation (Rangathanan *et al*, 2016).

According to Dunkle *et al* (2004) women involved with abusive partners and had less economic stability were more likely to report transactional sex, as compared to those who had a post-secondary education. Women therefore are pressured to stay with abusive partners and engage in risky sexual behaviour due to the economic consequence of leaving (ICAD, 2006). Moreover, the above-mentioned study amongst women in Durban found that MCPs were a common feature in transactional relationships (Leclerc-Malala, 2004). The women reported being aware of men's unfaithfulness, however maintaining a modern lifestyle overshadowed the risks associated with partaking in such partnerships. Young women also had multiple sexual partners in order to widen material procurement from men (Leclerc-Malala, 2004), a behaviour that exposed them to various sexual networks and therefore leaving them vulnerable to HIV infection, as highlighted earlier.

It is evident that institutionalized economic inequalities deny women structural and economic freedom, with some resorting to survival sex which in turn limits their power to negotiate for safe sex practices (Murphy *et al*, 2006). Women's ability to engage in protected sex therefore is manifest in gender relations, and reinforced by broader contexts of socioeconomic inequalities that allow men to exert power over women by regulating or making decisions on their behalf (WHO, 2007; Beksinska *et al*, 2012).

Mbizvo and Basett (1996) assert that disregarding the underlying factors that influence behaviour can cause more damage, resulting in people not acting on the knowledge they have (Mbizvo and Basett, 1996). Elaborating this, Kaufman and Stavrou (2010) assert that educational campaigns and health messages will remain futile in addressing HIV amongst young women if sex on their partner's terms (unprotected sex) may be their only option for survival. With the multiplicity of challenges faced by women in impoverished conditions, HIV is often not considered the greatest challenge in the hierarchy of survival amongst women (Ramjee and Daniels, 2013; Banzhaf and Bellamy; 1998; Mbirimtengerenji, 2007). The need to sustain their livelihoods precedes the need



to adopt safe sex behaviours (Mbizvo and Basett, 1996). This supports various observation of the 'C' recommendation of the ABC approach not being plausible, especially for women who have no control over the logistics of intercourse due to various factors such as financial dependence (Murphy *et al*, 2006; Fleischman, 2004).

The Human Rights Watch (HRW) (2001) observed that lack of fair structural and economic opportunities amongst women results in the lack of power over their bodies and their sexual lives. Financial dependence therefore greatly contributes towards vulnerability to infection amongst women as it is a compelling determinant for women to engage in unsafe sex practices Parker (2012). Current HIV prevention programmes have had limited impact in reducing HIV incidence amongst young women. Empowering women for sexual protection requires a combination approach that combines biomedical solutions with structural interventions that seek to address the underlying socio-economic and structural factors that deny women the ability to adopt barrier methods such as the condom (Avert, 2016; de Olivier *et al*, 2016).

### *Addressing structural and economic determinants of HIV*

Over three decades since the inception of the HIV epidemic, effective prevention methods are still limited to biomedical interventions (Pettifor *et al*, 2012). The field of HIV prevention however is shifting towards a different paradigm. Given the previously stated structural and economic determinants of HIV, intervention programmes are now exploring the use of cash payments and incentives to address risk factors such as poverty to encourage positive health behaviour, particularly amongst young people (UNAIDS, 2016). This approach is informed by the combination social protection theory, which identifies that HIV-risk behaviors are influenced by various challenges of a person's life, such as the lack of financial and social support (Cluver *et al*, 2016). As such, combination interventions offer support in various spheres of an individual's life.

This strategy has yielded positive results amongst adolescents and young people in South Africa, where engagement in money-driven sex had declined 11% without intervention to 2% for when financial support, free education and support services were provided (Cluver *et al*, 2016). Risky sexual behaviours such as unprotected, casual or multiple sexual partnerships also declined from 15% without interventions, 10% with either school feeding or parental monitoring, and up to 7% when provided with both incentives (Cluver *et al*, 2016). Similarly, a meta-analysis of 16 cash transfer programmes amongst adolescents in various developing countries found that majority of these programs have achieved reductions in sexual behavior. Another large trial has also

documented a difference in HIV prevalence between young women getting cash transfers as compared to those who were not on the programme (Pettifor *et al*, 2012). Transfers included school attendance, school completion, poverty alleviation, and completion of health promotion activities, such as STI/HIV testing however, they differed across studies (Pettifor *et al*, 2012). A number of other studies have also yielded successful results in various settings in developing countries (Baird *et al*, 2012; Thornton, 2008). According to Pettifor *et al* (2012), cash transfers could help to increase testing for HIV and in turn the uptake of new prevention technologies such as microbicides that necessitate individuals to test for HIV prior to use.

The studies above indicate that a combination programme is much more effective than an isolated effort to addressing the HIV crisis amongst young people. However, various concerns have been raised in response to this approach particularly when implemented in large scale (Padian *et al*, 2011). A recent review of 165 studies covering 65 cash transfer programmes found that cash transfers often provide relief in certain aspects however they do not address other important aspects (Hagen-Zanker *et al*, 2016). For example, cash transfers may raise school attendance and increase women's decision-making powers and choices however it does not always result in improved learning outcomes or reduce emotional abuse (Hagen-Zanker *et al*, 2016). In some instances, cash transfers actually increased emotional abuse or controlling behaviour, while some studies suggested that cash transfers were counterproductive as they are found to actually increase that certain behaviour they are encouraged against (Hagen-Zanker *et al*, 2016). This indicates that cash transfers and incentives do not always result in a change in behaviour.

### **HIV prevention methods and strategies: The female condom within the ABC approach**

Various biomedical methods have been explored in efforts to prevent the spread of HIV, this includes the production of the condom as a primary method for HIV prevention (AMD), 2010). Early implementation of this prevention method was complimented by strategies that placed great emphasis on individual behaviour change, pushing forth "Abstinence, Being faithful and Condom use" (the ABC approach) (Avert, 2015). For a long period since humanity had been exposed to HIV, much reliance for the effectiveness of this approach was placed on the male condom as the only safe and effective HIV prevention method (Higgins *et al*, 2010). As a result, the decision whether or not to use the male condom came to be understood as the male partner's responsibility (Higgins *et al*, 2010). The challenge with this prevention method is that men are often against the use of condoms, while women find it difficult to initiate or enforce safe sex practices with their

male partners (Ray *et al*, 1995; Prince *et al*, 2005; Macpherson *et al*, 2012; Bodibe, 2013, Murphy *et al*, 2006).

In light of this limitation, a safe and effective female condom was first introduced in 1993 (Peters *et al*, 2010; KFF, 2016) as an optional method for women in cases where men was against using the male condom (UNFPA & PATH, 2006). The idea behind the production of this method was to empower women to better facilitate the 'C' recommendation of the ABC approach. Research however reveals that women face various challenges with adoption and use of condoms, as they often have limited control over their sexual relationships (Murphy *et al*, 2006).

Despite widespread knowledge of the ABC strategy, HIV continues to spread at an alarming rate especially among women in developing countries (WHO, 2016). Research reveals that there are various challenges with adoption and use of both the male and female condoms, particularly for women who often have limited control over their sexual relationships (Murphy *et al*, 2006). Various studies (Ryan *et al*, 2015, Karim and Baxter, 2012, Macpherson *et al*, 2012; Ryan *et al*, 2015) show that like the male condom, the female condom requires male partner cooperation for use because to a large extent, its design does not allow for discreet use. The female condom therefore is considered an impractical prevention method, providing no sense of empowerment or agency for women (Macpherson *et al*, 2012; Bodibe *et al*, 2013; Karim and Baxter, 2012; Ryan *et al*, 2015), as it encourages women to adopt preventative behaviours that they have very limited power to implement (Ackerman, 2008).

Gender power dynamics, often characterised by male dominance are key barriers to achieving potential effectiveness of barrier methods such as condoms (Mantell *et al*, 2006; Bermudes and Ribiero, 2004). Gender norms have established power inequalities between women and men, therefore denying women the power to negotiate safe sex practices; thus leaving them vulnerable to HIV infection (Lanham *et al*, 2014; Bridgette Prince *et al*, 2005; Eleanor Macpherson *et al*, 2012; Khopotso Bodibe, 2013).

Despite having a successful male and female condom distribution (Avert, 2015), South Africa's epidemic continues to grow rapidly (UNAIDS, 2015). Taking into account the widespread exploitation of girls and young women through early marriages, the practice of polygamy, sexual assault and IPV, (Murphy *et al*, 2006; Fleischman, 2004) as highlighted earlier in the discussion; the ABC approach does not adequately address women's sexual practices (Moodley, 2007). Such practices show that women's risk of infection is exacerbated through culturally sanctioned gender

systems that nurture gender power imbalances and disempowers women of the ability to enforce the use of preventive methods such as the condom (Strebel *et al*, 2012). The ABC approach however treats the epidemic as a homogeneous phenomenon, as it offers linear and rigid behaviour change recommendations that do not consider the influence of gender on women's sexual behaviours (Green and Herling, 2006). A number of studies revealed that in most cases women are unequipped for sexual decision-making as they often have no control over the decision to abstain from intercourse, to be in monogamous relationships or the use of condoms (Murphy *et al*, 2006, Macpherson *et al*, 2012; Kline and Oken 1992; Lear 1995; Fleischman, 2004). The three recommendations encompassed in the ABC approach are therefore insufficient in the prevention of HIV and other sexually transmitted infections for women (STIs) (AMD, 2006; Kline and Oken, 1992). Its limitations are due to disregarding the underlying factors that influence sexual behaviour (Ogunlela, 2014; Green and Herling, 2006).

It is apparent therefore that a one-size-fits all approach to HIV prevention does not work (Cohen, 2004) as the determinants of HIV transmission differ with each context (Aral and Cates, 2013). There remains a great need for FIPM that overcome the gender-based barriers, and grant women full autonomy over their protection against HIV prevention (Ryan *et al*, 2015). New prevention methods should take into account the gender-related factors that affect women's ability to adopt and/or adhere to health intervention programmes such as condoms.

### ***Accessibility of the female condom***

Despite gender power dynamics being the greatest barrier to utilisation; the decline in female condom use is also attributed to inaccessibility of the female condom in many parts of the world (UNFPA & PATH, 2006 Peters *et al*, 2010; Avert, 2015). The Center for Health and Gender Equity (CHGE) (2011) reported that investment in procurement of programming of female have been insignificant in comparison to other prevention methods such as the male condom, hence the limit in access and availability of FC (Bodibe, 2013). As a result, only a limited number of countries were able to launch and maintain the female programme over time (Warren and Philpott, 2003).

In Previous years, there has been an inadequate supply and uptake of female condoms, especially in countries that are most stricken by the HIV and AIDS epidemic (UNFPA and PATH, 2006). Approximately 10 male condoms were made available to each man (15-64 years), and only one female condom per eight women in sub-Saharan Africa in 2013 (UNFPA, WHO, and UNAIDS, 2015).

Despite having a highly established female condom programme worldwide, there remains discrepancies in condom distribution in South Africa (Beksinska *et al*, 2012). 2015 showed distribution levels of 723 million male condoms to 20.7 million female condoms, while targets for 2016 were set at 1 billion male condoms and 25 million female condoms (Avert, 2015). South Africa's male condom programme was widespread across public facilities since 1992 while the female condom programme was only made available in selected sites across the 9 provinces 1998 (Beksinska *et al*, 2012), about 5 years after being licensed in 1993 (FFK, 2016). Moreover, although the United States showed a considerable increase in international shipment of condoms from 1 109 000 in 2003 to 14 676 000 in 2009, the female condom only represented 3.2 percent of the overall condom shipment (CHGE, 2011). Over a couple of decades after its invention, accessibility of the female condom remains limited; with some people having no knowledge of it, while those who do are unable to obtain it (Peters *et al*, 2010; Avert, 2015).

The high cost of the female condom is regarded as the primary factor that hinders its uptake (UNFPA & PATH, 2006; Ray *et al*, 1995; Peters *et al*, 2010; Welbourne, 2006). UNFPA, WHO & UNAIDS, (2015) reported that international funding for condom procurement in sub-Saharan Africa has stagnated in recent years. The female condom cost 25 Zimbabwean cents to 10 Zimbabwean cents for one male condom, while the latter is also freely accessible in government and municipal health care facilities (Ray *et al*, 1995). Similarly, the limiting factor for the use of female condom is the high cost in South Africa, costing approximately 18 times more expensive than the male condom (Beksinska *et al*, 2012), thus posing a barrier to use.

UNAIDS (2015) advises that safety, efficacy and effective use of condoms can be achieved when condoms are manufactured according to international standard, specifications and quality assurance procedures established by WHO, UNFPA and the International Organization for Standardization (IOS). They also state that condoms should be freely available or procurable at affordable or subsidised prices, further recommending that the female condom in particular should be made widely available in HIV stricken locations, and integrated into community and health service delivery programmes, while also addressing stigma (UNAIDS, 2015). Similarly, uptake of future prevention methods can be encouraged by ensuring reliable, affordable and widespread access, however taking precaution that necessary precaution measures such as pre-testing for HIV (Becker *et al*, 2004).

### ***Inadequate implementation of the female condom***

There is correlation in the promotion of a product and positive perception linked to it (Mantell *et al*, 2005). A review of more than 40 acceptability studies conducted by WHO across different countries in 1997 found that the acceptance of the female condom would be determined by information, training, support during its introduction (Peters *et al*, 2010). A study found that the introduction of the female condom, its design, packaging features, marketing and implementation processes were inadequate, thus resulting in low acceptance levels as compared to the male condom (Mantell *et al*, 2005).

In South Africa, a number of developments have been implemented since the establishment of the male condom in efforts to increase condom use (Beksinska *et al*, 2012). Beksinska *et al* (2012) cites the rebranding of the Choice condom in 2004, promoted through *Khomanani* (caring together), an information-based mass media campaign. Recent developments include the 'Safe Sex Campaign', yet another rebranding of the Choice condom into colorful packaging and improved scented male condoms to be distributed over the next three years (SANAC, 2015). A couple of studies conducted amongst students at the University of KwaZulu-Natal found that the students observed discrepancies in the promotion and accessibility of the female condom (Ogunlela, 2014; Nota, 2016).

Thus far, efforts towards increasing the use of the female condom have placed much emphasis on its design, evident in the production of the second-generation FC2 female condom (Beksinska *et al*, 2013). While very little effort is placed to the female condom's promotion, low acceptance is linked the media's negative portrayal of this barrier method as having an unappealing appearance and design (Beksinska *et al*, 2013). The female condom remains a mystery to some women, who either have no knowledge of it, or are unable to obtain it (Peters *et al*, 2010), due to lack of knowledge about the selected distribution facilities (Beksinska *et al*, 2012).

Lessons should be drawn from the failure of past prevention methods such as the female condom to assist planners and policy makers of effective strategies and approaches to presenting and implementing future prevention technologies such as microbicides. Ongoing media campaigns, educational campaigns, community-based information sources should be made accessible in order to promote familiarity and knowledge of new prevention products (Becker *et al*, 2004). While there are limitations to the use of male and female condoms, new prevention methods of HIV exist. These include Pre-Exposure Prophylaxis (PrEP) which is explained below.

## **New HIV prevention methods: Pre-Exposure Prophylaxis (PrEP)**

“PrEP refers to antiretroviral medicines prescribed before exposure or possible exposure to HIV” (SANAC, 2014). PrEP offers HIV-negative individuals the use of anti-HIV medications called ARVs to reduce their risk of infection during exposure to the virus (San Francisco AIDS Foundation, 2015; Bekker *et al*, 2016). The drugs used in PrEP products are meant to block pathways that HIV uses to set up an infection, preventing the virus from establishing a permanent infection (CDC, 2016).

Currently, PrEP consist of an ARV-based tablet called truvada, containing 300 mg of tenofovir disproxil fumarata (TDF), alone or in combination with 200 mg of emtricitabine (FTC) (Marrazzo *et al*, 2015). Truvada is designed to be taken as a daily oral dosage by HIV negative persons at an increased risk of HIV infection (CDC, 2016). PrEP is particularly relevant for people who are unable to control their risk of acquiring HIV with currently available prevention methods and strategies such as condoms or the ABC approach (UNAIDS, 2016). The pill provides effective protection for both men and women (SFAF, 2015), reducing chances of infection from sexual transmission by more than 90% if taken consistently (UNAIDS, 2016), and can be used with other prevention methods for increased protection (CDC, 2016). Although showing high prevention rates when used consistently, any form of PrEP is idealistically used in conjunction with condoms and other prevention methods for greater protection (CDC, 2016; Bekker *et al*, 2016). An HIV test is also required before and every three months while taking PrEP (UNAIDS, 2016). Unlike the ARV treatment for HIV, PrEP may be used only during periods of perceived HIV acquisition risk, rather than continually and lifelong (Bekker *et al*, 2016).

### ***Success of PrEP in clinical trials***

PrEP has been tested in several randomized controlled trials across Africa, Asia, South America, and North America, and has shown positive outcomes in HIV reduction (Bekker *et al*, 2016). These trials involved various people considered to be at an increased risk of acquiring HIV; men who have sex with men (MSM), heterosexual women, transsexual women, heterosexual serodiscordant couples, female sex workers (FSW), and people who inject drugs (UNAIDS, 2016).

The Pre-Exposure Prophylaxis Initiative (iPrEx) study was carried out in six countries (Peru, Ecuador, South Africa, Brazil, Thailand, and the United States) amongst transgender women,

MSM and bisexual men (Grant *et al*, 2010). In this study, Truvada was compared with a placebo pill, in which results revealed 42% risk reduction on Truvada, as compared to the group that was taking placebo (Venter *et al*, 2015). Amongst high adherent users up to 90 % risk reduction was achieved (UNAIDS, 2016).

In Partners PrEP, a study amongst 4500 heterosexual serodiscordant couples in Kenya and Uganda, risk reduction was particularly good. Truvada reportedly reduced HIV acquisition by up to 70%, and up to 90% for those with increased consistent use (Francois Venter *et al*, 2015). On the other hand, a similar yet smaller scale study-TDF2, amongst 1200 heterosexual men and women in Botswana, risk reduction was up to 62% TO 70%, and up to 90% amongst participants with high adherence (UNAIDS, 2016).

The Bangkok Tenofovir Study also tested oral Truvada amongst people who inject drugs, were 2400 participants were enrolled, also testing Truvada against the Placebo pill in Bangkok, Thailand (Choopanya *et al*, 2013; UNAID, 2016). Given the results from this trial, 49% risk reduction in IDU participants, and 74% increased protection amongst participants who during observed clinic visits, it remains unclear whether Truvada prevents parenteral HIV (HIV acquired through injection) (AIDS Fact, 2015). Despite the different results in trials, Truvada is deemed to be the most efficacious and effective PrEP product thus far, having been licensed for use in some countries (to be explained further later in the discussion).

### ***Unsuccessful PrEP trials***

Although a number of studies demonstrated the effectiveness of PrEP in reducing the risk of infection, Fem-PrEP, a study that was meant to assess the effectiveness of PrEP amongst heterosexual women in Kenya, South Africa and Tanzania was discontinued after some months of trial due to low levels of adherence; thus yielding no difference in effect between Placebo and Truvada (Van Damme *et al*, 2012, AIDS info, 2012). Similarly, the Vaginal and Oral Interventions to Control the Epidemic (VOICE) study, was discontinued due to low adherence and therefore not showing any difference between Placebo and Truvada (Marazzo *et al*, 2013). More than 5000 women in 15 sites across South Africa, Zimbabwe and Uganda were enrolled in this trial, having 5 different groups, each administered either the tenofovir gel, placebo gel, oral tenofovir tablet, oral Truvada, or an oral placebo pill.



The failure of the VOICE trial was attributed to challenges with taking a daily treatment given the social risks and lack of support from partners, unknown efficacy in the context of placebo controlled trials, and the social stigma associated with using ARV-based products appeared to discourage adequate product use (Van den Straten *et al*, 2014). “Insight into social and behavioral factors that influence the acceptability, use, and adherence to PrEP can inform the development of drug regimens and PrEP counseling strategies for individuals initiating a course of this prevention medication in the future” (Van der Elst, 1993: 3). The question remains for socio-behavioural researchers to understand the reasons behind poor adherence in trials, more than the effectiveness of PrEP itself (AIDS Fact, 2012).

### ***The licensing of PrEP***

2012 marked the year for the approval of truvada as a PrEP agent in the United States of America, and in 2015 for South Africa and Kenya (GILEAD, 2015). The use of oral truvada has also been licensed in France (UNAIDS, 2016). The licensing of PrEP provides more HIV prevention options to minimise the likelihood of HIV infection as HIV infections are decreasing at a very slow rate while remaining at a substantial peak amongst key populations such as AGYW (UNAIDS, 2016). PrEP however, is currently only recommended as an additional tool for people at an increased risk of infection, i.e. sero-discordant relationships, MSM and FSW, where they are unable to achieve consistent condom use (UNFPA, WHO & UNAIDS, 2015). Given evidence of the effectiveness and acceptability of PrEP, the recommendation now includes all population groups at substantial risk of HIV infection as part of the comprehensive prevention approach (WHO, 2016). This includes pregnant and breastfeeding women if they remain at risk of infection, uptake however will be monitored for negative effects during this period (UNAIDS, 2016). PrEP should however still be prioritised for populations with an HIV incidence of about 3 per 100 person-years or higher as an additional prevention choice in a comprehensive package of services that include HIV testing, counselling, male and female condoms, lubricants, ARV treatment for partners with HIV infection, voluntary medical male circumcision and harm reduction interventions for people who use drugs (WHO, 2016). So far, South Africa is the only country in Africa to implement this recommendation into national policy (WHO, 2016). For women, the licensing of PrEP entails autonomous use of an HIV prevention method that does not require partner negotiation at or around the time of sex (AVAC, 2016). Unlike currently available methods such as the male and female condom, PrEP is invisible during sex therefore it allows for independent and discreet use (UNAIDS, 2016).

Currently, various topical and longer-acting PrEP products are being investigated, these include monthly vaginal rings and three-monthly injections among others, in an attempt to increase prevention options and improve long-term adherence. Of focus in this study is the aforementioned daily oral truvada, three-monthly injectable, the dapivirine ring and the tenofovir gel for reducing the risk of HIV amongst women, to be discussed below.

### **A female-centred approach to PrEP: Introducing microbicides**

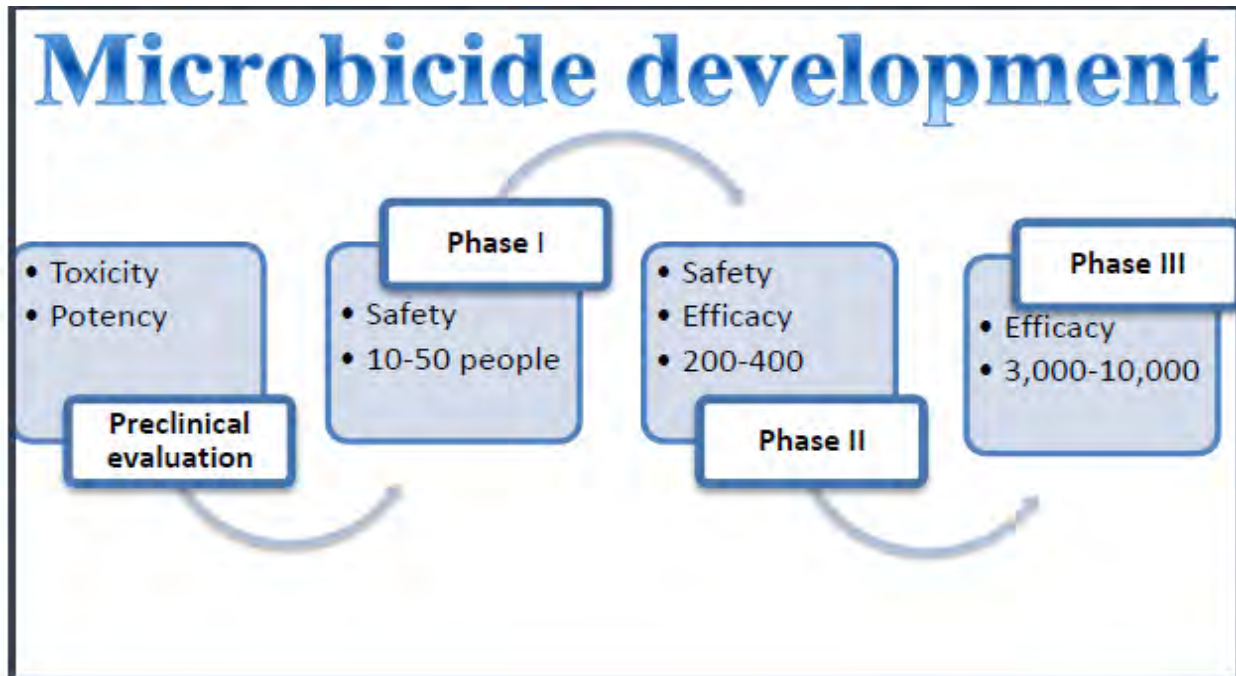
The production of microbicides is a response to the significant need to empower women for independent sexual health decision-making (Banzhaf and Bellamy, 1998). The argument was that there is great need for a variety of safe, effective and highly discreet products (IPM, 2016). Microbicides are topical PrEP products, such as gels, capsules, tablets, films, and intravaginal rings that can be applied to the vagina or rectum with the intention of reducing the acquisition of STIs, including HIV (Abdool Karim *et al*, 2010; Shattock and Rosenberg, 2012; Vanpouille *et al*, 2012). They are designed to be used either around the time of coitus, on a daily basis, or to deliver product over a prolonged period of time (Shattock and Rosenberg). Presented as the first female-initiated HIV prevention method that will allow them control over their sexual health, microbicides are meant to reduce women's reliance on male partner's cooperation for protection against sexually acquired HIV (Stein, 1990). This is meant to be achieved through discreet use, allowing women to use the products without male partner's knowledge or consent (Ryan *et al*, 2015; Kelly *et al*, 2015). Although microbicides only offer partial efficacy, the availability of options can still curb HIV transmission substantially amongst women (Mantell *et al*, 2005).

Given the various socio-cultural influences that affect women's health decisions, the development of these prevention technologies is constantly evolving over the past two decades. Early developments on microbicides focused on nondrug-based products which worked in various ways, such as by inactivating pathogens, strengthening the body's natural defenses, or blocking virus from getting into healthy cells (CONRAD, 2016; Shattock and Rosenberg, 2012). It became apparent that over the counter medicines were ineffective in disrupting the integration of HIV, thus leading to exploration of ARV-based microbicides (Shattock and Rosenberg, 2012). ARV-based microbicides contain one or a combination of ARV that work in different steps of the HIV life cycle, to ensure increased effectiveness of microbicides (IPM, 2016). According to GCM, ARV-based microbicides work by targeting the receptors of on the outside of HIV susceptible cells (white blood cells); preventing the virus from replicating itself after it has entered the white blood cell.

Although some ARV-based microbicides have demonstrated effectiveness and safety in trials (to be explained further in the discussion).

### **Microbicide clinical trials**

There are various phases of clinical research, each serving a different purpose towards the overall research (AIDS info, 2016). The initial stage in a microbicides trial enrolls, Phase I enrolls 20 to 50 healthy, low-risk women over several weeks or months to evaluate safety and to determine any negative effects (Tallis, 2012). In phase II, a larger group (100- 300), potentially at risk female candidates are enrolled (Tallis, 2012). This phase, referred to as the expanded Safety Trial (EST), conducts further evaluation of the safety of the drug over a longer period of time. In phase IIb or proof-of-concept trial, the products that do not demonstrate potential to prevent HIV are eliminated. This trial is often only half the size of a full-scale Phase III trial. Phase III or effectiveness trial is the final stage of a microbicide clinical trial, which enrolls thousands of women across several sites (Shattock and Rosenberg, 2012). This trial measures whether or not the microbicide actually works to prevent HIV, evaluating long-term safety and efficacy (Tallis, 2012). Figure 2.2 shows a picture of the stages in microbicide clinical trials;



**Figure 2.2:** Phases in microbicide clinical trials, Nota (2016)

Several microbicide candidates have been tested in clinical trials, many being ruled out for further assessments as an HIV prevention due to various factors ranging from effectiveness, safety and efficacy and adherence (Tallis, 2012). A review of the development of microbicides in 2008 indicated that a total of 188 studies (73 pre-clinical and 45 clinical trials) had been conducted (Cutler and Justman, 2008). In 2015, there were nine microbicides in phase one, four and three in the second and third phase respectively, and a couple of ancillary studies (AVAC, 2015).

A number of microbicide agents are still undergoing various states of testing in clinical trials (AVAC, 2016). More ARV drugs are also being explored for the production of more microbicides, this includes dapivirine, rilpivirine and non-nucleoside reverse transcriptase inhibitors, etc. (Abdool Karim and Baxter, 2012; Vanpouille *et al*, 2012). The need for a variety of formulations that offer different dosing strategies is also of great consideration in the development of microbicides. Low adherence in trials, as noted earlier, indicate that there is still a need to match potential users with a variety of products (Nota, 2016). A wide range of barrier methods is the primary factor in achieving safer sex practices (Peter *et al*, 2010). Product formulations that are ongoing in development include the monthly injectable, suppositories, vaginal rings, etc (Lanham *et al*, 2014). New developments have also extended focus to developing multi-purpose microbicides that will protect against HIV, STIs and pregnancy, non-ARV microbicides as well as less user-reliant products that can be taken once after an extended period of time (Abdool Karim and Baxter, 2012; Lanham *et al*, 2014; UNAIDS, 2015). The development of long-acting microbicides will increase adherence as there will be no requirement to plan for each sexual act or to use the product on a daily basis, while multiple formulations will give women the choice of an approach that best fits their various circumstances (Shattock and Rosenberg, 2012).

### ***Demonstrated efficacy in trials***

Currently there are only two microbicide products that have demonstrated efficacy and safety in clinical trials, these being the tenofovir gel (CAPRISA, 2010) and the dapivirine ring (IPM, 2016), however, there is still no safe and effective microbicide licensed for public use (AVAC, 2016).

#### ***The tenofovir gel***

Tenofovir gel is a vaginal gel containing 1 % Tenofovir- an ARV drug, used primarily for treatment of HIV (Abdool-Karim *et al*, 2010). The dosing regimen involves applying the gel once, up to 12 hours prior to anticipated intercourse and once, up to 12 hours post sexual encounter- which could

include several acts of intercourse, however, no more than two dosages in 24 hours (Rees, 2015). This is called the 'Before and After' dosing strategy (BAT-24) (CAPRISA, 2010). Figure 2.3 shows a picture of the tenofovir gel;



**Figure 2.3:** The tenofovir gel

In 2010, the first results to demonstrate an effective microbicide were issued by the Centre for the AIDS Program of Research in South Africa (CAPRISA) (Ryan *et al*, 2015), giving hope that HIV management amongst women can be achieved. The CAPRISA 004- phase IIb clinical trial had found the ARV-based Tenofovir gel to have reduced up to 39% new HIV infection rates among heterosexual, sexually active women aged 18- 40 in KwaZulu-Natal , South Africa (CAPRISA, 2010; Philpott *et al*, 2011; Mureithi *et al*, 2012; Vanpouille *et al*, 2012). The tenofovir gel was assessed against placebo gel, which was packaged and dispensed in the same pre-filled vaginal applicator (Abdool Karim *et al*, 2010).

High adherence reported 54% low HIV incident rate to 38% and 28% immediate and low adherence respectively (Abdool-Karim *et al*, 2011). The results also demonstrated unanticipated results, in the reduction of acquisition of the Herpes simplex virus type 2 (HSV-2) by 51% (International Journal of Women's Health, 2012; Karim and Baxter, 2012). In South Africa alone, mathematical estimates suggests the gel to have a potential to prevent up to 1.3 million new infections and 8000 HIV-related deaths during the next 20 years (Lancet, 2010). Adversely, follow up trials such as the MTN (008), FACTS 001, and the VOICE trial showed negative results, failing to replicate the CAPRISA 004 trial (AVAC report, 2013; AVAC, 2015; UNAIDS, 2015). Lack of adherence is understood to have hindered evaluation of the gel's effectiveness (UNAIDS, 2013), a trend most likely to occur in real life settings. However even though the tenofovir gel did not show confirmation results for HIV prevention in the FACTS 001 trial, it is still effective in reducing

HSV-2 acquisition in women as found in the CAPRISA 004 HSV-2 Sub-study (Abdool Karim *et al*, 2015).

### *The dapivirine ring*

The dapivirine ring is a monthly vaginal ring containing the ARV drug dapivirine (IPM, 2016). The ring is made of flexible silicone that discharges dapivirine drug over a period of four weeks (AVAC, 2015). The ARV drug- dapivirine is a non-nucleoside reverse transcriptase inhibitor (NNRTIs) that prevents the HIV enzyme from duplicating itself inside a healthy cell (IPM, 2016). This is scientifically referred as reverse transcriptase, working by preventing HIV from multiplying and spreading to other cells (AIDS Info, 2016). Figure 2.3 shows a picture of the dapivirine ring;



**Figure 4.3:** The dapivirine ring, Loxley (2016)

In February 2016, the long anticipated results from the phase III ASPIRE and the Ring Study were released at the Conference of Retroviruses and Opportunistic Infections (CROI) (AVAC, 2016). These were independent studies assessing the efficacy and effectiveness of the monthly dapivirine vaginal ring (AVAC, 2016), enrolling 2629 (ASPIRE) and 1959 (the ring study) women AGED 18-45 respectively (IPM, 2016). ASPIRE conducted research across 15 sites Malawi, South Africa, Uganda, and Zimbabwe, while the Ring study assessed the ring's efficacy across six sites in South Africa and one site in Uganda (IPM, 2016).

Results from ASPIRE and the ring study showed an overall effectiveness of 27 and 31 percent efficacy respectively, with a close relation to age (Avert, 2016). ASPIRE showed 0 percent effectiveness and efficacy for young women aged 18-21, while 56 and 61 percent effectiveness was achieved for women above 21 and 25 respectively. The Ring Study on the other hand reported 37 percent efficacy for women over 21 (AVAC, 2016; Avert, 2016). Contrasting other microbicide trials, these studies showcased very similar results, therefore offering potential to

what has been described as a modest effectiveness (AVAC, 2016). Designing a long-acting dapivirine ring was efforts to address adherence challenges faced in previous PrEP trials such as the tenofovir gel, however, challenges with adherence were persistent in trials, particularly amongst younger women (CAPRISA, 2016; Baeten *et al*, 2016; AVAC, 2016).

In the same year a new analyses of the dapivirine ring was announced at the 2016 AIDS conference, linking a 56% and 75% risk reduction to two separate groups of women who used the ring consistently (IPM, 2016; MTN, 2016). These recent findings are said to indicate that high adherence can result in high effectiveness of the dapivirine ring (IPM, 2016). According to The Well Project (2016), these findings may be an indicator that these women may have needed to become familiar with this new technology.

In light of these developments, further advancements will include follow up studies (the HOPE and DREAM open-label extension trials), “to determine when, why, and how women use the ring, and to develop effective ways to support its consistent use, or adherence” (IPM, 2016; MTN, 2016). Acknowledging various preferences in HIV prevention methods, these studies aim also to identify indicators of the contexts and the type of women who are likely to use the dapivirine ring, and why (MTN, 2016). This is a step forward to understanding the various contexts, to allow for the development and implementation of relevant, viable and context-specific products that women can actually use.

It is therefore critically important that the epidemic in all contexts, taking into account women’s socio-cultural, structural and economic contexts in order to understand which prevention method would best be suitable for a particular context (Ramjee and Daniels, 2013). A variety of options should be made available, in order to match potential users with a variety of products to choose from (Nota, 2016). The variety of products are supposed to increase use and adherence, and thus increase protection and reduce new infections amongst women. There remains a need to explore women’s profiles in order to prescribe suitable methods that are consistent with their lifestyles so as to eliminate inconsistent use.

### **Acceptability of microbicides**

As microbicides are gaining momentum as promising barrier methods that will provide increased protection towards females, assessing the product’s acceptability requires an understanding of how social processes, such as the sexual partner, health care providers, and key opinion leaders,

may have an impact on acceptability of microbicides amongst women and men (Mantell *et al*, 2005). Acceptability of a product includes both perceived acceptability, i.e. satisfaction with the product's features and demonstrating willingness to use it correctly and consistently, or recommend it to someone, and actual use of the product during intercourse (Ramjee *et al*, 2001; Ramjee *et al*, 2005; Ventuneac *et al*, 2010). Acceptance is also influenced by various demographics and socio-cultural background, therefore it differs across diverse populations (Zhang *et al*, 2016). While microbicides have the potential to empower women for protection against sexually acquired HIV, their effectiveness may not be realised if the underlying factors associated with microbicide acceptability are not understood and addressed (Schuler *et al*, 2013).

Acceptability of microbicides are discussed under the following headings: (1) perceived efficacy, (2) partner dynamics, (3) perception of risk, (4) behaviour/ lifestyle patterns; each discussed with examples from various microbicide clinical trials as well as qualitative studies.

### ***Perceived efficacy***

Acceptability of microbicides has yielded different results in diverse study populations. Evidence from previous microbicide studies suggests that women's acceptance and adherence is influenced by a number of factors; ranging from product preference, relationship dynamics, gender roles, vaginal practices, social acceptance of product use (van der Straten *et al*, 2014). Shattock and Rosenberg (2012) assert that a microbicide product must demonstrate a significant degree of efficacy in real-world situations, however, evidence from clinical trials proves adherence to be a challenge, which is indicative of a possible trend in real-life settings.

Efficacy refers to a person's belief or perception of their capacity to achieving desired results (Bandura, 1994). People's beliefs about their capabilities affect their choices, how much effort they dedicate to something, and how long they will persevere when they are in challenging situations (Bandura, 1994). In terms of PrEP product acceptance and use, efficacy differs amongst individuals (Montgomery and Pool, 2011). These prevention technologies are used in a complex social world which involves unequal gender relations and other determining factors such as sexual practices (douching and insertion); which may affect product efficacy. These factors are to be explored to understand factors that reduce women's efficacy, which in turn may affect acceptance and adherence.



For example, low perceived efficacy in microbicide products discouraged adequate use amongst participants in the VOICE trial (van der Straten *et al*, 2015). An acceptability study amongst female students at University of KwaZulu-Natal in Durban, South Africa found that a product's characteristics has great influence on acceptability and attitudes around it (Nota, 2016). In this study, the students demonstrated high acceptability of the dapivirine ring when compared to the tenofovir gel. The dapivirine ring was perceived to be more practical than the tenofovir gel as the gel's dosing regimen (BAT-24) would make it difficult to use for every sexual encounter (Nota, 2016). In further demonstrating the above observation by Montgomery and Pool (2001) of the difference in individual efficacy in PrEP use, the VOICE-C study found that women who lived with their partners experienced difficulties using the tenofovir gel consistently compared to those who live alone or with their parents (van der Straten *et al*, 2014). This was because women who lived alone would often be anticipate intercourse thus allowing for sufficient time to apply the gel while sex amongst women who live with their partners would often be spontaneous; which would often impede application of the product (van der Straten *et al*, 2014). In the case of the dapivirine ring, high efficacy levels were achieved amongst older women than in younger women in ASPIRE and the Ring study (AVAC, 2016). These findings indicate the importance of understanding women's contexts in acceptance and use of a prevention method, as the same intervention can produce different results in different contexts because the factors that determine HIV transmission differ in each context (Aral and Cates (2013). It is evident that women's ages, socio-economic status and cultural backgrounds are to be considered when introducing a new prevention method (Palmeira-de-Oliveira *et al*, 2014). The need to meet women with a variety of products is also of utmost importance to curbing the sexual transmission of HIV (Mantell *et al*, 2006).

In further discussing the issue of efficacy, much controversy continues with regards to partial protection offered by microbicides; which entails partial efficacy against HIV acquisition (Becker *et al*, 2004). In trials, participants are informed that the administered product has unknown efficacy therefore it may or may not provide protection, and that that they may have been assigned to use a placebo (Woodsong *et al*, 2013). In the iPrEx PrEP study, the participants who were unknowingly administered oral truvada were reluctant to take the pill as they believed it to be the ineffective placebo (PrEP Facts, 2015). This suggests that unknown efficacy may make people feel they do not have much influence over their health, and thus engaging more risky sexual behaviour than adopting a positive health behaviour (Varga, 2001). Furthermore, partial protection poses challenges with proper use of these products as revealed in various studies (Shattock and Rosenberg, 2012; Woodsong *et al*, 2013), where the requirement to be used in conjunction with

a condom has resulted in confusion and uncertainty about microbicide products. A study in an urban setting in Cape Town found that respondents had concerns about a partially effective microbicide, however, they felt that partial protection would help in fighting the HIV crisis amongst women (Orner *et al*, 2016). This underscores the importance of exploring how partial efficacy of microbicides is received through pilot studies and early introduction programs to identify and address possible barriers and facilitators in advance of product introduction (Woodsong *et al*, 2013).

### ***Partner dynamics***

Heterosexual sexual relationships involve two people, therefore partner/ gender dynamics need to be considered when assessing acceptability of a new prevention method (Poo *et al*, 2005). Furthermore, men maintain a great level of influence over women's decisions to accept and adhere to female-centred programmes (Lanham *et al*, 2014).

A number of microbicide studies found that women are more concerned about satisfying their male partner's sexual pleasure than protecting themselves from infection (Mantell *et al*, 2009; Nicolson and Burr, 2003). As highlighted earlier in the discussion, cultural practices of dry sex often perpetuate the practice of vaginal insertions which could then prohibit acceptability of microbicide products such as the tenofovir gel due to its lubricative properties (Woodsong, 2004). The great need to heighten men's sexual pleasure through dry sex therefore may decrease the incentive for protection (Nicolson and Burr, 2003). For example, women who took part in the VOICE study confessed having discontinued use of the tenofovir gel if the male partner had complained about the vagina being too wet (Van der Straten *et al*, 2014; Montgomery *et al*, 2015). Product acceptability therefore is largely determined by the male partner's reaction, as the study found that in the absence of complaints from the male partner, women would continue using the gel as it meant the gel did not interfere with their relationships (Montgomery *et al*, 2015). In another acceptability study, women's assessment of the gel strongly related to their perception of how the added lubrication would influence personal and sexual pleasure (Hoffman *et al*, 2010). Van der Straten *et al* (2014) concluded that male partners' dissatisfaction with a product indirectly influenced women's willingness to continue using the product. They further noted that keeping their relationship surpassed the need for protection, as participants would discontinue trial involvement if they felt it threatened the quality of their relationships.

Intimate partner violence (IPV) is also identified as posing a threat to microbicide acceptability and use. Taking into account the widespread occurrences of IPV in South Africa, “trials of female-controlled technologies for HIV prevention such as microbicides may increase the possibility of social harms” (Stadler *et al*, 2014: 49). For example, more than a third of 150 women enrolled in a social science sub-study, nested within a Microbicide Development Programme (MDP) trial in Johannesburg, South Africa reported to have experienced IPV (van der Straten *et al*, 2014). Similarly, some women in the Aspire study were subjected to or feared abuse from their male partners (MTN, 2016). The report from MTN (2016) further states that acceptance levels of the dapivirine ring increased from 1.5 to 2.5%, depending on how recent the women may have experienced abuse. Such trends may occur in real-life settings, where women may be subjected to IPV as a result of attempting to adopt microbicides as a prevention method.

### ***Perceived risk of infection***

Low perception of risk can have an impact on acceptability of microbicides. According to Shisana (2005) an individual’s perception of their risk to illness or disease influences them to adopt risk-reduction behaviour or preventive strategies. Adding to this, Mantell *et al* (2006) assert that a person’s beliefs play a major role in determining their acceptance of a new prevention method. As previously stated, false perception of risk amongst long-term partners prevents the use of barrier methods (Stern and Buikema, 2013).

Similarly, low perception of risk has been found to have great influence in acceptance and use of microbicides (Khawcharoenporn *et al*, 2014; Smit, 2008). Findings suggests that microbicides are perceived as prevention methods suitable only for uncommitted people who engage in casual relationships (Lanham *et al*, 2014). Results from a microbicide complimentary research study found that some men perceived women’s use of microbicides as a sign of suspicion that he was unfaithful (Lanham *et al*, 2014). Another study found a high probability of rejection amongst people who do not use condoms (Carballo-Diéguez *et al*, 2007). Relationship norms therefore are seen having a great impact on the type of women who should use microbicides, thus affecting how acceptable they will be (Lanham *et al*, 2014).

While not disregarding the other contextual determinants, microbicides can be adopted as an HIV prevention method if women are aware of their vulnerability to HIV infection (Libingi and Sitali, 2015). For example, a microbicide acceptability study in an urban setting outside of Cape Town, South Africa found that awareness of the risk posed by sexual coercion, rape and unplanned sex

were key concerns that influenced acceptability of microbicides at a personal or community level (Orner *et al*, 2006). The much required steps in ensuring the effectiveness of these new prevention technologies therefore rests in understanding how individuals contemplate their own risk of infection (Eaton and Kalichman, 2007). This should extend to facilitating awareness on perception of HIV risk amongst married and cohabitating couples (Maharaj and Cleland, 2001).

Furthermore, Blashil *et al*, (2015) suggested that future prevention methods should consider psychosocial problems such as internalized stigma, which may hinder the use of pre-exposure prophylaxis (PrEP). He explains that some women may disregard using these methods because in other contexts it may be viewed as admission that one engages in risky sexual behaviour, or that they are HIV positive (Blashil *et al*, 2015). In the VOICE-C, the daily intake of ARV-based products was found challenging, as ARVs were associated with sickness, therefore the women's partners and families were suspecting that they were HIV positive (Montgomery *et al*, 2014). This also contributed to internal struggles about taking HIV treatment when healthy (van der Straten *et al*, 2014).

### ***Behaviour/ lifestyle patterns***

Behavioural and lifestyle factors are also to be taken into consideration when assessing acceptability of a new prevention method. High rates of alcohol consumption in South Africa not only increases the risk of infection (SANGONeT, 2012). That also poses a threat to the success of emergent biomedical HIV prevention technologies such as microbicides as it may have challenges with correct and consistent use (Bryant *et al*, 2010). For example, women in the VOICE –C study reported missing doses during weekends to avoid mixing them with alcohol (van der Straten *et al*, 2014). It is therefore critically important to understand the epidemiological context, defined as “the current state and trends in the behavioural and biological factors that determine the transmission dynamics of a given disease and the impact of a specific intervention” (Aral and Cates, 2013: 338). Accordingly, the field of microbicides has since extended focus to conducting socio-behavioural research, focusing on understanding behavioural and biological efficacy of microbicides (UNAIDS, 2015).

For the purpose of this study however, acceptability of microbicides is measured on participant's willingness to use products based on product features, taking into account various contextual factors and their perception of risk, as study participants were not administered any microbicide

products to use. The study merely explored the perceptions on participant's willingness to use microbicide products.

### ***Covert use of microbicides***

Motivation for the development of microbicides results from the high infection rates amongst women, due to their inability to use available HIV prevention methods such as the male and female condom (Morrow *et al*, 2010). The goal is to reduce reliance on male partner's cooperation for protection against sexually acquired HIV through covert use (Stein, 1990). Microbicides hold great promise in reducing the HIV rates amongst women through products that cannot be seen or felt by the male partner, thereby increasing women's control over protection by enabling them the option to use microbicides more discreetly (Hoffman *et al*, 2010). Much controversy has emerged regarding the quality of covert use, as it is perceived both as a barrier and incentive to microbicide use (Becker *et al*, 2004), when taking into account diverse cultural backgrounds and existing social harms such as IPV experienced by women.

For some women, covert use is a much needed approach to achieving protection. Common reasons for the decision to use microbicide discreetly include fearing a negative repercussions ranging from objection, violence, or simply not seeing the need to disclose as they feel the partner does not need to know, particularly in casual relationships (Lanham *et al*, 2014; Becker *et al*, 2004). A study amongst students at the University of KwaZulu-Natal found that covert use was the most appealing feature about microbicides (Nota, 2016). A number of studies also found that women appreciate a prevention method that allows them discreet use, preferably one that can be completely unnoticeable by the male partner (Orner *et al*, 2006).

Covert use however may not be practical for all women. Evidence from various female-centred programmes, including microbicides revealed that efforts to disregard the often dominant role of men in sexual decisions are ineffective (AIDS Fact, 2016, Lanham *et al*, 2014; Gómez and VanOss Marín, 1996). The VOICE-C study revealed that women who took part in the Voice study experienced IPV, were suspected of infidelity, and they were unable to use products consistently due to fear of being discovered by male partner (Montgomery *et al*, 2015; van der Straten *et al*, 2014) In reality, covert use can be a challenge to acceptance, utilisation and adherence in the long run (Woodsong, 2004; Woodsong *et al*, 2013; van der Straten *et al*, 2014; Montgomery *et al*, 2015).

Moreover, in some contexts covert use may be deemed as culturally inappropriate as a product that provides women with more power and control over their sexuality may be going against traditional and cultural norms (Becker *et al*, 2004). Ultimately, a woman's decision whether or not to use microbicides, and whether to use them covertly will be influenced by cultural norms for behavior (Woodsong, 2004). Male acceptability studies found that men are against covert use of microbicides, as they don't believe women should be allowed the ability to use protective products without the male partner's knowledge (Woodsong, 2004). Similarly, a study amongst men and women found that men opposed to covert use, emphasizing the need to maintain trust in a relationship, while women in long-term partnerships asserted that social expectation to have no particular need for microbicides, and that attempting to use would result in relationship problems (Poo *et al*, 2005). The introduction of microbicides should thus be sensitive to diverse cultural contexts, as "marketing strategies could either encourage or discourage covert use, discourage use altogether or alienate male partners, which could make the discovery of covert use more perilous for women" (Woodsong, 2004: 127).

### **Male involvement in a female-controlled prevention method**

Gender inequity is identified amongst the factors that impede women's acceptance, utilisation and adherence to women-centred health programmes (Lanham *et al*; 2014; Burger, 2005). A large volume of studies have documented women's limited capacity to negotiate the use of prevention method such as condoms and family planning (Aransiola *et al*, 2014), however there is very limited research exploring a male's perspective, or the ways in which men can be employed to promote acceptance and uptake female-centred intervention programmes.

Drawing from family planning as an example, Mbizvo and Basett (1996) found that men were more often responsible for the decision to use contraception than the women themselves, even though the decision for use is meant to be the female partner's. Similarly, social research on microbicides found that men had great influence (directly or indirectly) on women's acceptance and use of microbicides (Montgomery *et al*, 2015; van der Straten *et al*, 2014).

Although women understand the possibility of covert use for microbicides, studies reveal that most women, especially those in marriage or long-term relationships prefer to talk to their partners about using the products (GCM, 2010; Van Damme *et al*, 2008; Ryan *et al*, 2015). Women's response to microbicides is largely influenced by the male partner's perception and their ability to negotiate use with them (Ryan *et al*, 2015). Similarly, men want to be involved in the decision to

use microbicides and on the choice about which microbicide product to use. About 80% of men who took part in an acceptability study amongst South African men want to be informed about their partner's choice to use microbicides (Ramjee *et al*, 2001).

According to Schuler *et al* (2013), acceptance and adherence to microbicides can be achieved through male involvement from the early stages of introducing microbicide products. The Partner's PrEP trial is a great indicator of this, having reduced up to 70% to 90% infection risk amongst heterosexual sero-discordant couples (PrEP Facts, 2016, Venter *et al*, 2015). Similarly, a study amongst 1200 heterosexual men and women in Botswana reported up to 62% risk reduction (PrEP Facts, 2016). Evidence from various microbicide trials found acceptance and consistent use to be higher amongst women whom their partners had knowledge of their use of the products (Salter *et al*, 2008, Montgomery *et al*, 2010; Mngadi *et al*, 2014). An evaluation of the VOICE study found that supportive partners contributed positively towards women's use of PrEP, as they reminded them to use the products and provided money to travel to the study clinics (van der Straten *et al*, 2014). It has become apparent therefore that a prevention method is likely to be used effectively when both partners are aware of its use (Ramjee and Daniels, 2013).

Moreover, men reported having a sense of responsibility when involved in female-centred programmes, and are thus encouraged to actively participate towards its success (Edwards, 1994). In microbicide trials, male involvement has been found to increase community acceptance and reduce stigma around microbicides, improve communication about sexual matters and increase shared responsibility for protection (Woodsong, 2006; Montgomery 2011; Schuler *et al*, 2013).

Access to product information has also been found to play a major role in men's acceptance of microbicides as a prevention method for their female partners (Kelly *et al*, 2015). A study conducted in various settings in South Africa revealed that lack of product information amongst men can result in rejection of the products, as they expressed their concerns about their female partners using a product they are not properly informed about (Kelly *et al*, 2015). A systematic review of various HIV prevention trials including microbicides concluded that adherence support programs need to consider involving intimate partners in pre-enrollment visits as this may reduce suspicion, encourage women to use products more openly, and also make it possible to get their partners to remind them of product use (Ambia and Agot 2013). Studies on female-centred intervention programmes such as microbicides should have complementary studies dedicated to

understanding men's positions and impact on acceptance and use (Mbizvo and Basett, 1996; Edwards, 1994). Encouraging couples' and male partners' studies have the potential to facilitate acceptance and support of product use for women, particularly those in stable partnerships (Van der Straten *et al*, 2014).

### ***Drawbacks of male involvement***

Given the growing studies indicating women's preference for men to be involved in microbicide research and use in real-life contexts, it is critically important to note that disclosure of microbicide use may not always translate into male partner's acceptance and support.

Many African countries are patriarchal, entrenched deeply in ideologies that enforce gender differences which define how women should interact with men (James, 2008). In some contexts, women are not expected to initiate or deny a man's sexual advances, let alone suggest the use of protection (Duffy, 2005). Violent consequences such as IPV often result from doing so because it is perceived as contravention of cultural roles and norms (ICAD, 2006; Strebel *et al*, 2012; Jewkes *et al*, 2010; Pettifor *et al*, 2004). Highly discreet products that offer women uncontested protection may subject women to IPV, as they may be perceived as posing a threat to men's dominant positions in relationships and in sexual decision-making (Mantell *et al*, 2005; Nota, 2016). Studies therefore warn against the possibility of diminishing women's autonomy to decide whether or not to use microbicides covertly through male involvement (Lanham *et al*, 2014; Moodley, 2007).

Male involvement can also result in risk compensation, defined as "the theoretical risk that individuals commencing PrEP will neglect other safer-sex measures, and put themselves at increased risk of HIV exposure" (Bekker *et al*, 2016: 9). Drawing from the risk homeostasis theory (Wilde, 1982), Eaton and Kalichman (2010) postulates that while prevention technologies offer much needed increased protection against HIV, it is critically important to examine the impact of increased efficacy on sexual behaviour. For example, a social science study on Medical Male Circumcision (MMC) found a high probability of risk compensation, as men demonstrated a likelihood to increase the number of sexual partners and potentially discontinue condoms after undergoing circumcision (Mantell *et al*, 2012).

Similarly, HIV new prevention technologies (microbicides, ARVs, etc.) are perceived to have the potential to lower the perception of risk and thus alter risk-related behaviors (Eaton and



Kalichman, 2007). An acceptability study found that consistent condom users were likely to substitute condoms with microbicides (Orner *et al*, 2016). Women who may choose to disclose microbicide may be at an increased risk of incurring infection as some men may discontinue condom use due to misconception about the protection offered by microbicides (Woodsong, 2004). Woodsong's study further draws on the impact male involvement may have on women's autonomy for protection, as women may be forced into using them unwillingly by men who prefer microbicides over condoms (Woodsong, 2004).

The success of microbicides as an HIV prevention method for women relies greatly on policies and programmes acknowledging and addressing the impact of gender inequalities in acceptance and utilisation of microbicides amongst women (Lanham *et al*, 2014). Brief risk reduction counseling should also be implemented alongside the introduction of these products, to ensure acceptance and optimal protection (Eaton and Kalichman, 2007).

### **Identified gaps in literature**

The issue of context has been identified as a key area to explore for effective prevention and management of HIV. In keeping with this notion, the research aims to draw a comparison between the perceptions of people from a province that has undergone microbidental clinical trials (KZN) and one that has not had any exposure (MP).

Moreover, KZN is amongst the few provinces that have undergone microbicide clinical trials in South Africa, this including Gauteng, North West and the Western Cape. The high prevalence of HIV in other regions indicates the need for trials to extend to other regions of the country in order to get insights from various contexts. The study seeks to identify if there is a difference in perception and acceptance between men and women from these provinces.

Furthermore, the need for this study is based on observation that while women express lack of power in negotiating safe sex practices with their male partners, there is only limited research exploring a male's perspective on this matter. There remains a gap on literature regarding men's views on the subject of microbicides. This study explores a male's perspective to identify if male involvement can have an impact on acceptance and uptake of microbicides amongst women in these settings.

## **Conclusion**

The preceding chapter has provided a detailed case of the severity of HIV amongst women, the biological, sociocultural, structural and economic factors increasing women's susceptibility to HIV. The chapter has presented the failed attempts of the ABC approach (male and female condom) in preventing HIV infections amongst women, while highlighting the urgent need for prevention methods that provide women full control over their protection against HIV. Moreover, the chapter emphasised the importance of investigating a male's perspective on microbicides, and to investigate its impact on women's acceptance and utilisation of microbicides as an HIV prevention method. Moreover, in presenting the prevalence of HIV in KZN and MP, the researcher hopes to have made a strong case regarding extending microbicide studies to other regions plagued by the epidemic such as Mpumalanga. This was meant to demonstrate the importance of understanding the diverse epidemiological contexts, so as to identify the type of microbicides women are willing to use.

The next chapter presents the theoretical framework employed in this study.

## CHAPTER THREE: THEORETICAL FRAMEWORK

### Introduction

Understanding health behaviours of a diversely cultured country such as South Africa, with complex relationships requires more than just a single theory (Mathew, 2012). As such, this study draws from two theoretical frameworks; the Social Ecological Model for Communication and Health Behaviour (SEMCHB) (Kincaid *et al*, 2007) and the Culture-Centred Approach (CCA) (Mohan Dutta, 2008) to examine the perceptions of men and women regarding microbicides as HIV prevention methods for women. The SEMCHB is employed in this study as a holistic approach, suitable for studying the interrelated socio-cultural, economic, and structural factors that need to be considered when investigating men and women's perceptions towards microbicides. CCA is employed in this study to examine the cultural views (values, beliefs) of men and women in order to identify the barriers and facilitators of microbicides as a new female-initiated prevention method (FIPM). These theories will be explored in the context of health communication.

### Communication in HIV

The field of health communication has a growing relevance and importance in every aspect of health and well-being, including disease prevention, health promotion and quality of life (WHO, 2009). Health communication is defined as “the study and use of communication plans and strategies to inform and influence individual and community decisions in ways that improve health” (Rensburg and Krige, 2011: 77). Given the global challenges posed by major health threats such as HIV, health communication scholars and practitioners recognize the importance of prevention and, with it, the need to understand human behaviour through the prism of theory (WHO, 2009).

Responses towards the HIV and AIDS outbreak in the early 1980's were centred only on biomedical approaches (Parker, 2012), while placing great focus on promoting individual health behaviour change (Airhihenbuwa, 2005). HIV however is a multifaceted disease, intertwined with various sociocultural, economic, structural, political and gender factors (Durden and Govender, 2012). Addressing the health aspect while disregarding these underlying influential factors may impede the effectiveness of any intervention programme that seeks to curb the epidemic (Airhihenbuwa and Obregon, 2001). For example, the discussion on the female condom in chapter two highlighted that effectiveness of biomedical interventions and individual behaviour change cannot be achieved in isolation from these above-mentioned factors (Storey and

Figueroa, 2012; Walley *et al*, 2001; Chasi, 2004). An individual's health behaviour is shaped and influenced by socio-cultural, economic, structural and gender related factors therefore it is critically important that they are explored, modified or addressed to create a health enhancing environment that encourages support of the proposed intervention (Durden and Govender, 2012; Airhihenbuwa, 2005; UNAIDS, 2016). Communication therefore has an important role in examining how the various factors meet to influence behaviour change (Airhihenbuwa, 2005).

Given the complex nature of HIV and AIDS, health communication approaches have been revised to explore the health aspect together with the individual, community, societal influences of the epidemic (Govender, 2011). As a result, the field of health communication has since shifted focus from theories enforcing individual behaviour to more holistic and culture-sensitive approaches that strive for social behaviour change (Durden and Govender, 2012). Current social change approaches such as the Culture Centred Approach (CCA) and the Social Ecology Model of Communication and Health Behaviour (SEMCHB) are more sensitive to the environmental contexts within which intervention programmes are applied (Airhihenbuwa and Obregon, 2000).

Moreover, HIV prevention methods such as microbicides are regarded as both biomedical and social science products therefore they require health and social motivation across all levels of society (Montgomery and Pool, 2001; van der Straten *et al*, 2014). Socio-behavioural research must be should be at the centre of all developmental stages of these new prevention technologies, as studying human behaviour allows to identify any barriers and facilitators regarding acceptance and use of a new prevention method.

### **Understanding the SEMCHB**

Society is a complex entity that constitutes of interrelated organisms that are dependent on one another for survival (WHO, 1986). This is illustrated in ecology, which refers to “the complex interrelationships among organisms and the environment in which they live” (Storey and Figueroa, 2012: 74). As an approach that stems from the social ecological perspective, the SEMCHB takes into account the complexity, interrelatedness and wholeness of components within a complex adaptive system, rather than particular components in isolation from the systems (Storey & Figueroa, 2012: 76).

The core principles of the ecological model are based on the belief that perceptions about health are influenced by multiple influential factors that often include intrapersonal, interpersonal,

organizational, community, physical environmental and policies (Sallis *et al*, 2008; McLeroy *et al*, 1988). These levels are illustrated in table 3.1, below:

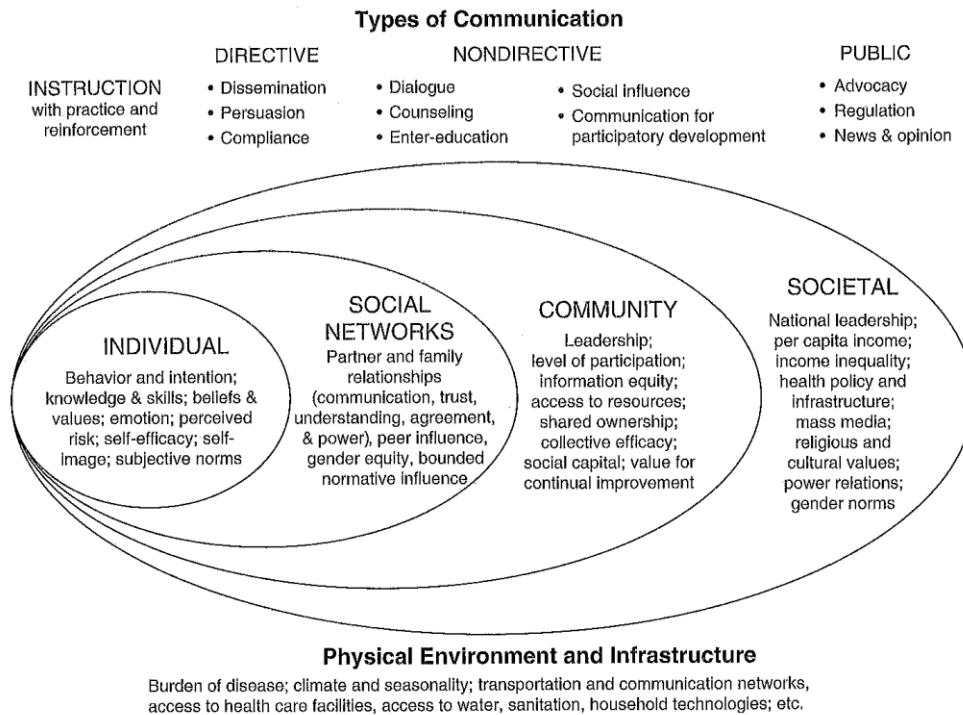
**Table 3.1:** The Ecological Perspective: Multiple Levels of Influence (McLeroy *et al*, 1988)

| CONCEPT (FACTORS) | DEFINITION/DESCRIPTION   |
|-------------------|--|
| Intrapersonal     | Individual traits and characteristics, such as knowledge, attitudes, beliefs, and personality traits, that influence behaviour   |
| Interpersonal     | Interpersonal processes, and primary groups including family, friends, peers, that provide social identity, support, and role definition   |
| Institutional     | These would be rules, regulations, policies including informal structures such as Universities, schools and colleges.  |
| Community         | Social networks and norms, or standards, which exist as formal or informal among individuals, groups, and organisations. This level also combines the institutional and public policy levels since these are part of “social structure”. |
| Public Policy     | Local, provincial, national policies and laws that regulate or support healthy actions and practices for HIV prevention  |

More immediate determinants of perceptions are identified through the three levels of the SEMCHB; Social networks, the community and societal structures (Storey and Figueroa, 2012). These levels are interrelated, they overlap and facilitate influences across all levels of the social system. Perceptions therefore can be best understood within a social ecological framework that takes into account the interconnected influences of social networks, community and society on behavior (Sallis and Owen 2002; McKee *et al*, 2014; Sallis *et al*, 2008; Storey and Figueroa, 2012). As such, multi-level interventions are required to effectively understand and address health problems (Sallis *et al*, 2008).

Research shows that the HIV and AIDS epidemic is an ecological entity (Parker, 2012), its persistent spread is intertwined with socio-cultural, economic and structural inequalities, as it is to behaviour (Hemer and Tufte, 2005; Parker, 2004). It has become a widely acknowledged notion that health communication messages need to look beyond the health aspect of a health problem, as the individual, social, community and societal influences of an epidemic are as much of concern for effective prevention (Durden and Govender, 2012). Women are part of much broader systems, this includes their social networks, communities and society at large (Storey and Figueroa, 2012; Mutinta, 2012). Their efforts to protect themselves against HIV infection (health behaviour) are therefore influenced by these larger structures.

The SEMCHB is encompassed in two key attributes of “*embeddedness*, a state in which one system is nested in a hierarchy of other systems at different levels of analysis, and *emergence*, in which the system at each level is greater than the sum of its parts” (Storey & Figueroa, 2012: 76). As a meta-theory, each level of the SEMCHB is assigned behavioural theories that are applicable to it (McKee *et al*, 2014; Storey & Figueroa, 2012). In health promotion, a social ecological theory is meant to understand how diverse personal and environmental factors influence human health and illness (Stokols, 1996). Such a multi-faceted approach is thus suitable for this study that seeks to examine barriers of facilitators to women’s acceptance and utilisation of microbicides from various levels of influences in the society. The element of “*embeddedness*” entails that each level is allowed other behavioural theories therefore each level contributes to a broader understanding of the psycho-social environment of perception formulation.



**Figure 3.1:** The Social Ecological Model of Communication and Health Behaviour. Source Storey and Figueroa (2012: 75).

Since women are part of larger societal structures, introducing a new female-initiated prevention method requires creating an enabling environment, that is, addressing possible barriers at the household, community, organizational, and policy levels (Storey and Figueroa, 2012; Mutinta, 2012). The study resonates with the notion that the levels of the SEMCHB model (social networks-intimate partner and family), community and the society are sites of negotiating health decisions therefore, health messages targeted at the individual in isolation are impractical and highly likely to be ineffective (Dutta, 2011). In using the SEMCHB, this study explored men and women’s perceptions within a wider socio-ecological perspective, exploring how the interconnected influential structures impact on women’s decisions to accept or use microbicides. Figure. 3.1 is an illustration of the SEMCHB.

***The different levels of influences***

The SEMCHB consists of four interconnected levels of the social system, namely, the individual, social networks, community and the societal level. These levels are interrelated and embedded within a broader discourse of understanding behavior change (Storey and Figueroa, 2012). For the purpose of this research, only the first three levels will be explored as the purpose of this

research is to identify the factors that could hinder acceptance and use of microbicides and not on developing implementation policies, which the societal level concerns itself with.

### *The individual level*

The individual level of the SEMCHB is specifically focused on individual behaviour change. In this level, theories such as the HBM and SCT are employed. An example is the introduction of the ABC approach, which encouraged individual to adopt and practice abstain from sex, use condoms or be in monogamous relationships. The ABC approach relied on an individual to adopt and practice these recommended behaviour however, the decision to abstain from intercourse, have one sexual partner, or to use condoms occurs within a broader context and not only on an individual's choice to adopt/revisit an existing or new behaviour.. For women specifically, individual targeted interventions such as the female condom have failed because social networks (intimate partners) are not in support of its use, while larger socio-cultural community norms have expectations of submissiveness and subservience amongst women, therefore denying them the ability to contest the male partner's decision for non-condom use.

Individual level interventions therefore are often short-lived, due to lack of sustainability from larger structures of the social system such as social networks, family and the community (Storey and Figueroa, 2012; Sallis *et al*, 2008). The failure of such intervention programmes is a result of barriers that emanate from higher levels and structures of the social system (WHO, 1964).

The core concept of the SEMCHB however informs that individuals may be responsible for initiating a positive health behaviour however, maintenance of a particular health behaviour is determined to a large extent by social environments in which they emanate (Storey and Figueroa, 2012; McKee *et al*, 2014). In cases where an individual attempts to adopt a health enhancing behaviour, their behavioural efficacy may be undermined by larger influential structures (Stokols, 1996; Storey and Figueroa, 2012). For example, in a community with widespread norms of non-condom use in long-term relationships (MacPhail and Campbell, 2001), although some youth attempted to go against the dominant norm and adopt condom use, their efforts were hindered by the prevailing sexual norms in the community. Sustainability of new behaviour relies greatly on support and encouragement of the family, peers, community and society, introducing individual change in isolation from other levels therefore may not achieve sustainable results. Effective individual behaviour change is best achieved when it is introduced within the overall context from which an individual emanates (Storey and Figueroa, 2012).



### *Social networks level*

The social networks level is made up of interpersonal relationships; family members, intimate partners, friends, neighbours, colleagues, etc (McLeroy *et al*, 1988). There has been an extensive focus on individual behavioral HIV prevention interventions with individuals (Trickett, 2005), however, behavioral HIV prevention interventions have little effect on behavior change with individuals when protective sexual behaviors are not supported by their social networks (Latkin and Knowlton, 2005). Social relationships are important aspects of individual behaviour, for example, a teenage boy who has a close friend who smokes cigarettes is also highly likely to be a smoker.

Health interventions that employ the social networks level thus often seek to change individual behaviour through their social relationships while neglecting facilitation of change in group norms (McLeroy *et al*, 1988). Moreover, such interventions are often limited to specific groups of people, for example a group of women who partake in a woman's community book club (Storey and Figueroa, 2012). This restrains an intervention programme from reaching the larger population within the community as it leaves it vulnerable to constraints from larger structures in the community.

### *The community level*

A community is defined as a group of people living in the same place, who have common characteristics, interests, attitudes and beliefs (Rifkin *et al*, 1988). This entails that people from a community are likely to share the same views and perceive things the same way, due to the influences within the environment. Community can also refer to the mediating structures or primary social groups to which individuals belong, these include family, informal social networks, voluntary associations, churches etc, which create social resources and identities (McLeroy *et al*, 1998). These interconnected result in the construction of social norms defined as "beliefs, values, and practices of a specific group that are external to individuals, and which exercise pressure on individuals to make them behave in pre-determined ways" (Hoffmann, 2010: 13). In this research, the concept of community will be explored as holding the greatest influence on perceptions on microbicides and the decision to seek health information and acceptance and use of microbicides (Cialdini and Trost, 1998).

For example, in a study investigating risky sexual behaviours amongst students at the UKZN, the behavioural trends were found to be a result of a multi-systemic construction within the university

campuses (Mutinta, 2012). The university campuses formed a community with certain sexual norms, which in turn influenced individual student's sexual behaviours. Addressing these risky sexual behaviours would require an understanding of these sexual norms within the university campuses.

The community level can be more influential, having the power to reach a larger audience as it extends to both the individual and social networks within a community (Storey and Figueroa, 2012). As noted earlier, effective and sustainable change can be realised when higher social levels support and encourage a newly adopted behaviour (Sallis *et al*, 2008). The implementation of the healthy-living project, with the primary goal of creating capable community development associations (CDAs) achieved successful results (Storey and Figueroa, 2012). The project aimed to mobilise communities to promote adoption of services such as family planning and reproductive health. Trained female volunteers from within the communities were agents of change, employed to develop activities tailored to the local contexts. An increase in women who utilised antenatal and reproductive health services had increased substantially by the end of the project (Storey and Figueroa, 2012).

This example indicates that community targeted interventions are necessary to counteract any disabling influential factors to behaviour change. As apparent in the example above, the community is the greatest determinant of health outcomes therefore creating a health competent-environment is important for interventions to hold at a community level (MacQueen *et al*, 2001). A health competent-environment is one in which people have the knowledge, skills, resources and attitudes needed to improve and maintain a health behaviour (Storey *et al*, 2006). Furthermore, the healthy-living project (Storey and Figueroa, 2012) illustrates that social norms are linked to the formation of collective efficacy for social action (Lee, 2010). Collective efficacy is defined as the shared belief in the capability of a group to address a certain problem when it acts conjointly (Bandura, 1997). In turn, collective efficacy influences collective action as it is a determining factor towards a group's perceived ability to influence individual behaviour change (Lippman, 2007). Interventions that encourage collective efficacy and collective action can thus be beneficial to HIV prevention programmes (Cain *et al*, 2014; McLeroy *et al*, 1988).

Despite the success of community programmes, an intervention that targets only the larger structures may not ensure sustainability at the individual level (Sallis *et al*, 2008). For example, South Africa's female condom programme is amongst the biggest in the world, however, its

availability in some public health facilities had very little impact in its use amongst women. This is because often they are not empowered to initiate or negotiate the use of condoms as individuals. The success of an intervention programme therefore relies on an approach that takes into account all the levels of the social system (Storey and Figueroa, 2012).

As indicated earlier, this study focuses on the first three levels (individual, social networks and community level), as the purpose of this research is mainly on assessing possible barriers and facilitators of microbicides by women at a community level. The society level therefore was not examined.

### ***Employing a multi-level approach to introducing microbicides***

The current paradigm in the field of HIV management and prevention places much emphasis on combination strategies that takes into account the social, behavioural and structural factors that influences adoption and adherence to intervention programmes (UNAIDS, 2016). Accordingly, this research will employ a multi-level approach, exploring how the social networks and community levels influence on the individual level (women's decisions to accept or utilise microbicides). In doing so, the research aims to identify specifically how the family, intimate partners and various social relationships, as well as social norms and beliefs of the community may impact women's decision making to accept and utilise microbicides as an HIV prevention method.

Furthermore, Sallis *et al* (2008) asserts that a multi-level approach is most suitable for behaviour change in response to a health problem such as HIV that is influenced by multiple factors that often include intrapersonal, organizational, community, and public policy. A health intervention programme that focuses on any one level on the other hand underestimates the effects of the other levels on behaviour change (Stokols, 1996). For example, a recent study showed that encouraging young women to stay in school and refrain from economic-based sex was much more effective when informational (knowledge about HIV and STIs) and biomedical interventions (HIV testing) were accompanied by social support from parents and school teachers as well as economic incentives (money and food) (Cluver *et al*, 2016). In this study, the individual level, social networks level (family), and community levels are taken into account. Moreover, structural and economic factors are being addressed. This shows that a multi-level approach can work to holistically ensuring a health competent environment, where individuals, social networks and the

larger social structures are supportive and encouraging of healthy behaviour (Storey and Figueroa, 2012).

Another example can be drawn from the implementation of the ABC approach in the Ugandan context, where behaviour change and the reduction of HIV is said to have been a result of national HIV awareness campaigns which were supported by various sectors (public and private, civil society -religious bodies, employers, labour organizations, etc) (Murphy *et al*, 2016).

In this study, the individual level is examined within the social networks and the community levels in order to identify the impact these larger structures may have on women's decision to accept or use microbicides. The social networks level served to explore specifically the trends that emanate from various social relationships or group settings, in order to determine how such these spaces may impact on women's decision to accept or use microbicides. The community level was employed to identify the larger social beliefs and norms that emanate from these communities, which may have an impact in women's acceptance and uptake of microbicides. As health influential factors are understood to emanate from across all levels of the social system (Sallis *et al*, 2008). The community level also seeks to encourage collective efficacy and action, in facilitating positive norms and collective action towards identifying and addressing possible barriers while encouraging an enabling environment for women to use microbicides. A multi-level approach therefore is the most probable as it allows for identifying possible barriers and facilitators to microbicide within and across all the levels of the community (Storey and Figueroa, 2012). Furthermore, multiple level interventions broaden the scope of options for health interventions (Sallis *et al*, 2008). Using an ecological approach to microbicide introduction therefore will allow for multiple solutions to facilitating acceptance and use amongst women.

### **Background of the Culture-Centred Approach**

The field of health communication is informed by communication for development theories which have been in a state of flux due to constant shift in socio-cultural structures. The infant stages on development communication was informed by the modernization paradigm, an approach nested in 'top-down' communication between the benefactors and beneficiaries of an intervention programme approach (Waisbord, 2001). This approach was characterised by imposition of interventions whilst upholding detachment and disinterest with needs as perceived by the community itself (Louw and Tomaselli, 2007). The lack of change was associated with a lack of information in underdeveloped nations (Waisbord, 2001). Accordingly, the field of development

communication transitioned to adopt the 'knowledge, attitude and practice' (KAP) approach in the late 1960s, also stimulating change in the field of health communication (Durden and Chasi, 2012). The assumption was that providing people with knowledge would change their attitudes and therefore result in a change in behaviour (Durden and Chasi, 2012). Early stages of the health communication field employed the diffusions of innovations theory (Rogers, 1969). This approach was not very effective, this has particularly been apparent in the failed attempts to combat the HIV crisis around the world and in South Africa during the 1990s (Quarry and Ramirez, 2009; Govender, 2011). Early HIV communication was focused exclusively on disseminating information and knowledge about the epidemic while disregarding the underlying socio-cultural and structural contexts in which the communication takes place (Govender, 2011). Failure of this approach demonstrates that information alone cannot ensure behaviour change. Moreover, another challenge with this approach was particularly because the dissemination of information was a one-way process, where people were provided information however they were not offered platform for feedback (Waisbord, 2001).

The late 1980's saw a change in health promotion, as communication messages moved away from just promoting knowledge and information to encouraging behaviour change through Behaviour Change Communication (BCC). Theories such as the Health belief model (HBM) and the Social cognitive theory (SGT) were employed, with much emphasis on individual behaviour change (Airhihenbuwa and Obregon, 2000). Accordingly, the BCC approach was employed for HIV communication in South Africa during the mid-1990s however, it proved to be ineffective in combating HIV infections (Govender, 2011). The shortcomings of the BCC approach were attributed to generalization and homogenization of HIV, while the epidemic varies with each context (Airhihenbuwa and Obregon, 2000). This demonstrated that individual behaviour change must be examined within various structures of the social networks, community and society at large (Durden and Chasi, 2012). Specific to the South African context BCC failed to address the cultural, socio-economic and structural conditions that influence an individual's health choices (Govender, 2011).

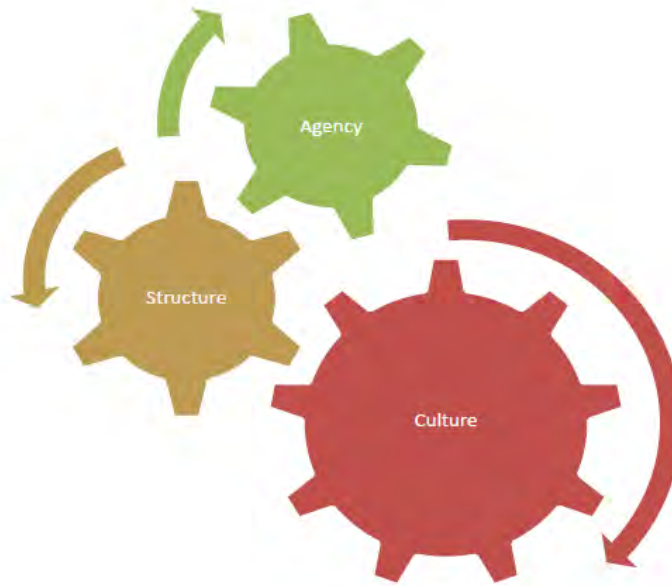
In light of such limitations, responses to health communication strived for social change, applying theories such as the Social Change Communication in the late 1980s (SCC) (Davids, 2005). This paradigm advocated for community involvement and partnership through theories such as Communicating for Social Change (CFSC) and Communicating for Participatory Development (CFPD) (Govender, 2011). This shift encouraged a more interactive communication approach,

whereby there is dialogue between the sender and receiver of information (Govender, 2011). Impetus for change was motivated by the realisation that beneficiary communities were knowledgeable and have the capability to identify their needs therefore people's voices were to be taken into account when developing or introducing an intervention programme (Tomaselli and Chasi, 2011). In South Africa, the SCC approach was introduced during the late 1990s in HIV and AIDS communication, through campaigns that encouraged community involvement rather than awareness or individual behaviour change (Govender, 2011). SCC allows for understanding behavior in context which is very important for new prevention technologies such as microbicides.

### **The Culture-Centred Approach**

CCA extends on the participatory paradigm, introducing the value of the cultural aspect in health intervention programmes. The CCA concerns itself with marginalised subaltern voices, defined by Dutta (2008) as the silenced or marginalised groups within social systems. Dutta asserts that subalternity occurs at multiple levels, reinforced through communicating ideologies and discourses that favor the elite while conditioning subalterns in inferior positions (Dutta, 2006). In this study, the marginalised group would be women, as people who have limited power over their decision for protection against sexually acquired HIV due to various socio-economic and cultural factors that come together to constrain their sexual agency.

According to Dutta-Bergman (2005), health is constituted within the three key components of culture, structure and agency while communities are spaces within which these structures are carried out. As such, the CCA is embodied amongst these three components, while also constituting 5 characteristics namely; voice and dialogue, structure, context and space, values and criticism. This study focuses only on the three elements of CCA, as well as 'voice and dialogue. Figure 3.2 is an illustration of the Culture-Centred approach.



**Figure 3.2:** The Culture-Centred Approach to Health communication. (Dutta, 2008:5)

### ***Culture***

Culture refers to the learned beliefs and practices, perceptions and attitudes, passions, and expressions that distinguishes a group from another (Hill, 2011). Culture can also be understood as a phenomenon that results from active participation of community members in creating meanings (values and beliefs) with which they collectively identify (Dutta, 2008). As highlighted earlier, cultural beliefs and norms influence perceptions of illness and health seeking behaviors (Nandoya, 2014; Peterson, 2009).

During the modernization paradigm, culture was perceived as an obstruction to effective development, therefore cultural values and beliefs were to be eradicated as a prerequisite for effective development (Servaes, 1995; Waisbord, 2001; Tomaselli, 2011). Given the failures of this paradigm, culture started gaining prevalence as an effective tool for development and health communication in the 1990's (Dutta, 2008). The potential for culture to be used as an asset in development and health communication was fostered by the need to respond to the changing cultural landscapes (Dutta, 2008).

CCA advocates that the community's cultural context should be at the core of health intervention programmes (Dutta, 2008), in that they must be designed to be consistent with a community's

and its people's cultural landscape (Airhihenbuwa, 1995). In the CCA approach, cultural beliefs are viewed not as barriers but rather as effective vehicles to bringing about effective and sustainable health behaviour in traditional societies (McKee *et al*, 2014; Dutta, 2008 and 2011; Airhihenbuwa *et al*, 2004). The effectiveness of a health programme in fact rests upon its consistence with the community's cultural landscape (Airhihenbuwa, 1995). What may be perceived positively in a Western community may be viewed as a disturbance of cultural practices and way of life in a traditional setting (Willis, 2005). Furthermore, cultural contexts are not homogenous entities therefore, prescribing similar health intervention programmes may not produce consistent results (Servaes, 2000; Melkote and Steves, 2001). Similarly, Quarry and Ramirez (2009) assert that the community's context is critically important when introducing an intervention programme therefore, solutions need to be designed specifically to suit the needs of each community.

Development planners often overlook local cultural contexts. Such oversights can lead to failure of potentially effective prevention methods such as microbicides because cultural norms have great influence on people's health choices. For example, potential threats towards certain cultural beliefs such as the practice of dry sex may impede acceptance of microbicides that have lubricative properties such as the tenofovir gel as it is observed in various microbicide trials (Hoffman *et al*, 2010 Woodsong, 2004; Van der Straten *et al*, 2014; Montgomery *et al*, 2015).

In keeping with this notion, this research explores the acceptance of microbicides within the cultural frameworks of the designated study settings (Airhihenbuwa, 1995). Identifying culture as an ally to development is useful in a study about microbicides because it can assist in identifying cultural values and beliefs that influence people's sexual behaviours. In that way, this study will identify the possible facilitators and barriers towards microbicides acceptance as a FIPM amongst women.

### **Structure**

Structure refers to the organisation of a society through various structures and systems that govern how it functions, people's behaviour amongst each other and in response to these structures and external factors, etc (Dutta, 2008).

Exploring community structures is key to effective prevention and management of HIV. A recent study in KwaZulu-Natal found that poverty and lack of social protection was a key determinant for



adolescent girls to engage in economic-driven sex, which placed them in substantial risk of acquiring HIV (de Oliveira *et al*, 2016). Furthermore, various studies revealed that structural and economic imbalances between men and women determine decision-making powers for protection in heterosexual relationships (Rangathanan *et al*, 2016 WHO, 2007; Beksinska *et al*, 2012).

Understanding that HIV is a complex epidemic, the study instigated dialogues on the various structures that influence safe-sex practices in order to understand the factors that influence safe-sex behaviour amongst women in the various study settings. The research therefore explored the cultural aspect of the communities along with social, structural, economic and gender factors in the context of HIV prevention.

### **Agency**

The CCA stands in recognition that people have agency, “the capacity of human being to interact with structures in order to create meanings; such meanings provide scripts for interacting with the structures, for sustaining these structures, and for transforming them” (Dutta, 2008: 61). This means that people not just accept or adopt something, they have the ability to question and evaluate what is presented to them, and thereafter decide whether to accept or disregard it. This applies in all spheres of life including health, as postulated by Dutta (2011) that people understand their health needs and they are capable of identifying suitable solutions for these needs.

The primary goal of an intervention programme is to empower the people it is designed for (Ledwith, 2011). The structures that govern the organisation of the society and people’s behaviours however are also determinants of the enactment of agency (Dutta, 2011). For example, cultural ideologies and beliefs affect women’s capability to adopt preventive methods such as condoms. As highlighted in chapter two, the failure of the female condom was due to its insensitivity to women’s socio-cultural positions in sexual decision-making. Gender-systems, rooted in cultural and social norms, as well as the socio-economic structural imbalances prevent women to utilise the female condom for HIV prevention. This prevention method therefore is an ineffective intervention programme because it does not provide much empowerment and agency for women (Murphy *et al*, 2006; Ryan *et al*, 2015, Karim and Baxter, 2012, Macpherson *et al*, 2012; Ryan *et al*, 2015). Similarly, this study is based on microbicides, products designed to empower women to have greater control over their protection against sexually acquired HIV, in cases where men are against the use of condoms. This study explored women’s ability to utilise microbicides within the various structures, processes and systems that define women’s positions

in society in order to determine whether these prevention technologies will in fact empower them for HIV prevention.

### ***Voice and dialogue***

The shortcomings of the modernization paradigm is attributed to imposition of outside ideologies without gaining thorough understanding of the needs of people in their respective contexts (Chasi, 2011). Given this limitation, the goal of the CCA is to promote the voices of previously marginalised cultural values and beliefs in discursive spaces in dialogues about intervention programmes (Dutta, 2008). This is meant to achieve a deeper understanding of the subaltern's perspective, and the best way to achieve this is through facilitating dialogue amongst community members (Dutta, 2008). Dialogue is "a conversation between two or more people in which participants seek to clarify what each one thinks and believes" (Kincaid and Figueroa, 2009: 1313).

In the CCA the importance of the dialogue process rests upon facilitating a two-way communication process between the subaltern communities and the researcher, in order to understand the ways in which health messages are received, interpreted and understood (Dutta, 2008). The researcher assumes the role of a listener and participant, engaging in equal dialogue with the beneficiaries of an intervention programme (Dutta, 2008). In this process, theory strives to promote the inclusion of previously marginalised voices in dialogues pertaining intervention programmes in order to facilitate relevant and suitable interventions (Dutta, 2008). Dialogue therefore is a form of empowerment (Ogunlela, 2014), as it encourages people to actively participate and be agents of their own change (Servaes, 1999). Dialogue not only allows people to express themselves, it also allows them to ask question so as to better understand what is presented to them (Obregon and Tufte, 2006).

This approach is informed by Brazilian educator Paulo Freire's (1979) writings on empowerment education, where he emphasises the importance of a problem-solving approach which encourages facilitation of critical thinking rather than a banking system that treats people as passive receivers of information. In opposing ideologies of the modernization approach, Freire emphasises the use of education to liberate and provide people ownership over their lives.

Through dialogue, this study encouraged men and women to actively participate and engage about microbicides in relation to their cultural context, to collectively identify possible barriers and

facilitators to acceptance and use within their communities, and thereafter identifying sustainable solutions (Dutta, 2008). A bottom-up communication was central in this study as the purpose of the research was on learning about the community's perspectives about microbicides. Although the study introduced microbicides as part of existing barrier methods such as condoms, they are promoted as part of existing prevention methods that aim to empower women by providing them with more options to choose from in terms of HIV prevention. Microbicides serve as an alternative for impractical methods that women are often unable to enforce. Therefore, in as much as this research is based similar to existing products therefore its purpose does not take away from the purpose of is to introduce a marginalised population group (women) to a method they can either use alone or in combination with other barrier methods.

The participants were provided with a detailed explanation and demonstration of the products prior to the focus group discussions. In keeping with the CCA's bottom-up approach, they participants were allowed a chance to process and evaluate the products in relation to their respective settings, to ask any questions, and thereafter to share their views related to the presented microbicide products (Dutta, 2008). This was done in order to allow the participants to identify practical and effective solutions they believe would promote and ensure uptake of microbicides by women in their respective settings. The researcher encouraged active participation and critical thinking, and for participants to collectively identify the possible barriers and suitable solutions to acceptance and uptake of these new prevention technologies in their respective contexts (Dutta, 2011).

### **Application of the SEMCHB and the CCA**

As a study that explores the perceptions of microbicides within a community setting, examining the overall context is critically important to identifying and understanding any possible barriers to the acceptance and use of these new prevention technologies. While the SEMCHB (Storey and Figueroa, 2012) explores the perceptions of microbicides within the community level in this study, the CCA is used to explore the cultural context which according to Dutta (2008) is the key aspect to effectively introducing a new health intervention programme. The CCA therefore allows for exploration of the cultural norms within each community, which are said to inform people's health decisions (Nandoya, 2014; Peterson, 2009). Employing both theoretical perspectives therefore allowed the study to acquire deeper insight on the possible barriers to women's acceptance and use of microbicides as new HIV prevention methods.

## **Conclusion**

The various theories and concepts reviewed in this chapter enabled the researcher to explore influential factors that affect women's sexual behaviour through exploring various aspects of their lives. As a multi-level approach, the SEMCHB allowed the researcher to explore the environmental factors which include the individual, social networks and community levels of society in order to identify possible barriers to acceptance and utilisation of microbicides at a community level. The CCA is also discussed, and its perspectives on the influence cultural beliefs and norms have on health behaviour. The theory is discussed to showcase the importance of culture in the success of health intervention programmes such as microbicides. The CCA is also explored as a facilitator of dialogue as an empowerment tool to bring about collective participation, problem identification and collective action for change. The next chapter presents the research methodology used in this study.

## CHAPTER FOUR: RESEARCH METHODOLOGY

### Introduction

This chapter discusses the methods that were used to conduct the study. It highlights the research paradigm in which the study is premised. Thereafter, a brief review of the methodological tools used to collect data, the research design and sampling techniques are presented.

### Research paradigm

This study is located in the Interpretive Social Science (ISS) is described as “a tradition within social science, composed of efforts to understand, to construct meaning, to tap into the subjective experiences that people have” (Goodsell, n.d: 3). This theoretical perspective differs from the positivism approach which uses detached observation “rather than close and intimate observation that interpretivists employ in attempts to understand and explain human social reality” (Grotty, 1998: 66). ISS has provision for human interests and aims to probe for deeper meanings while positivist’s interest rests only on factual information and considers the world as an external object that has no association to human experience (Porta and Keating, 2008). Central to ISS is the importance of context and the belief on acquiring meanings that are beyond face value, therefore much emphasis is placed on conducting a close, detailed reading of a text in order to obtain a much deeper and richer understanding (Neuman, 2003). There can be several valid viewpoints and meanings to phenomena that cannot be reached by merely studying its obvious features but rather through exploration of the underlying features it encompasses. This sets a strong basis for the adoption of the interpretive approach, as it enables exploration of microbicide acceptance and use through studying the various underlying factors that may arise as possible barriers in communities.

### Research Methods

The study employs a qualitative research approach which stems from the ISS paradigm. Qualitative research explores a subject in real world, context-specific settings (Golafshani, 2003). This research method is an interdisciplinary discipline associated to a number of research methods such as observation, interviews, focus groups, content analysis and archival source analysis (Struwig and Stead, 2013). Unlike quantitative research, qualitative research recognises the existence of multiple realities in which knowledge varies amongst individuals and according to various contexts (Guba and Lincoln, 2005). While quantitative research studies the quantity

(e.g. how many people behave in a certain way), qualitative research studies how and why people behave in a certain way (Hancock *et al*, 2009).

This approach is largely characterised by the interest to acquire and understand the research participant's views regarding the issues being researched, while also considering the environment and/or social context in order to understand what influences their thoughts and behaviours (Struwig and Stead, 2013). In this study, understanding the underlying contexts was key to understanding participant's perceptions and views around the acceptance and utilisation of microbicides. In employing qualitative approach, it was possible to explore the socio-cultural, structural, economic and gender-related factors that may prevent women from accepting and utilisation microbicides as a female-initiated HIV prevention method.

Another important distinguishing feature of qualitative research that also stands as motivation for this study is the flexibility and less structured nature of qualitative research (Struwig and Stead, 2013). This allowed for open discussions that stimulated participants to have in-depth discussions on a range of issues, therefore getting more insights that address the goals and purpose of the study (Struwig and Stead, 2013). The goal of population studies is to understand complex issues using cost-efficient methods such as FGD, which was employed as a data collection method in this study.

### **Research Design**

This study takes the form of a case study, a research design that allows an exploration of individuals or organizations through complex interventions, relationships, communities, or programs (Yin, 2003). A case study facilitates exploration of a phenomenon within its context through a variety of data sources such as documents, artifacts, interviews and observations (Baxter and Jack, 2008). This ensures that phenomena is explored through various lenses to allow for a thorough exploration and understanding of its various features (Baxter and Jack, 2008). According to Yin (3003) a case study should be considered when the focus of a study is to address the questions "why" and "how", when the goal of a study is not to manipulate but rather to gain understanding of the behaviours of those who are taking part in a study and when the researcher aims to examine the contextual factors as relevant and important features to acquiring full understanding of what is being studied. As a case study, this research sought to understand the "why's" and "how's" of this research; these being men and women's decisions to acceptance and utilisation of microbicides and the factors that inform their decisions. Furthermore, the decision to

accept or utilise microbicides cannot be explored in isolation from the socio-cultural, economic, structural and gender-related factors that influence their sexual behaviour.

This study employed a descriptive case study within a qualitative approach. A descriptive case study is used to describe an intervention or phenomenon and the real-life context in which it occurs (Yin, 2003). In this case, acceptance and utilisation of microbicides is explored within the various community contexts whereby the decisions to accept or utilise occur. The objective is not only to gain knowledge and understanding perceptions about microbicides but also to explore the factors that determine how these perceptions are built or shaped. According to Maree (2007), a case study design can help to facilitate platform for the voiceless and marginalised, allowing them to speak for themselves. In this study, the powerless are women who are unable to negotiate safe-sex practices with their male partners who were allowed to articulate the challenges they face in relation to adopting and facilitating the use of prevention methods for their protection against sexually acquired HIV. However it is important to note that microbicide products are not designed only for powerless women but for all women who want to use them. The need to empower women who cannot negotiate protection however remains the greatest focus of these prevention technologies. This research design is therefore suitable for exploring the possible barriers to microbicide acceptance and use in multiple ways, therefore allowing for in-depth understanding and identification of measures to be taken in addressing them.

### **Study Setting and Context**

As a study informed by the ISS paradigm and theoretical perspectives of SEMCHB and CCA, the environmental background/ context is identified as a key factor to acquiring thorough understanding of phenomena. This section provides a brief history of the selected research areas in order to understand the socio-cultural and economic context, explained throughout the discussion as having a strong correlation to the HIV pandemic.

The research was conducted in urban and rural settings in KwaZulu-Natal, Durban and Mpumalanga province, in Nelspruit. The research settings include a semi-rural community of Matsafeni/Mataffin and a peri-urban township called Tekwane South in Nelspruit, as well as semi-rural Umnini and a peri-urban township called Umlazi in Durban. KZN is the biggest province in the country which constitutes of eleven districts; Amajuba, Ethekwini, uMgungundlovu, uMkhanyakude, uMzinyathi, Uthungulu, Uthukela, Ugu Zululand, Ilembe and Sisonke district (South African Local Government Association, 2011). Eight of these districts are listed amongst

the ten districts with the highest HIV prevalence in South Africa (NDOH, 2012). The province's metropolitan municipality, Ethekewini is amongst the highly infected districts in KZN. Due to this aspect, this district was selected as one of the study areas for this research. The Mpumalanga province constitutes of only of three districts: Ehlanzeni, Gert Sibande and Nkangala region however it has remained the second highest HIV infected population province in the country for over two decades (NDOH, 2012; UNFPASA, 2014). Within the Ehlanzeni district, Mbombela was amongst the highest infected sub-districts in the country, with a 43 per cent prevalence (UDP, 2012). The study settings explored in the study are located within the Mbombela municipality.

KZN was the highest HIV infected province at 16.9%, followed by Mpumalanga (MP) at 14.1% prevalence rates in 2012, while about 15% of each of the province's populations were living with HIV in 2014 (UNFPASA, 2014). According to the NDOH (2012), KZN has reported stable HIV prevalence (37.4%) amongst 15- 49 year old for more than 23 years, followed by MP and Free State, with a prevalence rate greater than 30%. KZN therefore is the hub of the HIV epidemic in South Africa.

Despite being highly urbanized, rural communities are found on the outer edges of the west, south and north parts of the Ethekewini district due to insufficiency in services delivery (KwaZulu-Natal Department of Health, 2015). An estimated 36% of the district's population is living in poverty, while the unemployment rate was estimated at 30.2 % in 2011 (KZN DOH, 2015). In MP the Ehlanzeni district was explored, with focus on one of the five sub-districts called Mbombela (Ravhura *et al*, 2014). Despite being the economic centre of the province, Mbombela is characterised by "high poverty levels, low literacy levels, limited infrastructure and limited economic growth" (Adams and Moila, 2004: 2). Mpumalanga was ranked the third most rural province in South Africa; approximately 60.9% of the 600 000 population living in rural areas in 2010 (Bender and Gibson, 2010; Peltzer *et al*, 2010). Unemployment is said to be highest amongst the youth, women and people with disabilities in MP (Mbombela Local Municipality, 2013).

The rationale for the choice of these provinces lies in the high prevalence of HIV prevalence in both provinces (Ackerman, 2008; Muula, 2008), as highlighted above. South African townships and rural settings also have high HIV prevalence, particularly amongst women KZN and MP (Cain *et al*, 2014; Kharsany *et al*, 2014). Moreover, KZN is amongst the few provinces that have undergone microbicide clinical trials in South Africa. Given the high HIV infection rates in other



regions such as Mpumalanga, there is a need for clinical trials to extend to other regions in the country. The statistics above therefore show Mpumalanga and KwaZulu-Natal to have the ideal locations for a microbicide study.

The research areas semi-rural Mataffin/ Matsafeni and a peri-urban township, Tekwane South. Matsafeni is a predominantly black, Swati speaking community of 1250 households and 3723 residents (Census, 2001), situated approximately 4.37 kilometers outside of Nelspruit, neighboring the controversial Mbombela stadium (Hartdegen, 2008). The village is characterised by low income households and very poor living conditions due to a lack of basic services (Young, 2014). Majority of the community members are unemployed, dependent on pensioner's income or child grants, while for some, the only source of income is obtained through seasonal employment from the farm's produce. This indicates destitution within the Mataffin community, as most households are unable to sustain themselves financially. Tekwane South is also within the Mbombela municipality, a newly established setting of over 1000 households, through the social housing initiative in the late 1990's (Mayoral Report, 2002). An initiative meant to create spatial and economic link between the historically black and white towns, Tekwane South is located about 19 to 20 kilometers from Nelspruit. Majority of residents within this community depend on the city and white-owned farms for employment opportunities (Adams and Moila, 2004). In KZN, two settings Umlazi and Umnini, within the Ethekewini district will be explored. Umlazi is a predominantly black Zulu speaking community. Described as the most densely populated township in the country, with an estimated 404811 population and 104914 household (CENSUS, 2011), the township is home to over 16% of the Ethekewini district's population (KZN DOH, 2015). This township is described as a peri-urban area with both formal and informal housing (Jackson, 2007). Umnini is a rural community of 17416 households, situated 43 kilometers from Durban (CENSUS, 2011). Umnini forms part of sub-district four, which only makes up 4% of eThekewini's population (KZN DOH, 2015). High unemployment rates, poverty, low level of education, low service delivery, lack of proper housing, etc. are said to increase vulnerability to diseases in the province (KZN DOH, 2015). Also noted earlier, there is a close correlation between these factors and the HIV epidemic.

## **Sampling**

The main reason for sampling in research is to narrow down the population size so that it can be studied much quicker than large population groups (Fink, 2003). This is achieved through a selection of cases, such as people that closely represent the features of interest or live in

circumstances that hold characteristics that are relevant to the phenomena being studied (Al-Busaidi, 2008). The aim of sampling in qualitative research is to identify specific groups of people who hold characteristics or live in circumstances relevant to the phenomena being studied. The sample is then examined in detail, and the findings then applied to understand much larger cases of a similar nature (Neuman, 2003). Sampling varies across every study, the sampling method is determined by the type of research to be conducted, not according to the researcher's preference (Neuman, 2003).

This study used purposive sampling. In purposive sampling, participants are selected based on certain characteristic(s) of interest to the researcher (Struwig and Stead, 2013). The fundamental feature of snowball sampling technique is the reliance on the interconnectedness of people, through direct or indirect linkages (Neuman, 2003). For this study, snowball sampling complimented purposive sampling in the recruitment of male and female participants in the different study settings for focus group discussions as will be later discussed in this chapter. The researcher identified a few key individuals in each research area, who then referred her to additional respondents who met the specified criteria (Struwig and Stead, 2013). Participant recruitment was therefore reliant on interested candidates to recommend other people within the specified characteristics of interest.

### ***Sampling criteria***

For this study, the characteristics of interest included heterosexual men and women between the ages of 18-49 who have not undergone any microbicide clinical trials. All selected participants reside in the specified urban and rural settings in Durban and Nelspruit; demonstrated in the table below:

**Table 4.1:** Sample population

| <b>Province</b> | <b>Urban/ Rural</b> | <b>Study setting</b> | <b>FGD groups: male/female</b>      |
|-----------------|---------------------|----------------------|-------------------------------------|
| Mpumalanga      | Rural               | Matsafeni/ Mataffin  | MP rural females & MP rural male    |
| Mpumalanga      | Urban               | Tekwane South        | MP urban females & MP urban males   |
| KwaZulu-Natal   | Rural               | Umnini               | KZN rural females & KZN rural males |
| KwaZulu-Natal   | Urban               | Umlazi R section     | KZN urban females & KZN urban males |

The specified age groups are relevant to this study because HIV prevalence is said to be high amongst people of reproductive age (15-49) particularly women in South Africa (STATS SA, 2015). Due to ethical considerations concerning the products in question, participants below the age of 18 could not be included in this study as microbicides have not been tested for safety and efficacy amongst younger people. The rationale to involve men in this study was due to a large volumes of findings on women's challenges with adherence to female-centred programmes due to relationship and gender inequality, however, there is very limited research on a male's perspective regarding these findings. Part of the objectives of this study is to examine the impact of male involvement in acceptance and utilisation of microbicides amongst women. Involving men in this study therefore explores a male's perspective in order to gain deeper insight on the possible barriers and facilitators of microbicide use amongst women. These populations and age groups therefore are believed to have the data needed for this study (Nieuwenhuis, 2007).

### *Recruitment strategy*

Various recruitment methods or strategies can be undertaken in qualitative research (Office of the Human Resource Protection Program, 2012). In this study, three recruitment strategies were employed namely, direct recruitment, word- of-mouth and referrals.

One of the most successful recruitment strategies in qualitative research involves working in partnership with key community members who are trusted by the potential research participants (Felsen *et al.*, 2010). In Umnini (KZN rural), participants were recruited through the Faith and Hope Non-Governmental Organisation (NGO). The facilitators assisted in connecting the researcher with the Umnini residents who formed the study population. However, the participants were not part of this organisation, they were participating in their individual capacity. The organisation only assisted in facilitating the meeting between the researcher and the study population as they work from within the Umnini community. In Umlazi (KZN urban), and Matsafeni (MP rural) snowball sampling was employed. The researcher made contact with a small number of potential participants who referred her to other people who met the study's characteristics of interest and whom they thought would be interested in taking part in the research. Direct recruitment was mostly used in Tekwane South (MP urban), whereby the researcher went door-to-door recruiting participants on the day of the research. This was due to the participants not showing upon the set day of the focus groups. Through collaborating with the these key individuals in Matsafeni and Tekwane South, the researcher managed to recruit a sufficient number of male and female participants for eight focus group discussions.

None of the study participants belonged to any organisation, they were approached in their individual capacity recruited to share their own views therefore gate keeper permission was not required. An informed consent form however was provided to be signed by the study participants. The consent form stated the nature of the research, as well as informing respondents that their participation in the study was voluntary, thus they could withdraw from at any given time during the research proceedings. The findings elicited from this study therefore to an extent, can be generalised to represent the views of other 18-49 year olds from similar contexts (Struwig and Stead, 2013).

### **Data Collection Method**

The data was collected through focus group discussions. "Focus groups are a form of group interview that capitalises on communication between research participants in order to generate data" (Kitzinger, 1995: 299). FGD consist of small groups of people, who share a common characteristics that is central to the topic of interest (Morgan and Krueger, 1988). In this method, the researcher poses a question and encourages participants to talk to one another, as questions and comment on each other's experiences and points of view (Kitzinger, 1995).

The interaction amongst participants facilitate unique and unanticipated insights that can contribute towards the richness of the data regarding the issue being researched (Curry *et al*, 2009). This also allows for clarification of issues among the participants in ways that would be less easily accessible in one to one interviews (Kitzinger, 1995; Morgan, 1988). The rationale for the use of FGD therefore is that they more flexible and less formal than other data collection methods such as one on one interviews (Neuman, 2011). Some questions had to be rephrased to allow for better comprehension amongst participants. Unanticipated issues such as the discussions on vaginal practices came up as relevant topics on acceptance and use of microbicides amongst women in one study setting. FGDs therefore allowed the researcher to solicit deeper insights on the factors that can impede women's acceptance and use of microbicides as prevention methods for HIV. Furthermore, this data collection method is particularly useful in exploring shared experiences and norms, to uncover differences or similarities in perspectives, as well as to understand the factors informing people's opinions and behaviours (Krueger and Casey, 2000; Kitzinger, 1995).

A total of 8 FGDs were conducted, this making up two FGDs in each of the selected study settings. The number of FGDs was to accommodate any internal or external factors the group may be subject to, and more practically, to compensate for groups that did not run smoothly due to participant's reluctance to participate or inability to interact well (Hancock *et al*, 2009). Most importantly, the number of FGDs allowed the study to explore the same questions in various contexts therefore allowing for deeper examination of the questions being explored in the study (Hancock *et al*, 2009).

Each designated setting had two FGDs with 10-12 participants; this size was chosen so that the researcher would be able to closely interact and monitor and not lose any vital details provided by the participants. In each study setting the first FGD session was made up of only female participants and the second was made up only male participants. The rationale for the different sessions was to allow both study populations to express themselves freely, as the goal of this research was to obtain deeper insights on the factors that may impact on women's decisions to accept and utilise microbicides. Involving men in a study based on a female-centred product is through recognition that there is a different dynamic that would come out regarding the subject of microbicide acceptability and use when exploring a male's perspective. Moreover, part of main objectives of this research is to examine how male involvement can impact on women's decisions to accept and utilise microbicides.

The focus group sessions were held in comfortable venues with seats arranged in a circle, with the researcher forming part of the circle to provide a sense of equality with the research participants. Before each focus group discussion begun, all the participants had to each sign an informed consent that was written in the setting's local language; Swati in MP settings and Zulu in KZN settings) (see appendices 3-5). With permission from all participants, after the researcher had explained the need to record the proceedings, all FGDs were recorded using a mobile phone. The mobile phone was placed on the table to ascertain participants that the device was used only for audio recording and not for video recording. Each FGD session started with the introduction of the researcher and the purpose of the FGD; participants were also given the opportunity to introduce themselves. Each FGD session ranged between 1 hour and 30 minutes.

According to Maree (2007), research participants should be fully aware of what the research entails and what kind of information is required from them before the FGD commences (Maree, 2007). As this research investigates people's perceptions regarding products that are still

undergoing clinical trials, the first 30 minutes in each FGD was used to provide detailed information on the products. The researcher presented and demonstrating how the products are used while diligently reminding the participants that the products being researched are not licensed for use, and are undergoing clinical trials. The participants were given a chance to ask any clarity seeking questions, in order to ensure that they are able to engage in a discussion about products they fully understand. This was made clear also in the informed consent form (see appendices 3-5).

The duration of the FGDs therefore allowed for introductions between the researcher and the participants, a detailed explanation of the products and sufficient time for the actual data collection process. The FGD were conducted in the aforementioned local languages, which were sometimes mixed with English. Since the researcher is fluent in all three languages, there was no need for a translator during the discussions. Each session ended with participants being offered light refreshments.

### **Validity and Reliability and Rigour**

“Reliability and validity are ideas that help to establish the truthfulness, credibility or believability of findings” (Neuman, 2011). Stemming from the positivist approach, these concepts of validity and reliability have been problematic to apply in qualitative research (Golafshani, 2003). Patton (2001: 14) states that credibility in quantitative research depends on instrument construction while for qualitative research the researcher is the instrument. This could mean an unquestionable credibility of a quantitative research while that of a qualitative research is scrutinized due to it being measured only through the researcher’s effort (Golafshani, 2003). Despite the difference in approach, qualitative research should also be able to test and demonstrate its credibility (Golafshani, 2003).

Reliability, previously known as a concept used for testing and evaluating research is now also used in qualitative research (Golafshani, 2003). This means that the given the methods, using the same participants, within the same environment, the results would be reiterated by other researchers (Morgan and Drury, 2003). Most naturalistic scholars introduced different terminologies to explain qualitative research’s reliability and validity (Shenton, 2004). In qualitative research the terms dependability or confirmability are used to describe the notion of reliability while credibility and transferability are used to describe validity (Golafshani, 2003). Confirmability refers to the level or extent to which the research findings directly show what was found and

collected in the field (Babbie, 2015). Transferability on the other hand refers to the extent to which research findings can be transferrable in another context with other participants (Babbie, 2015).

Rigour, understood as representing quality, is what is used to measure validity and reliability in research (Struwig and Stead, 2013). In qualitative research rigour includes procedures taken at different stages of the research process including during data collection and analysis (Al Busaidi, 2008). This is to say that rigour measures dependability and confirmability of a study. In ensuring this, the steps, procedures and decisions took during the data collection process are clearly stated and justified. The data was also reviewed several times to compare and contrast the codes and to ensure that all aspects of the data that fit into the identified themes were noted and covered. Moreover, the questions asked during the research proceedings were carefully constructed, evaluated and approved by my supervisor, Dr Eliza Govender and the UKZN ethics committee.

Another way to provide valid evidence from a study is through triangulation, through the use of various data sources, several investigators and different methods (Struwig and Stead, 2013). In social science, a phenomenon is studied from multiple perspectives than from a single angle (Neuman, 2003). Although this study employs one method of data collection, the quality of this research is validated by the number of FGDs (8) that were conducted. The various settings that were explored, ranging from two highly infected provinces also stand to verify the findings of the research. The study also investigates the different voices in a community, providing both male and female participants platform to express their views regarding microbicides as a female-controlled HIV prevention method. This allowed for richness in data through views from various contexts.

### **Ethical Considerations**

The protocol for the study was approved by the University of KwaZulu-Natal ethics committee in November 2015. The purpose of the study was explained prior to each FGD proceeding. Ethical considerations included providing each participant with an informed consent form to sign prior to the focus group discussions. The consent forms were comprehensive, stating the nature, process and purpose of the research, what the data will be used for and what is expected from the participants. The form also explicitly stated that respondents were not compelled to be part of the research, they did so out of their own will, and that they could opt out without any negative consequences.

Appropriate steps were taken to guarantee the anonymity of the participants. The form also emphasised issues of confidentiality, stating should the research participants not wish to have their names mentioned, pseudonyms would be assigned. Participants were also urged not to disclose or answer any questions they were uncomfortable with, and that responses would be treated in a confidential manner. Participants were made aware that they would not be offered any compensation or any form of payment for taking part in the study as it would be voluntary, however their contribution would help to identify the factors that need to be addressed in order to ensure the success of microbicides as a HIV prevention method for women. Participants were given opportunity to ask any question and declaration that they are comfortable with the conditions of the research before the FGD sessions commenced. Permission was obtained from the participants prior to audio-recording of the sessions. Respondents were also informed that the final project would be presented to them for confirmation and approval should there be a need to publish, and a copy of the research would be made available to them should it be required. The information obtained through the focus groups would be kept as both electronic and hard copies in the custody of our discipline for a period of five years only and once completed, it will be destroyed by shredding.

### **Limitations of the study**

Due to the fact that the focus groups took place during the day, getting the participants to meet in one place may have been a challenge, due to commitments such as work or school. The researcher arranged for dates, times and a meeting venue that was convenient for all participants.

The number of FGDs was to accommodate any internal or external factors the group may be subject to that the researcher may have been unaware of, and more practically, to compensate for groups that did not run smoothly due to participant's reluctance to participate or inability to interact well (Hancock *et al*, 2009). The researcher encouraged participation by repeating the question, and ask whether or not they share the same views as the other participants, and what informs their views in order to obtain much detailed responses. Moreover, as contingency, the researcher arranged for more than the required number of participants (10-12), to ensure an adequate sample size in each FGD.

Gathering the participants for MP urban males group proved to be a challenge as only two participants showed up at the venue. To overcome this problem, the researcher went into the community and managed to gather six male participants for the discussion. Enthusiasm and



active engagement of all the participants that took part in the discussion also compensated for this limitation. Moreover, age groups were balanced as four participants were aged between 30-45, and two were in their early twenties. In some settings however, the number of participants were more than the required sample (12-15), the researcher however had to proceed with the discussions.

Majority of participants had no knowledge of microbicides, with an exception of KZN urban and rural, who had knowledge (although limited) of the tenofovir gel. Two participants from MP rural also admitted to having heard of oral truvada on the radio however their knowledge was insufficient to engage in a detailed discussion. In addressing this limitation, the researcher dedicated 30 minutes to providing detailed information on the products while demonstrating their use prior to each FGD. The participants were also given a chance to ask any clarity seeking questions, in order to ensure that they are able to engage in a discussion about products they fully understand. The researcher diligently reminded the participants that the products being researched are not licensed for use, and are undergoing clinical trials. The purpose of this research is merely to gain insight into what they think about the product, and whether they would consider using or, in the case of men, encourage its use by women if it were to be available.

Since the subject of HIV is central to microbicide products, the researcher was aware that this is a sensitive topic that still attracts stigma in certain regions and population groups. Therefore, the researcher encouraged a relaxed environment by explaining that participation in the study was voluntary and that they may withdraw from the research at any time without any negative consequences. Participants were made aware that they are not forced to speak, or to answer any questions they were uncomfortable with. The researcher provided a consent form stating that the data will be used only for the purposes of the research, and assurance of anonymity if requested by the respondents. Participants were also urged not to disclose any personal information. Despite these challenges, I managed to collect all the required data sufficient for analysis.

## **Data analysis**

“Analysis of data in a research project involves summarising the mass of data collected and presenting the results in a way that communicates the most important features” (Hancock *et al*, 2009: 24). Qualitative research has what is called “the big picture” or the major findings in its research findings, this being the summarized data after thorough analysis (Hancock *et al*, 2009).

In looking for “the big picture”, this study employed a thematic analysis approach. Thematic analysis is a qualitative research practice which includes looking through data to identify any recurrent patterns. Identifying the common themes that emerged during the data collection process was key in the data analysis process (Braun and Clarke, 2006). The themes were later analysed according to gender (men and women), the type of setting (urban and rural), as well as amongst the two provinces/ cities (Mpumalanga and KwaZulu-Natal).

Braun and Clarke (2006) explain two approaches of thematic analysis namely; inductive and theoretical. For the purpose of this study, theoretical analysis at a latent or interpretative level was adopted. The research goes beyond the surface meanings of the data, thus used theory to explain the underlying ideas, assumptions and ideologies that shape the explicit data (Braun and Clarke, 2006). This choice is motivated by the researcher’s theoretical and analytic interest in the area of research (Braun and Clarke, 2006). Manual coding was employed for this study, through writing notes on the data being analysed. The themes are more theory-driven, as the researcher had particular questions in mind before the coding process (Braun and Clarke, 2006). Braun and Clarke’s (2006) guide to thematic analysis was employed, illustrated in the table below was employed;

**Table 4.2:** Steps in thematic analysis, (Braun and Clarke, 2006: 87)

| Phase                                     | Description of process   |
|---|--|
| 1. Familiarising yourself with your data: | Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.  |
| 2. Generating initial codes:              | Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.  |
| 3. Searching for themes                   | Collating codes into potential themes, gathering all data relevant to each potential theme.  |
| 4. Reviewing themes                       | Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic ‘map’ of the analysis.  |
| 5. Defining and naming themes             | On-going analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.  |
| 6. Producing the report                   | The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis. |

Once the focus group discussions were completed, the qualitative data was transcribed and translated into English. This entailed listening to the audio recordings while writing down what the participants uttered word-for-word, and later translating it into English as the FGDs were conducted in each setting’s local language. Each audio recording was transcribed within 2-3 days after conducting the FGD to allow the researcher to recall any gestures and all other relevant information that will be of relevance to the study. This step also included reading and re-reading the data, to ensure that the researcher was familiar with the data.

Once the researcher was familiar with the data, the next step was to code the data. This entailed highlighting interesting features that were relevant to the research questions. This is illustrated in table 4.4, below, as explained in Braun and Clarke (2006):

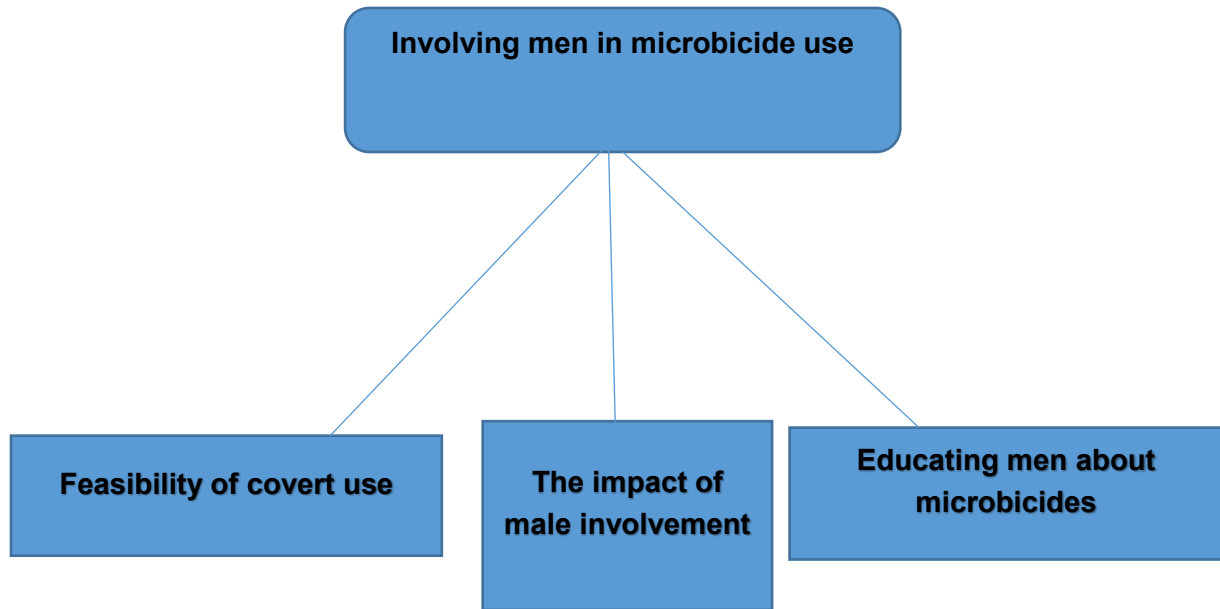
**Table 4.3:** Coded Data extracts

| Data extract  | Coded for  |
|---|--|
| <p><b><i>"It has too much work. Most of the time sex is not planned. You find that you haven't seen each other in a long time, it would be difficult to ask him to stop so you can go and put the gel"</i></b> (Female participant, Urban, KZN, April 2016)</p> <p><b><i>"You can't tell him, what if he leaves you? because now he won't trust you... you know, when he takes care of you, he will start saying you are ungrateful and threaten to stop giving you money"</i></b> (Female participant, Rural, KZN, April 2016)</p> | <ol style="list-style-type: none"> <li>1. Product acceptability</li> <li>2. Barriers to consistent use</li> <li>3. Impact of male involvement</li> <li>4. Barrier to acceptance</li> </ol> |

In this particular extract, green was used to highlight data that was associated with product acceptability; pink was used to highlight data that was associated with perceived barriers to adherence. Yellow highlighted codes that related to male involvement, while blue highlighted data associated with barriers to acceptance of microbicides. The codes were then arranged systematically, in preparation for the third step, which is the search for themes.

Searching for themes entailed identifying recurrent patterns of responses from the participants. The themes were generated through the systematic organization of codes. This process involved

generating a thematic map, where the researcher has a main theme and 'sub-themes' that fit into that particular theme (Braun and Clarke, 2006); as illustrated below on figure 4.2.



**Figure 4.1:** Example of a thematic map

The fourth step involved reviewing, defining and naming of themes. This entailed carefully going through the themes to narrow them down and to establish if any could be merged. Thereafter, numerous hours were spent analyzing the data under the identified themes. During this process, the researcher further reviewed and refined existing themes while also exploring other possible themes, so as to ensure that the data corresponds with the identified themes.

**Table 4.4:** Summary of Methodology

| <b>METHODOLOGY MAP</b>     |                                 |
|----------------------------|---------------------------------|
| Epistemological Assumption | Interpretive Social Science     |
| Theoretical Framework      | Qualitative Research            |
| Research Design            | Case study                      |
| Sampling Technique         | Purposive and Snowball Sampling |

|                        |   |
|------------------------|---|
| Sample population      | Males and females from urban and rural settings in KZN (Umnini and Umlazi) and MP (Tekwane South and Matsafeni); between 18-49 years. |
| Data Collection Method | Focus Group Discussions   |
| Data Analysis          | Thematic Analysis   |

**Conclusion**

The data obtained from the focus group discussions was used to compare and contrast the perceptions about microbicides between men and women, urban and rural settings, as well as between the provinces, Durban and Nelspruit. This was done in order to identify possible barriers to acceptance and use of microbicides as an HIV prevention method for women. The next chapter presents and analyzes the data.

## CHAPTER FIVE: DATA PRESENTATION AND ANALYSIS

### Introduction

This chapter presents, analyses and discusses findings obtained from focus group discussions amongst men and women across urban and rural settings in Durban (KwaZulu-Natal) and Nelspruit (Mpumalanga). The study set out to explore the perceptions of men and women across urban and rural settings about microbicides as female-initiated prevention methods (FIPM) for HIV. The aim was to uncover the socio-cultural and economic factors that stand as impediments to women's acceptance and adherence to microbicides; in order to identify the necessary measures to be taken to ensure acceptance and uptake.

For the purpose of effectively addressing the key questions and objectives of this study, a total of eight focus groups were conducted. These include four focus groups in Nelspruit (MP-urban males, MP-urban females; MP-rural males and MP-rural females) and Durban (KZN –urban males and females; KZN-rural males and females). The researcher chose to explore the two provinces because of the high infection rates in both provinces (NDOH, 2012; UNFPA SA, 2014). The majority of participants were unemployed, while a small number were working unskilled or semi-skilled jobs within their respective communities.

Prior to each focus group, the researcher provided a detailed description of each product, explaining the dosing and application process, while emphasizing that these are products that are still under clinical trials, with the exception of the daily oral truvada which was licensed for use in February 2016 (Avert, 2015; AVAC, 2015). This was done to ensure that every participant understands the products in order to be able to engage in the discussion.

The data is presented to reflect two population groups (males and females) and the study setting (urban or rural), as well as the provinces (Mpumalanga or KwaZulu-Natal) in question. The purpose is to evaluate if there is any difference in perception towards microbicides from people residing in urban settings and those living in rural settings and particularly to understand the varying, if any, perceptions of men and women. This comparison also notes the difference in perceptions amongst the two provinces in question, to identify whether prior knowledge (through exposure to clinical trials) has any impact in the way people receive a new product. This will assist development planners to identify whether there is a need to extend microbicide trials to other parts of the country.

The data is presented through the following thematic categories:

*Perception of microbicides; Microbicide: Varying product acceptability between males and females; Barriers to product use; and the impact of male involvement in a female-initiated prevention method.*

## **Perceptions on microbicides**

The first thematic category explores the participant's general perceptions of microbicides as a female-initiated prevention method. Research shows that understanding the perceptions and attitudes of current HIV prevention methods may be a key attribute in successfully introducing a new method (Nota, 2016). Initially the researcher posed a question about the respondent's views on currently available prevention methods particularly the female condom in order to shed light on the broader context of this study.

In general, there was a positive attitude towards microbicides as an HIV prevention method. Both male and female participants in urban and rural settings perceived microbicides as a necessary step towards reducing high HIV infection rates amongst women, given the absence of an effective vaccine to cure HIV and effective prevention methods women can use. This was discussed further in the comments below:

*"I think all the products are good because they reduce the chance of getting infected. They may not provide 100 per cent protection but at least it reduces the risk"* (Male participant, Rural, MP, March 2015)

*"In my opinion, I think it is a great initiative as it contributes towards the fight against HIV, especially because so far there is still no cure for HIV. I think it is a good initiative"* (Male participant, Rural, MP, March 2015)

*"I think these products are very good, especially for the next generation, because it is too late for us but the next generation can be saved from HIV"* (Female participant, Urban, MP, March 2015)

The findings suggest that participants comprehend that although microbicides will only offer partial efficacy, the availability of options can provide substantial protection against HIV amongst women (Mantell *et al*, 2005).

## **Microbicides as an empowerment tool**

It is a widely acknowledged notion that women lack power and agency in various spheres of their lives due to a number of socio-cultural, economic, structural and gender-related factors that perpetuate male dominance (Murphy *et al*, 2006). In this study, perceptions of microbicides were tailored around narratives on women's limited power in sexual relationships. Female participants demonstrated awareness of the risk of infection within their relationships due to lack of power to initiate the use of barrier methods such as condoms. Participants articulated that initiating condom use tends to be interpreted as a lack of trust or commitment in a relationship, which sometimes results in harmful consequences such as intimate partner violence (IPV).

*"It is okay because when the man does not want to use a condom, you can use it and be protected"* (Female participant, Urban, KZN, April 2016)

*"Sometimes men cheat, but if you are using these products then you know that you will be protected"* (Female participant, Urban, MP, March 2016)

*"When you say you want to use a condom the man will say that it means you do not trust yourself... that you are HIV positive"* (Female participant, Urban, MP, March 2016)

*"Sometimes you ask them to use a condom but they don't listen so I think this is a great initiative"* (Female participant, Rural, MP, March 2016)

*Some people make excuses, saying that they get an irritation/ rash when they use a condom... Women say that as well, saying they just don't use condoms because they get a rash, so they only use contraceptives to prevent them from falling pregnant, so maybe these products can help* (Female participant, Rural, MP, March 2016)

Male participants admitted to challenging women's request to use protection despite acknowledging being unfaithful to their female partners. As a result, women are often subjected to social harms such as intimate partner violence (IPV)



*“I think it is a good initiative, considering that women get beaten up when they ask us to use a condom”* (Male participant, Rural, MP, March 2016)

*“Sometimes we lie to them by saying that we are in a serious relationship so there is no need for a condom, when we know very well that we are cheating so at least with these products women can be safe”* (Male participant, Rural, MP, March 2016)

These findings confirm the widely acknowledged notion that the use of condoms in heterosexual relationships is encompassed by power dynamics, and usually it is women who lack the power to initiate or negotiate the use of condoms (Kline and Oken, 1992; Murphy *et al*, 2006; Dunkle *et al*, 2004; Jewkes *et al*, 2010). The fear of abuse, norms of trust and commitment are associated with the decline in condom use (Smit, 2008; UNFPA, 2016). Furthermore, various studies confirm that relationship power dynamics impede the effectiveness of the condom (Lanham *et al*, 2014; Beksinska *et al*, 2014; Pettifor *et al*, 2014; Prince *et al*, 2005; Macpherson *et al*, 2012; Ray *et al*, 1995). The findings suggest that participants are aware that the condom is not a sufficient method for HIV prevention amongst women (AMD, 2006). Microbicides therefore are perceived as a necessary tool to empower women for independent sexual protection against HIV.

### ***A solution to unplanned sexual activities***

Socio-behavioural factors such as rape are amongst the factors that perpetuate high HIV infection rates amongst women. In this study, women perceived microbicides as offering protection for unplanned risky incidents such as rape or in cases where the condom breaks and the woman is left vulnerable to contracting HIV infection. In further discussing their perceptions about microbicides, participants commented:

*“It can also help in a case where a woman gets raped... they can be protected”* (Female participant, Urban, KZN, April 2016)

*“You see especially for us women... when a person rapes you cannot ask him to use a condom. The person is fighting with you, you can't tell him to use a condom so this product can help. If I know that I took my injection then I know at least I am safe”*  
(Female participant, Rural, MP, March 2016)

*“I am happy about these products because now you can have hope of protection even when the condom breaks”* (Female participant, Rural, KZN, April 2016)

*“At least I will know whatever happens, maybe the condom breaks or something, I will at least be protected”* (Female participant, Urban, KZN, April 2016)

The women perceived themselves to be at risk of infection due to the increased risk of infections posed by the prevalent culture of rape, identified as a key contributor towards the high HIV incidence and prevalence in the country (Armstrong, 1993). The findings in this research reiterate an acceptance study amongst women, in which acceptance of microbicides was facilitated by the perceived risk of infection from rape or sexual coercion (Orner *et al*, 2006). This confirms Libingi and Sitali’s (2005) study that acceptance of microbicides can be adopted if women are aware of their vulnerability to HIV infection (Libingi and Sitali, 2015). Women therefore demonstrated high acceptability of microbicides as they perceived their risk of infection to be heightened by the aforementioned risk factors.

### ***Microbicides as protection in cases of alcohol consumption***

Alcohol consumption is often associated with high risk sexual behaviours such as non-condom use that increases the risk of HIV transmission (SANGONeT, 2012). Narratives regarding the alcohol consumption and risky sexual behaviours unfolded as follows:

*“I think these products are good, especially in situations such as rape, especially for us young people, we sometimes go out to parties, where anything can happen”* (Female participant, Rural, KZN, April 2016)

*“We sometimes go out to parties at night, and some women want to have sex when they are drunk... and they sleep with anyone, so you find that you don’t even have a condom”* (Female participant, Rural, MP, March 2016)

*“Sometimes you find that you are drunk and are unable to ask the man to use a condom”* (Female participant, Rural, MP, March 2016)

*“Most times we get AIDS when we are out partying. When you are out having fun you want to have sex and you don’t have condoms, and then when you get home you also want to have sex with your wife and you give her HIV”* (Male participant, Rural, MP, March 2016)

These responses indicate that alcohol abuse is a problem in rural KZN and MP, perceived by participants as the greatest determinant for high-risk sexual behaviours within these communities. Most narratives on the subject of alcohol involved having unplanned sex with non-primary partners in alcohol serving establishments, where most sexual encounters in such places are likely to be unprotected, as the urge to have sex comes after having had alcohol. Participants articulated that they rarely carry condoms with them despite being aware of the likelihood of engaging in intercourse after they have consumed alcohol. In cases where the condom is accessible, negotiating use is affected by gender power dynamics, as women tend to dictate the use of protection or lack thereof. Rape is also highly prevalent in alcohol serving venues, therefore products such as the long-acting injectable and dapivirine ring are appreciated because of their consistent protection as the protective microbicide is always in the bloodstream. Microbicides were therefore perceived as having the potential to address the limitations of the condom in such incidents.

Numerous studies have shown that alcohol consumption is associated risky sexual behaviours including unprotected sex and multiple and concurrent sexual partnerships (Fritz et al, 2011; Kalichman et al, 2007; Watt et al, 2012; Bryant et al, 2007; Simbayi et al, 2004). Also confirming the study findings, alcohol consumption is understood to impair judgement therefore and diminish risk perceptions, which then increases the likelihood to engage in unsafe sex practices (Bryant et al, 2010). While serving establishments (shebeens, taverns, night clubs, etc) are said to be meeting places for sexual partners (Watt et al, 2012).

Moreover, SEMCHB informs that exploring the development of a health product must take into consideration the underlying contexts of the people for whom a health intervention programme is designed, to address any potential problems related to its acceptance and utilisation (Storey and Figueroa, 2012). In keeping with this model, the findings affirm the need to understand the prevalent behavioural and biological trends that influence the spread of HIV and their impact on the impact of a specific intervention such as microbicides (Aral and Cates, 2013). The prevalent trend of alcohol consumption calls for interventions aimed at reducing drinking behaviour to achieve reduction in sexual risk behaviors (Pitpitan et al, 2013). Accordingly, the field of

microbicides has since extended focus to conducting socio-behavioural research, focusing on understanding behavioural and biological efficacy of microbicides (UNAIDS, 2015).

### ***Variety of options for greater empowerment***

To date, HIV prevention options for women remain limited to the female condom which according to research, does not provide much empowerment for women as they are unable to implement its use due to various underlying factors that deny them the power to enforce its use. The excerpts below indicates participant's understanding of the association between multiple products and increased protection; in that various preventive methods can address the aforementioned limitations of the female condom. In answering the question of whether the female condom was sufficient for HIV prevention amongst women, participants responded as follows:

*There is a need for other methods, because married women don't use condoms because of issues of trust in their relationships, and it is not easy as a woman to suggest to use a condom with your husband... So let us say the woman is married and she knows that her husband sometimes goes away, she can apply her gel when she knows that her husband is coming, or the ring because you do not need to ask for his permission to use it because he won't know that you have applied it, and he won't feel it when you are having sex so it can be your secret.*

(Female participant, Rural, KZN, April 2016)

*"I think it is good that we can now have options because you can't hide the female condom from him, he will feel it"* (Female participant, Urban, MP, March 2016)

*"There is still a need for more prevention methods because even though we have the female condom, men don't want to use it"* (Female participant, Urban, MP, March 2016)

*"Yes there is a need for other products. It is difficult to ask men to use a condom because some men do not like using condoms because they claim that they are uncomfortable"* (Female participant, Urban, KZN, April 2016)

A cocktail of options could broaden the spectrum of choices therefore allowing women a choice of a method that is suitable for their lifestyles. A variety of options is also found have the potential to facilitate consistent use.

*“A person can choose the option that is best suitable for their lifestyle, if you can’t take the injection, you can try the pills”* (Female participant, Urban, MP, March 2016)

*“I think these products are good because they have a variety so you can be able to change to another product if the one you are using does not treat you right, unlike having just one product”* (Female participant, Urban, KZN, April 2016)

*“If this one gives me a headache or I gain weight from the injection, then maybe I can use the ring, or the pill. Its good that we can now choose”* (Female participant, Urban, MP, March 2016)

*“That is when you go for another product. If he knew about the pill, then you can take the injection because he will not know about it, the ring too”* (Female participant, Rural, MP, March 2016)

Frustration about the limitations in available HIV prevention methods for women has been of much emphasis throughout the discussions amongst female participants. Narratives demonstrated a strong need for prevention methods women can use without men’s cooperation, based on the challenges with initiating or introducing condom use. Drawing from other female-centred programmes such as injectable contraceptives, both male and female participants expressed concerns about side-effects such as water retention, which they believe would result from using the injectable contraceptives, or negative effects on sexual pleasure for the male partner for products that are inserted in the vagina such as the tenofovir gel and the dapivirine ring. The possibility of options therefore was appreciated because women believe they will have the option to switch to another product if the one has negative health impacts or is does not align with the woman’s lifestyle. A variety of microbicides is also perceived as feasible for discreet use. Female participants articulated that in a case where the male partner discovers frequently used products such as oral Truvada or the Tenofovir gel, women can have the option to switch to products that are used intermittently.

This findings are consistent with findings from other studies that women are unable to use barrier methods such as the female condom due to power imbalances in heterosexual relationships (Ray *et al*, 1995; Prince *et al*, 2005; Macpherson *et al*, 2012; Bodibe, 2013; Karim and Baxter, 2012;

Ryan *et al*, 2015). The findings therefore support the widely acknowledged need for multiple prevention methods to meet potential users (Nota, 2016) so as to widen prevention options and increase women's ability to protect themselves against HIV (Peters *et al*, 2010). The introduction of microbicides is perceived not only as having the potential to reduce women's reliance on male partner cooperation for protection, but also as potentially addressing issues of comfortability and convenience for use; all of which may contribute to consistent uptake.

### ***Microbicides- A prevention method for all women***

In terms of perceptions of risk and susceptibility, majority of participants were of the opinion that all women who are sexually active are susceptible to HIV if they do not use a condom; be it in marriages, long-term relationships or casual relationships. They articulated that being in a long-term relationship does not provide guarantee that one is safe from infection as there is high infidelity in such relationships therefore all women, regardless of relationship status should use microbicides for protection against sexually acquired HIV. One of the major points that arose in the discussions, which was agreed upon by both males and females in both urban and rural settings and across both provinces, was that women's risk of infection is heightened by men's unfaithfulness. Participants expressed that the widespread practice of intergenerational relationships meant that all women, including married/ women in long-term relationships were at risk of HIV infection. Microbicides therefore are perceived as a prevention option much needed for use by women from any form of relationship or age group.

*“All women should use these products. Being a married woman does not mean anything because it doesn't prevent them from cheating”* (Male participant, Urban, KZN, April 2016)

*“All women should use these products because anyone can get infected with HIV regardless of the age”* (Male participant, Rural, KZN, April 2016)

*“The biggest problem is that young women who love dating sugar daddies, so he will get infected by these young girls and infect me so, married women should also use these products. I think prostitutes should also use them too”* (Female participant, Urban, KZN, April 2016)

*There is no difference between married and single people because it's a reality that women are always at home while men are out drinking at night, and you find yourself flirting with other*

*women. There are people who are always at home yet they get infected with through their partners. So I think all women should use these products*  
(Male participant, Rural, MP, March 2016)

*"I think all women because you could find that I am married yet my husband is cheating, so that means I am at a risk of getting infected. All women should use these products, it does not matter what type of relationship they are in"* (Female participant, Rural, KZN, April 2016)

The comments above illustrate that some participants are aware of the high risk of infection faced by all women, including married women. The views confirm the widely spread notion of multiple concurrent partners (MCPs) and intergenerational sex (IGS) as key drivers of the epidemic in the country (UNAIDS, 2016). Consequently, this places married women in a compromising position, as new HIV infections are indeed prevalent in marriages or long-term relationships (UNFPA and PATH, 2006).

These findings provide a foundation on which to build an intervention to promote microbicide use among women in urban and rural settings in South Africa. In this point, SEMCH and CCA inform that the socio-cultural context needs to be investigated, probing specifically into the shared relationship norms and values within the study settings and similar settings within South Africa. Relationship norms therefore need to be investigated further to identify the necessary measures to be employed in promoting acceptance and up-take of microbicides by all women. It is imperative therefore that the views obtained from study are considered in the implementation of microbicides in similar settings, to ensure acceptance and up-take.

### ***Suspicion of infidelity***

As a response to the limitations of currently available prevention methods such as the male and female condoms, microbicides provide women discreet protection against sexually acquired HIV. As such, these prevention technologies may raise argument regarding men's dominant position as primary decision-makers for sexual protection (Mantell *et al*, 2005). Majority of the men in this study had negative perceptions towards microbicides. Men expressed that their concerns are centered on the notion that microbicides could encourage infidelity amongst women. A male participant from KZN rural questioned if these products would not perhaps encourage infidelity and promiscuity amongst women;

*“Guys don’t you think these products will encourage women to cheat? They will be protected but now they will not be worried about getting HIV, so they can now have sex with anyone and at any time. I think it would give women the right to cheat”* (Male participant, Rural, KZN, April 2016)

This view was recurrent amongst men across all the study settings;

*She is at a risk yes, but... it could protect her in such situations but what I am concerned about is, since women are very weak when it comes to being faithful, what more when they now do not have that element of fear, of being infected with HIV when they sleep around* (Male participant, Rural, KZN, April 2016)

*Why must we let women to put things we do not know in their vaginas? That is giving them a right to cheat and sleep around. Can you imagine a woman taking out such a rubber from her vagina* (Male participant, Rural, KZN, April 2016)

*“I don’t want to lie, it could be a problem, because you see at home we don’t use a condom, we can’t use these things too. I won’t allow it”* (Male participant, Rural, MP, March 2016)

*“No I would not allow my girlfriend to use these products. I’m afraid I would be giving her ideas to cheat”* (Male participant, Rural, MP, March 2016)

*“That could also be an issue... that she wants to cheat, until she explains to me the purpose of using them”* (Male participant, Urban, MP, March 2016)

*“But you see now I have to always be worried, I will always be thinking about what she is doing, because now she would be protected”* (Male participant, Urban, KZN, April 2016)

Similarly, female participants were concerned about seeming untrustworthy. This was discussed in the responses below:

*“He might think that I am using the products because I am having sex with other men”*  
(Female participant, Rural, MP, March 2016)

*“He may end up thinking other things, maybe that I am using these products because I am cheating on him”* (Female participant, Urban, MP, March 2016)



*“He would think that I am the one accusing him of having HIV, so I am protecting myself and not him”* (Female participant, Urban, MP, March 2016)

*“He would be angry, and think that I am using the product because I am cheating, why am I using it if I am only having sex with him”* (Female participant, Urban, MP, March 2016)

Concerns about cheating were almost universal in all the discussions. A high proportion of men in the discussions were against the use of microbicides by women. Men expressed that they will think the woman is having an affair. Although acknowledging the need for women’s protection against HIV, male participants disapprove of microbicides because they fear that a woman *‘she can have sex anytime and with anyone’* will no longer be sexually governable. They fear that allowing a woman to use microbicide products would be *‘giving her permission to cheat’*, encouraging her to have multiple sexual partners, therefore they would object to it. Confirming men’s concerns, women also fear seeming untrustworthy to their male partners. The findings suggest that men think women are not engaging in multiple sexual relations because they fear getting infected.

This corroborates previous findings (Mantell *et al*, 2005; Nota, 2016), that the great level of discreet use is perceived as a threat to male dominance in decision-making for sexual protection. The findings suggest that men are aware of the empowerment and agency microbicides would provide women. Unlike the female condom, microbicides will not require male partner’s active participation or knowledge (Woodsong, 2004), thus having a great potential to overcome male dominance in decision-making for sexual protection.

### ***Partial protection may affect acceptance***

Diverse views ensued regarding partial protection offered by microbicides in this study. Despite acknowledging the necessity of more prevention methods, male participants deemed this initiative as a futile attempt to HIV prevention, while female participants expressed concerns that this method would result in discontinuation or substitution of the condom with these new prevention technologies.

*“So I guess it would not be wrong to decide not to use it because there is still a chance that she can still get infected”* (Male participant, Urban, MP, March 2016)

*What they can do is to make something that makes sex more enjoyable. Most people will still not use condoms. They need to produce a pill that will completely prevent people from getting infected even when they have not used a condom... The pill you are talking about doesn't provide 100 % protection from HIV, but the one I am talking about... see it is like a condom, if you use a condom the right way, you won't get infected with HIV, so the pill I am talking about should provide 100% protection from HIV once you take it* (Male participant, Rural, MP, March 2016)

In further arguing partial protection, an interesting view came from a male participants from KZN urban, who anticipated a misunderstanding, whereby people would disregard the chance of infection and only focus on the level of protection that is offered.

*"You said these products provide a level of protection. In most cases when such things are introduced, people will focus on the protection offered by a product and forget about the chance of getting infected"* (Male participant, Urban, KZN, April 2016)

*"These products are okay but I am a bit confused by some of them, like you use the ring, and then use the condom, how then do you see that the ring works?"* (Female participant, Rural, KZN, April 2016)

The responses indicate a high probability of unacceptability amongst men who perceived a microbicide product that offers partial protection against HIV as a futile attempt to HIV prevention. Some male participants stated that the condom offers an increased protection than microbicides, as the latter's protection varies with each product, while if consistently used, the condom provides 100 per cent protection against HIV. They felt that using microbicides in conjunction with a condom would fail, as people would still not use the condom for the sake of getting more sexual pleasure from flesh-to-flesh sex. Male participants felt that a product people can accept and adhere to is one that will offer complete protection to HIV infection even in the absence of the condom.

The findings confirm an observation from the VOICE study, linking unknown product efficacy to poor adherence as it discourages adequate use (van der Straten *et al*, 2015). In another study, partial efficacy of microbicides was found to result in condom substitution (Shattock and Rosenberg, 2012). Other challenges with partial efficacy include the requirement to be used in

conjunction with the condom, which raises confusion and uncertainty about the effectiveness of microbicide products. A study in an urban setting in Cape Town found that respondents had concerns about a partially effective microbicide however, they felt that partial protection would help in fighting the HIV crisis amongst women (Orner *et al*, 2016).

In trials, participants are informed that the administered product has unknown efficacy therefore it may or may not provide protection, and that that they may have been assigned to use a placebo (Woodsong *et al*, 2013). In the iPrEx PrEP study, some of the participants who were unknowingly administered oral truvada instead of placebo were reluctant to take the pill as they believed it to be ineffective (PrEP Facts, 2015). This suggests that unknown efficacy may make people feel they do not have much influence over their health, and thus engaging more risky sexual behaviour than adopting a positive health behaviour (Varga, 2001). This underscores the importance of exploring how partial efficacy of microbicides is received through pilot studies and early introduction programs to identify and address possible barriers and facilitators in advance of product introduction (Woodsong *et al*, 2013). The findings demonstrate a possibility of rejection of these new prevention technologies, as well as a high possibility of risk compensation, based on how people measure the level of efficacy offered by a product.

### ***Microbicides may result in risk compensation***

While microbicides offer a much needed protection for women, it is critically important to examine the impact of increased efficacy on sexual behaviour. In this study, female participants expressed great concern that disclosing microbicide use could impact negatively on their effectiveness as it could increase risky sexual behaviours such as unprotected sex and engaging in multiple sexual relations amongst men. They expressed that men would discontinue condom use, or increase the number of sexual partners.

*If you tell him he won't see the need to protect himself anymore, he will keep getting diseases and bringing them to me" (Female participant, Rural, MP, March 2016)*

*"And once you tell him that you are using these products he may ask what they are for, and you'll have to tell him that they are for HIV prevention... then he will say there is no need for a condom (Female participant, Rural, MP, March 2016)*

*“If you tell the man that you are using these products they will want to stop using a condom, and you said these products do not provide 100 percent protection right?”*

(Female participant, Rural, KZN, April 2016)

Male participants echoed female participants views, in that they would definitely discontinue condom use once their female partners starts using microbicides.

*A condom is no longer used once she starts using this thing... The condom is not okay because when a man uses a condom... I just have not tried the female condom but when a man is having sex, it is nice to feel the woman’s vagina, but when it is covered in a condom, you cannot feel her warmth. So you can go on for a whole three hours and not feel anything because of a*

*condom* (Male participant, Rural, KZN, April 2016)

*“When a woman has tested negative for HIV, and they start using the product, and you know that you are also faithful and she trusts you, then what is the use of a condom?”*

(Male participant, Rural, KZN, April 2016)

*“I think it would be difficult for women to introduce these products, and I think I would stop using a condom once I know that she is using these products”* (Male participant,

Urban, KZN, April 2016)

*“Yes, the good thing about this is that you can feel the warmth of the vagina, so I can allow her to use it”* (Male participant, Rural, MP, March 2016)

Previous acceptability research also revealed that women are skeptical about disclosing microbicide use, as some men may discontinue condom use due to misconception about the protection offered by microbicides (Woodsong, 2004). An acceptability study also found that consistent condom users were likely to substitute condoms with microbicides (Orner *et al*, 2016). The findings confirm an observation by Eaton and Kalichman (2007), that these new prevention technologies may potentially lower the perception of risk and thus increase risk-related behaviors (Eaton and Kalichman, 2007). Woodsong further draws on the impact microbicides may have on women’s autonomy for protection, as men who prefer microbicides over condoms, which could result in women being forced into using them unwillingly (Woodsong, 2004).

The findings above provide the basis for questioning why men some men in this study were supportive of microbicides. The question on disclosing microbicide also calls into question the issue of gender equity as well as people's preference for unprotected sex, which could hinder the effectiveness of microbicides. Moreover, the findings suggest a high probability of risk compensation which is the substitution of condoms by microbicides. Given these findings, there remains a need for educational programmes to ensure thorough understanding of the risk-reduction benefits of microbicides.

### ***Acceptance of microbicides rely on effective implementation***

Drawing from their experiences with the female condom, male participants expressed the need for a strong presence (marketing and advertising); continual educational and promotional campaigns in the introduction of microbicides. Participants stated that they had no sense of familiarity to the female condom, which affected their decision to accept and/or use it. Participants therefore suggested that both partners need to be educated about these new prevention technologies, as that would facilitate acceptability amongst men and enable consistent use amongst women.

*I think what needs to be done with these products, that will be different from female condoms is how they present them to people because, with male condoms men were given enough information but with the female condom that was not done. Some of us do not even know it. So we all need to be taught about these products in order to be familiar with them, because if they are not presented properly women will not be comfortable to use them, also I cannot let a woman to use something I don't understand (Male participant, Urban, KZN, April 2016)*

*"I think what is important is how these products will be introduced to the community, how the information will be presented to people and they get them to people out there. People must be educated on what these products are and how they work" (Male participant, Urban, KZN, April 2016)*

This is consistent with findings that noted a strong link between promotion of a product and positive perception of that product (Mantell *et al*, 2005). So far, efforts towards increasing use of the female condom have placed much emphasis on its design (evident in the production of the second-generation FC2 female condom) (Beksinska *et al*, 2013). Very few effort interventions have been placed to testing and promoting the efficacy of the female condom (Mantell *et al*, 2015).

As a result, even knowledge about the selected distribution facilities remain a mystery for most women (Beksinska *et al*, 2012). Some women either have no knowledge of the female condom, or they are unable to obtain it (Peters *et al*, 2010). Involving men in the early stages of introducing microbicides can improve product knowledge, and therefore increase the chances of acceptance and up-take, as well as encourage support from male partners (Schuler *et al*, 2013).

This finding shows that having knowledge of a product's existence is not sufficient for acceptance, familiarity and clear understanding is what promotes acceptance and utilisation. Continuous Information dissemination therefore should be considered a key factor when introducing a new prevention method.

## **Varying product acceptability between males and females**

Acceptability of a product includes both perceived acceptability, i.e. satisfaction with the product's features and demonstrating willingness to use it or recommend it to someone else, as well as the actual use of the product during intercourse (Ramjee *et al*, 2001; Ramjee *et al*, 2005). Acceptability of microbicides however is heterogeneous across different populations as demographics, socio-cultural background, high risk behaviour have the greatest influence on product acceptance (Zhang *et al*, 2016). This chapter discusses KZN and MP men and women's acceptability of four microbicide products namely; the tenofovir gel, daily oral truvada, the dapivirine ring and injectable microbicides.

### **Acceptance of the tenofovir gel**

Past studies indicate that the dosing strategy for the tenofovir gel is one of the critical factors that contribute to poor adherence to the product; as women find it challenging to adhere to the dosing regimen of the gel. In this study, the tenofovir gel is perceived as an impractical method. Table 5.1 presents a summary of views regarding the tenofovir gel.

**Table 5.1:** Summary of responses regarding the tenofovir gel

| Sub-theme   | Female participants   | Male participants   |
|---|---|---|
| <ul style="list-style-type: none"> <li><b>Impractical dosing regimen</b></li> </ul> | <ul style="list-style-type: none"> <li>- Female participants are concerned that it would be difficult to anticipate when they would engage in intercourse as it is often an unplanned activity.</li> <li>- It would be difficult to excuse themselves to apply the gel when the male partner wants to have sex</li> </ul> | <ul style="list-style-type: none"> <li>- Men demonstrated an unwillingness to wait for women to apply the gel<br/><i>"You see this gel... what if I want her now, and she tells me to wait for an hour, we will end up not using it, because you see... why must I wait? We just won't use it"</i></li> </ul> |
| <b>Constant application may hinder consistent use</b>                               | <ul style="list-style-type: none"> <li>- Female participants were concerned that discreet use of the tenofovir gel would be a challenge, particularly for women who live with their partners.</li> <li>- Inconsistent protection for rape cases</li> </ul>  | <ul style="list-style-type: none"> <li>- Constant application was perceived as challenging, particularly the post-sex dosage because "most people fall asleep after sex. So what happens if do not apply it after the 12 hours?"</li> </ul>   |
| <b>Lubricative properties may affect men's sexual pleasure</b>                      | <ul style="list-style-type: none"> <li>- Excessive lubrication may result in suspicion of infidelity as a wet vagina is associated with promiscuity or an unhealthy and damaged vagina.</li> </ul>  | <ul style="list-style-type: none"> <li>- Men demonstrated a preference for dry sex. Therefore the gel would cause excessive lubrication which may affect their sexual pleasure.</li> </ul>  |
| <b>Acceptance of tenofovir gel may be hindered by vaginal practices</b>             | KZN rural women are concerned that the tenofovir gel will be mistaken for vaginal practices they often perform to enhance men's sexual pleasure   | KZN rural men are concerned that vaginal practices will be concealed through the use of the tenofovir gel   |

***Impractical dosing regimen, a barrier to adherence***

Intercourse is often an unplanned activity which could pose challenges for adherence to barrier method that requires pre-coital insertion such as the tenofovir gel. The study found that the tenofovir gel was perceived as the most impractical method. Both male and female participants expressed dissatisfaction with the product's dosing regimen which requires insertion up to 12 hours before and after intercourse. Women expressed that consistent use of the gel would be

difficult, as it would be a challenge to use in the presence of the male partner, particularly in cases of unplanned intercourse.

*“It has too much work. Most of the time sex is not planned. You find that you haven’t seen each other in a long time, it would be difficult to ask him to stop so you can go and put the gel”* (Female participant, Urban, KZN, April 2016)

*Sometimes we go to the tavern, and anything can happen there, now how can I put the gel... I can put it before sex but now, what happens if I go to the tavern and I meet a guy, and we want to have sex, and I left my gel at home... I don’t think I can use it, maybe the pill or the injection because its always in my bloodstream... I will take the pill before I go to the tavern, maybe every day in the morning* (Female participant, Rural, KZN, April 2016)

*“Yes, you find that we are now sitting in the bedroom and you start kissing, and now you have to put the gel... I can’t ask him to wait. Some men want to come with you to the bathroom, so what would I do in such a position?”* (Female participant, Rural, MP, March 2016)

*“It would be a problem, for example when you go to visit your partner without an intention to have sex, then he asks you to sleep over but you haven’t carried the gel with you”* (Female participant, Rural, MP, March 2016)

*“If I have to apply the gel before and after sex my husband will end up asking why I’m getting out of bed, so it would be difficult to hide it”* (Female participant, Rural, KZN, April 2016)

Male participants also felt that the tenofovir gel is an impractical method, as the dosing regimen would pose challenges for adherence;

*“The problem with the gel is that she has to apply it again after sex. Because most people fall asleep after sex. So what happens if do not apply it after the 12 hours?”* (Male participant, Urban, KZN, April 2016)



*“You see this gel... what if I want her now, and she tells me to wait for an hour, we will end up not using it, because you see... why must I wait? We just won't use it”* (Male participant, Rural, MP, March 2016)

*This gel is like the female condom, you still have to wait. You see women cannot use the female condom because they say you have to wait for hours before you can have sex, and now you have to wait 12 hours... How do you know that you are going to have sex? Because you can't always put the gel, what if you don't have sex?* (Male participant, Urban, MP, March 2016)

The responses above indicate participant's dissatisfaction with the tenofovir gel due to its dosing regimen. Women are concerned that applying the gel is infeasible in cases where intercourse is unplanned; particularly if the woman chooses not to disclose microbicide use to her male partner. Women perceive the dosing regimen as having the likelihood to interfere with covert use and adherence. Similarly, men are against having to wait for the woman to insert the gel, stating that they understand sex to be an *unplanned* activity therefore, such a product is deemed unfeasible for spontaneous sex. Another concern raised is the inability to take the post- sex dosage, due to unforeseen circumstances such as the high probability of falling asleep after sex. They feel that such the dosing strategy of the tenofovir gel disregards such possibilities.

In support of the concerns raised in the study, a number of issues ensued following the release of the CAP004 study, questioning how the trial participants dealt with the reality of sex often being a spontaneous event, however being instructed to apply the gel within 12 hours of anticipated intercourse (Agut *et al*, 2015). Furthermore, a complimentary social study of the CAP008 trial, (a follow up study of the successful aforementioned CAPRISA trial) found that women who chose not to disclose gel use had difficulties using the gel in their partner's presence, for unexpected partner visits, and were concerned about the partner feeling cold or wetness (McQueen *et al*, 2016). Similar to a post-trial study in For married and cohabitating women, covert use was difficult (McQueen *et al*, 2016), confirmed by a post-trial study of a cellulose sulfate microbicide gel amongst women in Uganda and India (Greene *et al*, 2010). Confirming these findings, female students at University of KwaZulu-Natal questioned whether adherence to such a product with a demanding dosing regimen would be practical in an environment where men can demand sex from their female partners at any given time (Nota, 2016).

The above views therefore demonstrate that a woman's relationship status and living arrangement are amongst the important factors to understand when prescribing a prevention method, as this could affect adherence.

### ***Lubricative properties may affect men's sexual pleasure***

The practice of dry sex is highly prevalent in SSA, which could have an impact on the acceptance of microbicide products such as the tenofovir gel that have lubricative properties. Female participants expressed that using the gel would be a problem because it would make their vaginas wet. This would likely be misconstrued by men as a sign of having recently had sex, therefore it would raise suspicions of cheating. Female participants also feared that the gel would reduce with sexual pleasure.

*"What I can say I do not understand properly is the gel because, if my partner does not like a wet vagina, then it means I will not be able to use it"* (Female participant, Rural, KZN, April 2016)

*"Especially the gel, he may think that you are using the gel so that he won't feel that you were with another man"* (Female participant, Rural, KZN, April 2016)

*"With the gel, it would be a problem because they would think that we are too wet"*  
(Female participant, Urban, KZN, April 2016)

*"As a woman, you sometimes feel like that you are too wet, and it makes you uncomfortable. Also because it's something you have to hide. It is better for him to struggle a bit when entering your vagina, than to just slide in"* (Female participant, Urban, KZN, April 2016)

*"The gel, it will cause me to be too wet, I don't think I will be able to hide it, and he will ask why I am too wet. Sometimes he puts his hand in my vagina because he thinks I was having sex with someone. He will think I am cheating"* (Female participant, Urban, MP, March 2016)

*"I don't like the gel because you will end up feeling like a styling gel"* (Female participant, Rural, KZN, April 2016)

Male participants also demonstrated a preference for “dry sex” where a woman does not have much vaginal lubrication or fluids. Men stated that women already release lubricative fluids during sex, thus using the gel would over-saturate the vagina and reduce its warmth during intercourse. When asked which product he would prefer his partner to use, a man from MP urban responded;

*“I would let her to use the gel, if it doesn’t make her too wet”* (Male participant, Urban, MP, March 2016)

*“The problem with the gel is that a woman already releases lubricative substances during sex so I think it would be too wet and I don’t like that”* (Male participant, Urban, KZN, April 2016)

*“So do these products cause women to be wet, and cause us not to enjoy having sex with them?”* (Male participant, Urban, MP, March 2016)

*“If she has used the gel and she does not feel the same during sex, then she tells me that it’s because she is using this products, I will not be happy”* (Male participant, Urban, MP, March 2016)

*“And the gel, it would feel like I am not getting the real thing, like I have doubled the condoms”* (Male participant, Rural, MP, March 2016)

The findings suggest a high unacceptance of the tenofovir gel due to its lubricative properties, as participants feel that it would affect their sexual lives negatively, particularly men’s sexual pleasure. This suggests that acceptance and use of a product is greatly influenced by the perceived impact it has on men’s sexual pleasure. The findings reiterate a qualitative study amongst men attending STD clinics in South Africa, which found that men perceived the excess lubrication caused by the gel as an undesirable feature of the product (Ramjee *et al*, 2001). Female participant’s views reiterate the VOICE-C study, which found that women enrolled in VOICE trial were likely to discontinue the use of the Tenofovir gel if the male partner complained about their vaginas being “too wet” (Van der Straten *et al*, 2014; Montgomery *et al*, 2015).

Other studies (Mantell *et al*, 2009; Nicolson and Burr, 2003) found that women were concerned about pleasing their male partners sexually more than protecting themselves from infection. The study therefore maintains the observation that men have great influence over women's decision to accept and adhere to female-centred programmes (Lanham *et al*, 2014). These findings highlight the importance of obtaining both the male and female's perspective on the product design and dosing regimen, as well as the assessment of context-specific preferences and their effects on the acceptability of a microbicide.

### ***Tenofovir gel may be mistaken for vaginal enhancement products***

Vaginal practices are common practices in SSA. In South Africa, this practice is common in KZN, which may have an impact in acceptance and use of microbicide products. In this study, any product that required vaginal insertion was perceived negatively by men from KZN rural due to the widespread trend of vaginal practices amongst women in the Umnini community. Men expressed that they are against the tenofovir gel because they were concerned women it would allow women to conceal performing vaginal practices with it.

*"You see women are very naughty, some of will now use snuff and all other things and pretend to be using the gel"* (Male participant, Rural, KZN, April 2016)

*"They put things in their vaginas to boost sex, so how am I going to know that she is not using snuff? She will lie and say she is using the ring or the gel now"* (Male participant, Rural, KZN, April 2016)

Umnini females confirmed men's fears about the issue of vaginal insertion. When asked what the men's reaction would be if he discovered that she is using microbicides, female participants from Umnini answered;

*"If I don't tell him he will think I am using something to boost my vagina"* (Female participant, Rural, KZN, April 2016)

*A lot of things would come to his mind because as women, there are things that we are already using for men to love us so he may think that these products are meant for that, to prevent him from cheating, and for that reason he may start cheating and also lose all the trust he had for you* (Female participant, Rural, KZN, April 2016)

Several studies also revealed that the prevalence of vaginal practices in diverse rural communities in KZN, to enhance men's sexual pleasure and ensure men's fidelity (Scorgie *et al*, 2009; Scorgie *et al*, 2011; Gafos *et al*, 2010). The findings suggest challenges with acceptance and support of microbicide use from men in KZN rural, particularly if they are uninformed or unfamiliar with these new prevention technologies.

### Acceptance of the daily oral truvada

Diverse views were captured with regards to daily oral PrEP's dosing regimen as it was perceived by some participants as an easy method while other felt it would be difficult to adhere to as following a daily routine may not always be possible. Table 5.2 presents a summary of views regarding daily oral truvada pill.

**Table 5.2:** Summary of responses regarding daily oral truvada

| Sub-theme  | Female participants  | Male participants   |
|--|--|---|
| <ul style="list-style-type: none"> <li><b>Desirable application strategy</b></li> </ul>        | <ul style="list-style-type: none"> <li>- Female participants found the pill appealing due to the familiar dosing regimen which does not require insertion of foreign products in the vagina</li> </ul>   | <ul style="list-style-type: none"> <li>- Men demonstrated high acceptability of oral truvada as they are not comfortable with women using products they are unfamiliar with such as the dapivirine ring or the tenofovir gel, which require vaginal insertion. Oral truvada therefore is perceived as eliminating the possibility of negative side effects and illnesses such as cervical cancer</li> </ul> |
| <ul style="list-style-type: none"> <li><b>Perceived limitations of oral truvada</b></li> </ul> | <ul style="list-style-type: none"> <li>- Daily intake is perceived as a possible challenge, especially for women who live with their partners, as taking the pills at a specific time may raise questions or suspicions as to what the pills are for.</li> </ul> | <ul style="list-style-type: none"> <li>- Men were concerned that women may forget to take the pills everyday</li> <li>- Concerns that women may conceal the use of ARVs with oral truvada</li> </ul>  |

|  |   |  |
|--|---|--|
|  | <ul style="list-style-type: none"> <li>- Oral truvada may be disrupted by women's lifestyles or unforeseen commitments.</li> <li>- Alcohol consumption may affect adherence,</li> <li>- Some women have difficulties adhering to routine therefore consistent uptake may be affected</li> </ul> |  |
|--|---|--|

### **Familiar dosing regimen**

Discussions on the daily oral truvada documented diverse perceptions, with a moderate acceptance across all settings, varying between men and women. MP rural and KZN urban men demonstrated a great preference for oral truvada as a preventive method they would like their partners to use if the products were to be licensed for public use. They expressed that they would be more comfortable if their partners would take the pills, as it is a product they are familiar with, stating concerns about long-term health problems such as cervical cancer from the use of products that require vaginal application such as the tenofovir gel and the dapivirine ring.

*“I would like her to use the pills because they are common”* (Male participant, Urban, KZN, April 2016)

*“The pill because she won't have to keep putting the gel or go to the clinic for an injection”* (Male participant, Urban, KZN, April 2016)

*“I would prefer my partner to use the pill because I will not be comfortable with something I don't know going inside my women's vagina. The injection and the pill are good because she won't have to put things in her vagina”* (Male participant, Urban, KZN, April 2016)

*“The pills because they are common, these gels and rings... these things will cause cervical cancer, so I won't let her use it”* (Male participant, Urban, KZN, April 2016)

*“I would like her to use the pills because automatically when a person takes pills they go into their blood”* (Male participant, Urban, MP, March 2016)

*The findings therefore suggest a likelihood of acceptance of daily oral PrEP due to its common and uncomplicated dosing strategy.*

### ***Daily intake may not be achievable***

Although acknowledging daily oral truvada as an appealing method due to familiarity, participants perceived challenges with adherence. Drawing from observations and personal experiences with contraceptive pills and ARV treatment, women expressed concerns about the ability to commit to daily up-take of the pills. For female participants, concerns were mainly tailored around the possibility of being discovered by the male partner. Covert use of oral truvada is perceived to have challenges, particularly for women who live with their partners, as taking a pill at the same time on a daily basis may raise suspicions amongst men. Amongst male participants, views demonstrated a lack of trust, as they expressed concerns that some women would conceal taking ARV treatment with the truvada pill. Alcohol use was also perceived as a possible barrier to using truvada.

*“The pill is a problem because it has to be taken daily, women will forget to use these things” (Male participant, Rural, KZN, April 2016)*

*“She may forget to apply the gel or take the pill due to stress or other things” (Male participant, Rural, KZN, April 2016)*

*“With the pill, some women will take ARV’s and pretend to be taking the prevention pill” (Male participant, Rural, MP, March 2016)*

Similar views were noted in the discussion amongst women;

*“The problem with the pill is that sometimes women can forget to take it on a daily basis” (Female participant, Rural, MP, March 2016)*

*“The pills may be a problem too. I am on the contraceptive pills and when my daily alarm goes off my husband always looks at me, as if he is wondering what the alarm is for” (Female participant, Rural, MP, March 2016)*

*“The pill... Sometimes the alarm goes off and you tell yourself you will take it later then you forget” (Female participant, Rural, MP, March 2016)*

*“It’s a problem because your partner may start suspecting something if you always have to take the pill at a specific time” (Female participant, Rural, MP, March 2016)*

*“The problem with the pill is that what if I take it at 8pm every day, then the time comes and I am not at home... what will happen then?” (Female participant, Rural, KZN, April 2016)*

*“I would forget to take the pill, I know myself. I had to change from using the contraceptive pills to the injection because I am just bad at following routine” (Female participant, Urban, MP, March 2016)*

*“But taking the pill everyday can be a problem. Its very difficult to take pills every day of your life, that is what many people default on their HIV treatment... no its too much” (Female participant, Urban, MP, March 2016)*

*“Drinking alcohol can also make you forget to take your pills. Or maybe you are taking Nyaope (home manufactured drug) or dagga, you may not be able to think about taking your pills, unlike when you are sober, you are able to take your treatment properly, or use your gel correctly” (Female participant, Rural, MP, March 2016)*

The VOICE-C study found that women were unable to incorporate oral truvada into their daily lives (van der Straten *et al*, 2014). Similar to some of the responses in this study, participants in the VOICE-C admitted that laziness was the main factor to not taking the pill at the set time, (van der Straten *et al*, 2014). The findings also confirm the discussion on chapter two, that alcohol consumption can be a possible barrier to correct and consistent up-take of some PrEP products such as oral truvada (Bryant *et al*, 2010. For example, women in the VOICE –C study reported missing doses during weekends to avoid mixing them with alcohol (van der Straten *et al*, 2014). The high prevalence of alcohol use in rural KZN and MP are a translation of the high alcohol consumption rate in the country (SANGONET, 2012). There remains a need to examine which microbicide product can be suitable for implementation in such contexts.



## Acceptance of the dapivirine ring

Diverse views ensued regarding the dapivirine ring as a long-acting prevention method towards HIV. Table 5.3 presents a summary of the views regarding the dapivirine ring.

**Table 5.3:** Summary of views regarding the dapivirine ring

| Sub-theme   | Female participants  | Male participants  |
|---|--|--|
| <ul style="list-style-type: none"> <li>• <b>Desirable long-term protection</b></li> </ul>                           | <ul style="list-style-type: none"> <li>- Long-term protection is perceived as an appealing feature</li> <li>- Allows for less clinic visits</li> <li>- Less user-reliant therefore it allows for consistent protection</li> </ul>  |  |
| <ul style="list-style-type: none"> <li>• <b>The dapivirine ring is comparable with the female condom</b></li> </ul> | <ul style="list-style-type: none"> <li>- The dapivirine ring is constantly compared with the female condom due to its design and the application process.</li> <li>- Due to concerns about comfort, female participants stated that they would be worried about the ring falling off or the male partner feeling it during intercourse.</li> </ul> | <ul style="list-style-type: none"> <li>- The ring's application process was compared to that of the female condom, in that the woman still has to insert it through the vagina.</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>Unappealing application process</b></li> </ul>                          | <ul style="list-style-type: none"> <li>- It is too big</li> <li>- Worried about how it would fit in the vagina</li> </ul>  | <ul style="list-style-type: none"> <li>- Uncomfortable with women inserting foreign objects in their vaginas.</li> <li>- Men expressed that "<i>seeing these rings and things</i>" in the woman's vagina would affect them subconsciously and therefore affect their sexual performance.</li> <li>- The dapivirine ring would <i>open the 'whoezit'</i> (the vagina).</li> </ul> |

### ***Desirable long-term protection***

Challenges with adherence in microbicide trials suggest a need for long-acting, less user-reliant products for increased protection against HIV infection. This study found that female participants were drawn by the long-term protection offered by the dapivirine ring as it would eliminate the burden of daily application or use, which makes it highly unlikely that they will forget their clinic visits for their next application. The monthly dosing regimen is perceived as a convenient method that allows for discreet use and thus further translating into consistent uptake.

*“I like the ring because I don’t have to remove it, as it dissolves on its own but I would still forget to go and apply another one but its good because I’ll be able to use it in secret too because he won’t know that I inserted it”* (Female participant, Rural, KZN, April 2016)

*“He won’t be able to see or feel the ring unless I tell him, also because it offers long term protection”* (Female participant, Urban, MP, March 2016)

*“I would choose the ring because 28 days is a very long time so I won’t forget to go and insert another one”* (Female participant, Rural, KZN, April 2016)

*“Because I won’t have to take it every day like the pills, and going for an injection... I’m scared of needles, and I don’t like taking pills”* (Female participant, Urban, MP, March 2016)

Similar to these findings, the development of a long-acting dapivirine ring was perceived as having the potential to address adherence challenges faced in previous PrEP trials such as the tenofovir gel (Baeten *et al*, 2016; AVAC, 2016; The South African Medical Research Council (SAMRC), 2016). Furthermore, the easy once off application is said to allow for convenience and sustained monthly protection against HIV (IPM, 2012).

Noting a noticeably high preference for the dapivirine ring amongst KZN rural women despite the similar application process as the tenofovir gel; the researcher questioned this inconsistency to which participants answered;

*“It is not the same. With the gel I may have to apply it every day, whereas with the ring, it is only once a month”* (Female participant, Rural, KZN, April 2016)

Participants felt that the monthly duration of the dapivirine ring makes it less invasive demanding when compared to the tenofovir gel. One participant from rural KZN stated that she dislikes the gel because her vagina being oversaturated with the gel due to constant use. In all, there is a modest acceptability of the dapivirine when compared to the tenofovir gel and oral truvada due to its long-term protection. This suggests that a long-acting vaginal ring can indeed increase up-take and therefore provide increased protection against HIV (Baeten *et al*, 2016; AVAC, 2016).

### ***The dapivirine ring is comparable to the female condom***

The introduction of a new method is subject to comparison with existing prevention methods. There was a recurrent view regarding the comparison between the dapivirine ring and the female condom, noted by those participants who are familiar with the design of the second generation female condom- FC2 condom which has a flexible inner ring to insert the device and keep it in place during intercourse. Further comparisons involved the requirement for vaginal insertion, which was found unappealing by majority of male participants.

*“What I think about the ring is that it is the same as the female condom. The woman still has to put it in the vagina. I think they need to develop a product that is easy to use”* (Male participant, Rural, KZN, April 2016)

*“The female condom is just like the ring, you fold it, make it into an 8-shape, and then you push it deep into your vagina then the part that looks like an umbrella on top will be left outside your vaginal opening, and it will grasp your vagina”*  
(Female participant, Rural, MP, March 2016)

Participants also expressed concerns about the ring’s comfortability. This included the ring falling out in cases where women fail to apply it properly as well as its comfortability during sex.

*“But the ring is like the female condom, you still have to put the ring inside, what if I don’t put it the right way?”* (Female participant, Rural, KZN, April 2016)

*“If you can come with the ring, they would be afraid of using it because they may think that it is uncomfortable, just like the female condom”* (Female participant, Rural, KZN, April 2016)

The findings suggest that the application regimen is perceived as invasive and unappealing, as men expressed that they are uncomfortable with any product that is applied through the vagina. The findings suggest unacceptance of the dapivirine ring amongst men therefore there remains a need for a product that offers both long-term protection and a simple and less complicated dosing regimen.

### ***“Rings and Things”***

MP rural men demonstrated a high unacceptability of the dapivirine ring. They expressed that they are not comfortable with women inserting foreign objects in their vaginas as that would affect them subconsciously and therefore affect their sexual performance. In this regard, men explained how the female condom would affect their mood for sex, therefore they feel *‘seeing these rings and things’* in the woman’s vagina would have the same effect. One participant felt that the dapivirine ring would *open the ‘hoezit’* (the vagina). Interestingly, a female participant from MP urban felt the dapivirine ring would make her uncomfortable during sex. Other female participants said they would be concerned about the male partner feeling the ring during sex, or the ring falling off if it is not properly inserted.

*“...seeing these rings and things would destroy that trust in a relationship”* (Male participant, Rural, MP, March 2016)

*“I think this thing can affect men subconsciously, just thinking that she has a ring in her vagina can cause problems”* (Male participant, Rural, MP, March 2016)

*“With the ring, as a man I feel there is something that goes before me during sex, so I am not okay with that”* (Male participant, Rural, MP, March 2016)

*“This thing will open the ‘hoezit’, so it will always be open... this ring is big”* (Male participant, Rural, MP, March 2016)

Interestingly, one woman from MP urban admitted that she finds dapivirine ring as unappealing.

*“And I think the rubber things would be a turn off for me too, I have an overactive imagination. It would disturb me during sex because I will think maybe it will come out or that he will feel it”* (Female participant, Urban, MP, March 2016)

*“I’m scared of it. I look at it and ask myself where this thing will go... and what if he feels it?”* (Female participant, Rural, MP, March 2016)

*“Some women may not be able to use the rings properly. What if it falls?”*  
(Female participant, Rural, MP, March 2016)

*“With the ring I think I will be paranoid, I will keep thinking it will fall”* (Female participant, Urban, MP, March 2016)

Concerns about the dapivirine ring in this research reiterate frequently asked questions about whether the ring falls off, if the male partner feels the ring during intercourse, or if it is uncomfortable or difficult to insert (IPM, 2016). The findings indicate that there will be a need to educate women on the dapivirine ring, its application regimen, the possible impacts on the body and intercourse, and all the relevant information with regards to the ring. Addressing such questions may impact positively on acceptance of the dapivirine ring.

### **Acceptability of the three-monthly injectable**

Perceptions on the injectable were mostly positive due to the long-term protection offered by this method. Table 5.4 provides a summary of responses on injectable PrEP.

**Table 5.4:** Summary of responses towards injectable microbicides

| <b>Sub-theme</b>  | <b>Female participants</b>   | <b>Male participants</b>   |
|---|--|--|
| <ul style="list-style-type: none"> <li><b>Practical dosing regimen</b></li> </ul>                   | <ul style="list-style-type: none"> <li>- Long-term protection therefore less clinic visits, and most importantly it allows for discreet use</li> <li>- Practical for spontaneous sex because it is always in the blood stream</li> </ul> | <ul style="list-style-type: none"> <li>- Injectable microbicides offer long-term protection</li> <li>- Less clinic visits</li> <li>- No vaginal insertion</li> <li>- Allows for spontaneous sex</li> </ul> |
| <ul style="list-style-type: none"> <li><b>The dosing regimen allows for discreet use</b></li> </ul> | <ul style="list-style-type: none"> <li>- The dosing regimen has been tested and proven to</li> </ul>   | <ul style="list-style-type: none"> <li>- Familiar dosing regimen which does not require</li> </ul>   |

|   |  |   |
|---|--|---|
|   | <p>work through the three monthly contraceptive injection.</p> <ul style="list-style-type: none"> <li>- Discreet use is possible, the male partner does not need to be informed about its use</li> </ul> | <p>insertion of foreign products in the vagina</p>                                |
| <ul style="list-style-type: none"> <li>• <b>Long-term effects of injectable microbicides</b></li> </ul> | <ul style="list-style-type: none"> <li>- Concerns about water retention and weight gain</li> </ul>   | <ul style="list-style-type: none"> <li>- It may make women gain weight</li> </ul> |

***The most practical dosing regimen***

In this study, the most attractive feature about injectable PrEP is its long-term protection as this entails less clinic visits and intermittent use of product. Female participants expressed that the injection would allow them to hide their use of this method, as the dosing strategy does not require constant application; which will then ensure consistent use and increased protection. Participants were pleased regarding the long-term protection offered by injectable PrEP mainly because it accommodates spontaneous sex which came up as a compelling argument in all the focus groups, particularly in relation to the tenofovir gel. Participants rated that the injection offers the most reliable protection as it allows for protection even in cases of unanticipated sex, because the product is always in the bloodstream. Moreover, injectable microbicides are perceived as convenient unlike the tenofovir gel which is likely to be forgotten and disregarded due to unavailability (in cases where the woman has not carried it with her), or the inability to wait for application time when sex was unanticipated.

*“I prefer the injection because it lasts longer, what I would not use is the pill because I may forget to use them, and that would be opening a chance of getting infected whereas the injection stays in the blood”* (Female participant, Rural, MP, March 2016)

*“I think that the products are good because for example the injection, they say it lasts up to three months right? Even when we do not have condoms, I can be at ease knowing that at least I have some form of protection against HIV because I have the injection in my bloodstream”* (Female participant, Rural, KZN, April 2016)

*“Because sometimes men don’t say when they come to visit, so the injection is always in my bloodstream. Also because it offers a long-term protection”* (Female participant, Rural, MP, March 2016)

*“The injection because it is very easy to use. I won’t have to keep going to the bathroom, because the injection will last for three months, and we can have sex anytime with my husband”* (Female participant, Urban, MP, March 2016)

*“Because with the injection, she will take it today and it lasts three months, so we can have fun, unlike the pill that you have to take every day, maybe one day she will forget to take it”* (Male participant, Urban, MP, March 2016)

*“Because with the injection I know that she won’t put any products in her vagina. The injection will be in her blood stream so she will go to the clinic once every three months”* (Male participant, Rural, MP, March 2016)

### **A “Tried, Tested and Proven” dosing regimen**

Evidence from research indicates that women require a long-acting microbicide with a highly discreet dosing regimen (Hoffman *et al*, 2010). The production of the injectable microbicides therefore is a response to this appeal, and therefore are believed to achieve consistent up-take and thus increased protection against HIV. In this study, the three monthly PrEP injectable was compared with the three monthly contraceptive injection. Participants felt that the dosing regimen has been proven to guarantee discreet use.

*“I also think the injection is the best option because he can also take me to the clinic, all he has to know is that I am on the contraceptive injection. And we can have sex anytime, especially when he comes unexpectedly”* (Female participant, Urban, MP, March 2016)

*“But we are able to hide these things... a man will not know that you are using the injection if you haven’t told him...He does not have to know, just as he does not know about the family pregnancy injection”* (Female participant, Rural, MP, March 2016)

*“I think the injection is the best method for women to protect themselves because they won’t have to tell their partners that they are taking the injection. You’ll have both your cards, the family planning card and the HIV prevention card”* (Female participant, Rural, MP, March 2016)

*“Some men do not know that their partners are in family planning, so it is possible to keep this from them”* (Female participant, Rural, MP, March 2016)

*“Women are already using the family planning injection, some of them we don’t even know they are using it, so what will stop them from using this one”* (Male participant, Urban, MP, March 2016)

*“The injection because most women are already using the contraceptive injection”* (Male participant, Rural, KZN, April 2016)

*“With the injection I can just go to the clinic after three months and he won’t suspect anything, he won’t even see it... I will go and take my injection and come back as if nothing has happened but I know that I am protected”* (Female participant, Rural, MP, March 2016)

*“I don’t want to go to the clinic all the time... and because with the other products... he may end up seeing the containers in the house... the injection is good, I will go and take my injection and I don’t have to tell him anything because it will be in my system”* (Female participant, Urban, MP, March 2016)

*“I would choose the injection because it lasts longer, and it would be easy to hide because he won’t question why I am going to the clinic, and he won’t know what I am going to do at the clinic”* (Female participant, Rural, KZN, April 2016)

Participants felt it would be easy to adopt and adhere to the injectable PrEP’s dosing regimen, especially if it were to be integrated within the family planning programme. They stated that such a method has been tested and proven to work, as some men are unaware that their partners are taking the contraceptive injection. This conforms various acceptability studies showing that women prefer a product that would not be noticed by the male partner to allow for discreet use



(Hoffman *et al*, 2010). This finding thus indicates a favourable acceptability and utilisation profile of the injectable PrEP products.

### ***Long-term effects of the injection***

The effects of the injection on a woman's body weight came up strongly in the discussions about the injectable microbicides in this study. Despite the perceived advantages of the long-term protection offered by this method, participant's views were distorted by some certain beliefs about the effects of the contraceptive injection;

*"I heard something about the injection, men say a woman that takes the injection becomes wet, so that is the problem I have with the injection"* (Female participant, Rural, KZN, April 2016)

*"When you tell them, for instance with the contraceptive injection, they say things like your vagina is not tight enough, but when you haven't told them they don't notice any difference so, maybe they will say the same thing with this injection"* (Female participant, Rural, MP, March 2016)

Male participants also expressed concerns about the issue of water retention and weight gain;

*"The only problem with the injection could be the woman gaining weight"* (Male participant, Rural, MP, March 2016)

*"I think the injection is better but sometimes it makes women gain weight"* (Male participant, Rural, KZN, April 2016)

Some concerns were raised regarding the effects the injectable. The widely spread notion of water retention and weight gain for women who use the contraceptive injection influenced the perceptions about the injectable microbicide. Even though some concerns we raised, both male and female participants maintained that the injection was the best option amongst the four.

### **Barriers to product acceptance, utilisation and adherence**

This theme presents the various socio-cultural, economic and structural factors which emerged as preventing women from accepting or utilising microbicides as a female-initiated prevention method against sexually acquired HIV.

### ***Sexual decision-making for protection***

Views regarding covert use were mostly negative amongst male participants; as they strongly believed that the decision for prevention has to be approved by the male partner. Male participants expressed that a woman is not supposed to keep the use of barriers methods from them as they are equal partners in intercourse. The views below came up when the researcher asked male participants what their views were regarding the possibility of women using microbicides in secret:

*“Why am I not allowed to see them? She has to show me, I am the boss”* (Male participant, Urban, KZN, April 2016)

*“The answer is no, a woman cannot use this product and not tell me”* (Male participant, Rural, KZN, April 2016)

*“She has to first explain to me what the product is, she cannot put things in her “hoezit” (vagina) without telling me”. She has to tell me so that I know because its me who has to go in there”* (Male participant, Rural, MP, March 2016)

*“If you can hide this from me, that means there are many other things you are hiding from me, so it is very important to communicate first”* (Male participant, Urban, MP, March 2016)

A low proportion of men acknowledged women’s rights to independent protection against HIV however they maintained that male partners should be informed about microbicide use, and also have an opinion regarding which product to use.

*“I think in a relationship, such a product, the decision is yours but you have to tell me because your protection involves sex and that is something we do together”* (Male participant, Urban, KZN, April 2016)

*“I would not have a problem because it’s her life”* (Male participant, Rural, MP, March 2016)

*“I would allow her to use the products because it protects her from HIV, If there are no side effects, then she can use them so that even if she is cheating, she will be protected”*  
(Male participant, Urban, MP, March 2016)

An interesting view came up amongst KZN rural and urban male participants. Contrary to female participant's views, expressing their inability to enforce sexual protection due to fear of abuse and suspicions of infidelity as indicated earlier, men from these settings were of the opinion that women prefer the male partner to take charge of sexual decision-making. Men from these settings are of the opinion that women fail to engage in any form of decision-making in the early stages of a relationship, which then accustoms men to dominance including sexual matters. They stated that they understand women's non-use of the female condom or the inability to initiate sexual protection is understood as a preference for men to make a decision about whether or not to use protection.

*In my opinion, I think women are usually the ones that give men the power to make decisions in relationships. In most cases women ask for the man's opinion when they want to do things, so we get used to telling them what to do. Even when it comes to sex, we are used to taking the lead and taking decisions for them. So when she comes after a long time and want to introduce such things I am going to question where that is coming from all of a sudden* (Male participant, Urban, KZN, April 2016)

*In most cases women do not express themselves, maybe because they think they are going to lose the person they are dating if they say how they feel. So once I get used to her not questioning any decision I make, I will not understand when she wants to introduce something new things after eight years of dating. I will question that, and even if I asked for another man's opinion, they would say that she is now cheating. So I think a woman should be open about using these products because if I find out she is using them in secret I will think that she is cheating* (Male participant, Urban, KZN, April 2016)

*The truth is that women like men to make decisions in relationships. Even with condom use, most of the time it's the man who decides whether to use a condom or not, it is very few cases where the woman suggests to use a condom. It's us men who most of the time take decisions in matters related to sex* (Male participant, Urban, KZN, April 2016)

Women's passive behaviour was also interpreted as a sign of respect for men. A view shared amongst KZN urban men;

*"Let's take this environment for example, people respect each other, and the woman listens to the man to show respect, whether they are married or not. The fact that you are in a relationship means that there should be respect from the woman to the man"*

(Male participant, Urban, KZN, April 2016)

The views from male and female participants confirm that South Africa is a patriarchal society that is embedded in cultural and traditional ideologies that deem women an inferior status than men. Furthermore, this finding resonates with the notion of gender socialization, which defines how women are socialised to be passive and submissive while men are encouraged to take be strong, to be dominant in sexual matters, have multiple partners and to aggressively pursue sex, sometimes even to the point of coercion. As argued in chapter two, cultural norms and attitudes are major contributors to women's lack of control over their own sexuality (James, 2008). The findings therefore affirm that expectations of sexual passivity deny women the ability to be equal partners in deciding the terms of sexual activities, including negotiating safe sex practices (ICAD, 2006). Given these findings, understanding gender dynamics and the sociocultural factors informing them is the key to effective acceptance and utilisation of microbicides. This can help to understand women's position in sexual decision-making, thus assist in developing relevant and feasible strategies to create acceptance and effective up-take.

The findings indicate that women's voice in sexual matters is indirectly repressed. The NDOH (2012) recommended that addressing the positioning of women should be at the forefront of the HIV crisis. The findings indicate that women's socio-economic and cultural positions deny them the voice to communicate their sexual health needs. Epidemic control can only be achieved only when women are empowered in these aspects that epidemic control amongst women can be achieved (NDOH, 2012). It is greatly imperative therefore, that gender dynamics are taken into consideration when introducing a new HIV prevention method for women. In keeping with the CCA, the inconsistent views regarding women's positions in sexual matters need to be explored further, to understand whether these beliefs can have an impact on women's decision to accept or use microbicides. Such studies need to be done while microbicides are still in the development stage to allow for efficient implementation when they are made available (Banzhaf and Bellamy, 1998).

### ***Gender poverty- a barrier to protection***

Economic and structural inequalities are amongst the key factors contributing towards women's vulnerability to HIV infection. In general, men have greater wealth, they are more educated, greater political influence, with fewer restrictions on behaviour than women (WHO, 1997). These imbalances may stand as a barrier to acceptance and utilisation of microbicides as an HIV prevention method for women. The researcher asked female participants what their partner's reaction would be if their partners discovered their use of microbicides to which they responded;

*"I think we would have a fight because he promised that he loves me and he does not want any problems, and he does everything for me... You see I don't want to lose somebody who takes care of me, he gives me money and makes sure that I am well taken care of"* (Female participant, Rural, MP, March 2016)

*"He will say I don't respect him, I bring things in his home without telling him, he may even kick me out"* (Female participant, Rural, MP, March 2016)

*"You can't tell him, what if he leaves you? because now he won't trust you... you know, when he takes care of you, he will start saying you are ungrateful and threaten to stop giving you money"* (Female participant, Rural, KZN, April 2016)

While not disregarding other aspects of male dominance, women perceive the lack of economic resources as the greatest determinant for their lack of sexual power, particularly their inability to use prevention methods. Women expressed that contesting the male partner's decision for protection could result in a loss of financial support therefore they tend not to question the men's sexual preference.

Male participants also demonstrated awareness that lack of economic power places women at a disadvantage in negotiating safe-sex practices. When the researcher asked what type of women should use microbicides, KZN urban men answered;

*"Unemployment amongst women. If you don't have a job you have no power to ask your male partner to use a condom if he does not want to, and you cannot break up with someone who does everything for you because he does not want to use a condom"*  
(Female participant, Urban, KZN, April 2016)

*“Unemployed women, because when you don’t have money you don’t have the power to ask your boyfriend to use a condom, what if he leaves you, so they can be protected if they use this product”* (Female participant, Urban, KZN, April 2016)

These participants are aware that factors such as poverty and unemployment make women vulnerable and desperate therefore they stay in relationships that expose them to risk of infection even when they are aware of the threat of HIV.

The findings confirm reiterate previous research findings that revealed that financially disadvantaged women are unable to initiate discussions about sexual protection due to fear of losing financial assistance (Bentley *et al*, 2010). As argued in chapter two, money dictates sexual relationships (Parker, 2012), as men’s economic and structural advantage allows men to exert power over women by regulating or making decisions on their behalf, while women’s lack works as a compelling factor for women to engage in unsafe sex practices for survival (Parker, 2012; WHO, 2007). The findings show that women are concerned that using microbicides would result in economic abuse (Mouradian, 2010), whereby the male partner withholds economic resources or the threat of being chased from their homes. Female participants fear that using microbicides may be detrimental to the well-being of their relationships and pose a threat financial assistance. Addressing the HIV crisis therefore may be futile if women’s economic and structural positions are not addressed.

### ***Covert use may hinder uptake/ adherence***

Microbicides are designed to reduce women’s reliance on male partner cooperation for protection against sexually acquired HIV through the quality of covert use. Evidence from trials and qualitative studies indicate that covert use may be a challenge, particularly for women who live with their partners as using the products discreetly may not always be feasible. In this study, products such as the tenofovir gel and oral truvada were found unappealing due a demanding application regimen which they perceived as placing them at risk of being discovered by male partners.

*Hiding the products can prevent us from using them... like the gel, I can’t ask him to wait... Some men want to go with you to the bathroom, so what will I do when that happens? I can’t ask him to wait outside when I go to the bathroom, some men want to*

*come in with you... Some men do, he's your partner so why not?* (Female participant, Rural, MP, March 2016)

*"The pills may be a problem too. I am on the contraceptive pills but when my daily alarm goes off my husband always looks at me, as if he is wondering what the alarm is for"* (Female participant, Rural, MP, March 2016)

*"You can't keep such things a secret, especially if you live with him in in the same house"* (Female participant, Rural, MP, March 2016)

*"The gel, it will cause me to be too wet, I don't think I will be able to hide it, and he will ask why I am too wet. Sometimes he puts his hand in my vagina because he thinks I was having sex with someone. He will think I am cheating"* (Female participant, Urban, MP, March 2016)

*"...the gel which I have to apply before and after sex. My husband will end up asking why I'm getting out of bed, so it would be difficult to hide it"* (Female participant, Rural, KZN, April 2016)

*"You can't keep such things a secret, especially if you live with him in in the same house. It won't be a secret for long"* (Female participant, Rural, MP, March 2016)

The above findings also showed that although women's control of microbicides may be achieved through secret use, it also has limitations as regular use may require some degree of negotiation between partners, which may hinder adherence.

### ***Low perception of risk may affect acceptance***

Diverse views were raised regarding the perception of risk to HIV, which thus impacts on the decision to whether to accept or in the case of men, to support the use of microbicides. Female participants demonstrated a high perceived risk of infection due to their partner's risky sexual behaviours and their lack of power to enforce the use of condoms. Male participants demonstrated a low perception risk; as they expressed that they can detect whether or not the women they engage in intercourse with may be infected or not. This was demonstrated clearly in a response from a KZN rural male when the researcher asked about the frequency of condom use:

*“It depends on the type of woman you are with at the time. For some women you can tell that I need to use a condom with this one because she is busy”* (Male participant, Rural, KZN, April 2016)

In the case of microbicides, male participants maintained that they were ideal for use by women in casual relationships rather than those in marriages or long-term relationships.

*I believe that if I am married to someone she is having sex only with me, so when she starts using these products saying that she is protecting herself... what is going to happen is, men never admit to cheating, so instead they will shift the blame to the woman, and ask why she is now using the products, and accuse her of not trusting him. So I would also suggest that it be used by young women* (Male participant, Urban, KZN, April 2016)

*“I think those that are in casual relationships because they are the ones that are at high risk of infection”* (Male participant, Urban, KZN, April 2016)

*“Sometimes when you are in a relationship with a woman for a long time, you don’t use a condom. And they cannot start asking you to use it after a long time”* (Male participant, Rural, KZN, April 2016)

*“Once people live together, they stop using protection”* (Male participant, Rural, MP, March 2016)

*“At home we don’t use a condom because she is my wife... I mean what are we protecting ourselves from? The condom is very tight, you can go on for hours and not feel anything, so my wife knows, we don’t use a condom”* (Male participant, Urban, MP, March 2016)

*“What is she protecting herself from? Does she think I am sick?”* (Male participant, Urban, KZN, April 2016)



*“I think for married women, this things would result in divorce, so rather it be used by young people because they are always out at night doing things”* (Male participant, Urban, KZN, April 2016)

Interestingly, some female participants shared the same views;

*“In my opinion, I think prostitutes and girls that like parties, because they are usually the ones who have sex anywhere and anytime. I’m not saying other women should not use them though”* (Female participant, Rural, MP, March 2016)

*“The truth is that men will not allow us to use these products, he will say that it means you are cheating, who are you protecting yourself from because you are married to him?”* (Female participant, Rural, KZN, April 2016)

*Young women because they are highly infected because if you look at married women, it is married men who are cheating, even when they do, women can take it, but you would find that if a young person finds out that her boyfriend is cheating she will go and do the same thing their partner is doing, and when that happens the disease spreads. We also attend parties, and we engage in one night stands. I won’t have a problem if I engage in a one night stand when I have my ring on. So I think the target should be the youth* (Female participant, Rural, KZN, April 2016)

These responses reiterate the argument in chapter two, that misconceptions of low risk of infection amongst people in long-term relationships are due to notions of trust, commitment and familiarity. This shows that people’s interpretations of risk are influenced by social perceptions of the nature of relationships they engage in. Such beliefs breed misconceptions perpetuate unsafe sexual behaviours (Stern and Buikema (2013), which stand as an influential factor towards microbicide acceptance amongst married and long-term partners. The findings are consistent with a study amongst female sex workers (FSW), which found consistent gel use with clients and casual sex partners and much less frequent with primary partners (Greene *et al*, 2010). These findings indicate low acceptance of microbicides by people in long-term relationships, and a possibility for men to disapprove of their partners using microbicides.

### **Health care workers- A barrier to uptake of microbicides**

Microbicides are set to be integrated into the public health system as with existing programmes such as family planning and HIV treatment. However participants foresee potential hindrances in the uptake of microbicides due to some factors within public healthcare facilities.

*“Some nurses in clinics are very judgmental, especially towards young people like me. They will say ‘you are so young but you are already having sex’, they also threaten to go and tell your parents. That can make young people to be afraid to go to the clinic and get these products”* (Female participant, Urban, MP, March 2016)

Participants expressed that negative attitudes from healthcare workers could hinder the uptake of microbicides, particularly amongst younger women. The greatest problem is that some healthcare workers in local health care facilities are members of the communities they serve, which may cause young women to be reluctant to visit the clinics due to fear of being judged and the possibility of their parents and the community knowing about their sexual matters.

A study amongst UKZN female students found that participants felt that if the dapivirine ring involved going to the clinic for insertion then that would be a point of discouragement due to past experience with healthcare workers (Nota, 2016). This suggests that young people, particularly younger women do not find local health care facilities welcoming. This discourages them from seeking health services particularly in local healthcare facilities where they may be familiar with the clinic staff; as observed in a study by Kauffman and Lindauer (2004). This stands as an important point that requires proper examination to make possible acceptance of microbicides amongst young women. First and foremost, reviving the concept of youth-friendly health services seems a plausible entry point to ensuring acceptance and uptake amongst young women (Grimsrud *et al*, 2015). Responding to such dynamics, Van der Straten *et al* (2014) opines that social motivation for PrEP products must be supported across all levels of the social system, this includes health care workers.

An interesting view regarding segregation of patients in health care facilities was raised by a male participant from KZN urban.

*Don't you think these products will cause discrimination between people who are infected and those that are HIV negative? For example, people who are collecting their ARV's in clinics are*

*made to sit alone, and other people can see that they are HIV positive, now there will be people who collect this product for prevention* (Male participant, Urban, KZN, April 2016)

This view suggests that HIV intervention programmes tend to perpetuate discrimination between HIV negative and positive people. Participants are concerned that the roll-out of prevention products in local clinics may perpetuate the discrimination experienced by HIV positive people, who are segregated according to the purpose of their visit in healthcare facilities. The major concern is that knowledge about people's HIV status, as well as other related health issues such as STI screenings and family planning is compromised due to a lack of efficient organizational skills in local healthcare facilities.

This finding is consistent with previous studies that found healthcare workers as the greatest impediment to healthcare access and utilization by community members (Nyblade *et al*, 2009). Recent research (Kubicek *et al*, 2015) highlighted that biomedical approaches such as microbicides require sustainable behaviour change and that calls for change in both the providers and users of the programme. Effective roll-out of microbicides therefore can be realised through further examination of these findings, look into simplifying the distribution process. Issues of comfortability and confidentiality in healthcare facilities, as well as the addressing the challenges posed by healthcare workers residing within the communities they serve.

### **Male involvement in microbicide use**

Evidence from research informs us that women often face challenges with initiating or enforcing the use of barrier methods such as condoms due to power dynamics in heterosexual relationships. Similarly, evidence from trials indicate women's inability to utilise microbicides, despite it being a FIPM for HIV, despite the possibility of covert use. This theme discusses the impact of male involvement in microbicides as a FIPM for HIV.

### **Women prefer to disclose microbicide use**

The inability of women to negotiate condom use to prevent HIV is a key reason for the introduction of a FIPM like microbicides however, a number of studies indicate that women prefer disclosing microbicide use with their male partners. In this study, female participants expressed a desire for a prevention method that allows them total control over HIV however, they demonstrated reluctance to accept microbicides if it meant using them without the male partner's knowledge.

This came up when the researcher asked female participants whether they would disclose or conceal the use of microbicides with their male partners; to which they responded:

*“I cannot do something he does not know, I have to tell him about it, and explain why I want to use it”* (Female participant, Rural, MP, March 2016)

*I don't think he would take it well. It would seem like I'm being unfaithful, so that's the reason I said I would tell my partner. I think love grows when there is communication between two people. Not being able to discuss such things with the person you are in a relationship with means that you don't trust them, and you also don't trust yourself* (Female participant, Rural, MP, March 2016)

*“Men in this community have an old- fashioned mind set. If you don't tell him, he could take it as though you are now keeping things from him”* (Female participant, Rural, KZN, April 2016)

*“I would tell him because men in this community are very traditional, so much that he does not come close to me when I am on my periods, so I would have to tell him because he has such beliefs”* (Female participant, Rural, KZN, April 2016)

*I think if it's a serious relationship, like a partner I live with at home then I should be open about using the products but if it's not serious there is no need to tell him. You can explain to your husband what the product is, and that you want to use it so you can be protected because if you are not open about it and he finds out, it may destroy your marriage* (Female participant, Rural, MP, March 2016)

These responses indicate that despite the availability of products that demonstrate increased discreet use, women feel a strong sense of obligation to discuss microbicide use with their partners. The need to disclose microbicide use is informed by concerns for their relationships, while KZN rural females were concerned about going against men's cultural beliefs. The importance of communication and transparency was strongly emphasised, particularly for long-term relationships, particularly where partners live together.

The findings confirm a large volume of acceptability studies that revealed that although women understand the choice of covert use, they prefer to talk to their partners about using the microbicides (Lanham *et al*, 2014). This also confirms observation that women in developing countries are unequipped for sexual decision- making, hence the inability to make independent decisions for the use of microbicides. Interestingly, the findings contradict the global plight for an HIV prevention method that's grants them total control over their protection against HIV (Mantell *et al*, 2006).

Pool *et al* (2000) argues that men's dominance in sexual matters is linked to women's feelings of disempowerment. Women do not feel that they have control over their sexual and reproductive health even when they would prefer to use other prevention methods like the female condom or microbicides. The findings demonstrate conflict between women's sociocultural defined roles as wives and girlfriends and their acknowledged right to independent protection against HIV (Mantell *et al*, 2009). Cultural gender socialisation of women is apparent in this regard (WHO, 2007; DOH, 2012; Burger, 2005), where women may have the power to have control over their protection against HIV, however they still require the men's consent for use. Walker (2005) observes that legislated 'constitutional sexuality' does not necessarily lead to erosion of longstanding traditional values and roles, nor to immediate shifts in gender relations. Rather, Walker (2005) extends, traditional and modern gender norms co-exist in South Africa, as apparent in the views of women in this study. Drawing from one of the theories employed in this study, the CCA (Dutta, 2008), it is evident that women's cultural contexts need be explored further, to understand how microbicides can be effectively introduced in various cultural communities.

### ***Covert use may result in unacceptability amongst men***

Male participants expressed negative views regarding the quality of covert, articulating that it would be unacceptable for women to use microbicides without the male partner's knowledge or consent. Some men feel that finding out that their partner is using microbicides without their knowledge would destroy trust in their relationship, as they would suspect that the woman has other sexual relations outside the relationship. Some think it may even result in abuse, because they believe if microbicides were not harmful, then there would not be a need to hide them while for some men, discreet use would form basis for objection to microbicide use.

This was revealed through the comments below, elicited when the researcher questioned male participants what their reaction would be if they would find out their partner was using microbicides without their knowledge;

*“It wouldn’t be okay because, when two people are married, or in a relationship there is a principle that we do not keep secrets from each other. Where she will insert these products is where I have to get in, so why must she keep it a secret from me?”* (Male participant, Rural, MP, March 2016)

*“I also would not allow her to use it if she does not tell me, especially if I happen to see the pills or the gel by accident. I would think that she is busy with other things on the side”* (Male participant, Rural, MP, March 2016)

*“I think it is totally wrong for women to use these products without the men knowing. A woman should not put something in her vagina and not tell the man because sex is between them. Why do they even suggest that?”* (Male participant, Rural, KZN, April 2016)

*“If these products are not harmful then they should not have any difficulties telling us men, because when I find out it will raise suspicions as to why she was keeping them a secret”* (Male participant, Rural, KZN, April 2016)

*“She would die if she uses this product without me knowing, especially with those men that beat up women”* (Male participant, Rural, KZN, April 2016)

*If I found out that my girlfriend was using these products in secret... that could destroy my trust because I would think that if anything happens, I t would be because of the products she is using. So I think we need more information on these products so I think it would be better if she applied or used these products at home* (Male participant, Urban, KZN, April 2016)

*“I think it shouldn’t be kept a secret. We should discuss it first and be in agreement because If she does not tell me I will think there are other things that she is doing that I do not know about”* (Male participant, Urban, KZN, April 2016)

Contrasting the dominant views of KZN rural and MP rural men, a low proportion of men from MP rural articulated that women should be allowed to make independent decisions for their protection against sexually acquired HIV.

*“I think no one is 100 per cent faithful as we all make mistakes, so we should all be free to use whatever products work for us to protect ourselves”* (Male participant, Rural, MP, March 2016)

*I believe anyone above 18 years is old enough and they are responsible for their own protection. A man does not have the right to dictate a woman’s choice with regard to her protection because a male is a male, and a female is a female, and both people face different challenges, you see. I think the woman can keep this a secret, and when a man finds out she can explain it to him, if the woman is independent then I think it would be better to pack her bags and leave* (Male participant, Rural, MP, March 2016)

*“I think that she has the right to make her own decision, as long as there is transparency and communication, that ‘baby I have decided to do this’, there is nothing I can do to prevent her from doing it”* (Male participant, Rural, MP, March 2016)

These responses suggest that in some cases women may be able to adopt the use of FIPM such as microbicides. Supporting this finding, Mantell *et al* (2006) rates that such enabling environments are key to ensuring acceptance and effective utilisation of microbicides amongst women.

### ***Open use may facilitate acceptance and support amongst men***

Although discreet use of microbicides may be achievable for some women, sustainability may not be achievable. Male participants believe that male support can be achieved if women are up-front and transparent about using microbicides. Male participants stated that they could assist women by reminding them to use the products, and about their clinic dates to collect the products. Discreet use on the other hand is perceived as posing challenges for adherence as women may not be able to use them in the men’s presence.

*“I can remind her to go to the clinic, or tell her to take her pills, or even help her to put the gel but if I don’t know... she will be afraid to use the gel, because you see*

*sometimes we want to have sex, and she does not know, and I don't want to wait"* (Male participant, Urban, MP, March 2016)

*"Your partner can remind you to go to the clinic and get your supplies, maybe help you to insert the gel"* (Female participant, Rural, KZN, April 2016)

*"I would have to ask her if she has applied the product before we have sex"* (Male participant, Urban, KZN, April 2016)

*"What I think can be the best option, so that there won't be any secrets in our homes, I think it's best to talk about using the products, at least women can be able to use the products freely"* (Male participant, Rural, MP, March 2016)

The findings confirm other previous findings (Dayton *et al*, 2014; Mngadi *et al*, 2014); that found that male involvement impacts positively on acceptance and utilisation of microbicides amongst women. The VOICE-C study found consistent use of microbicides to be higher amongst women whom their partners have knowledge of their use of the products (Montgomery *et al*, 2010). The CAPRISA 004 trial also noted a relation between explicit use and women's adherence to the tenofovir gel (Mngadi *et al*, 2014).

### ***Information can encourage acceptance amongst men***

Educational information is considered to be critically important to men's acceptance of microbicides. Both males and females expressed that they would like for men to be provided with sufficient information about microbicides. Women expressed that they think microbicides can be easily accepted by men if they are explained to them by health professionals, as the message will have more credibility as compared to than when it is introduced by women. Women feel educating men could work in their favour by eliminating suspicions of infidelity and more particularly in the case of KZN rural, information amongst men can eliminate confusion about vaginal enhancement practices in the event that men discover microbicide use as they would have knowledge of the products.

*"It's very important that information about these products is also made available to men as well, so they know how they must live to remain healthy and HIV negative"* (Female participant, Rural, KZN, April 2016)



*“What is important is that they should also be educated about these products, so that they will know, so they won’t accuse us of cheating. If he doesn’t want to understand, let him be and carry on taking your product”* (Female participant, Urban, MP, March 2016)

*“He won’t understand it. I think if you want your partner to know take him to the people who sell it, the clinic or the doctor, maybe he can understand it, because honestly if I come and show him that container, he will think that I want to boost my vagina”* (Female participant, Rural, KZN, April 2016)

*“I personally think I need to tell my boyfriend or husband so that even if we experience some problems he will know that it is because of this product I am using”* (Female participant, Rural, KZN, April 2016)

*I think information is very important because in a case where he finds out that you are using the products, knowing about them can help because at least he will know what they are for, because men discuss such things, so he won’t think you are trying or using ‘muti’ to make your vagina more nice* (Female participant, Rural, KZN, April 2016)

*“We must encourage one another, talk about it openly at home. Also when one person comes and introduces it at home, the other person can say I have seen this before, so there is no need to use it in secret because we will both have some form of knowledge about it”* (Female participant, Rural, KZN, April 2016)

Men expressed that if they are provided with sufficient information regarding microbicides, they also would be able to introduce them to their female partners by reminding them of other possible ways of getting infected such as sexual assault.

*“I think educating men about the products, raise awareness in both men and women. I think that would help because men will not think that women are cheating when they suggest to use these product”* (Male participant, Rural, KZN, April 2016)

*“This is a good initiative however women should tell us about using these products. If its gonna take her to take me to the clinic for information and training then she must do it*

*because it is important for them to be open about it however” (Male participant, Rural, KZN, April 2016)*

*“I think information is very important because in a case where I finds out that you are using the product, knowing about them can help because at least I will know what they are for, because men talk about such things, so at least he won’t think you are cheating” (Male participant, Rural, KZN, April 2016)*

An interesting view on male support came up in the discussion amongst KZN rural males,

*“I can try to introduce it to her, try to explain to her the other possible ways of getting infected, things such as rape... Women also cut their hair, or tweeze their eyebrows using a razor, sometimes using the same blade” (Male participant, Rural, KZN, April 2016)*

Consistent with previous findings (Dayton *et al*, 2014), participants expressed the need for men need to be taught about microbicides, as they believe it could minimize suspicion of infidelity and other problems where men mistake microbicides for products such as snuff, which women often use to enhance their vaginas for the men’s pleasure. Furthermore, studies show that male involvement can increase community acceptance and reduce stigma around the product, improve communication about sexual matters and increase shared responsibility for protection (Woodsong 2006; Montgomery 2011; Schuler *et al*, 2013; Montgomery *et al*, 2010). A study by Zulu and Chepngeno (2003) found that couples who had access to HIV and AIDS information were more likely to have discussions on sexual risk and protection, The study also confirms a study on contraception, Sharon Edwards (1994) noted that the participants believed that men will only take responsibility for family planning methods if they are considered as having as much responsibility as women for reproductive health care.

### ***Male-Supported or Female-Initiated prevention methods?***

Much controversy has come forth regarding the issue of male involvement in microbicide use. The argument is whether involving men would be favourable or further disempowering to women’s agency for their protection against HIV. The decision to involve men in this study was encouraged by the need to examine the impact of male involvement in acceptance and promote utilisation and adherence amongst females. As argued in Chapter Two, intimate partners have great influence

on behaviour change (Mathew, 2012). The influence of partners in adopting microbicides was also discussed in this current study during discussions on the issue of covert use. Female participants stated;

*“But let’s be honest, some men will not allow their women to use these products”*

(Female participant, Rural, MP, March 2016)

*“And once you tell him that you are using these products they might ask what it’s for, and you’ll have to tell them that they are for HIV prevention... then they will say no”*

(Female participant, Rural, MP, March 2016)

*“What can I say... he won’t be happy about it, but he would also not allow me to use the products if I told him so, I would not tell him”*

(Female participant, Rural, MP, March 2016)

*“Why would you even tell him? Some women do not think carefully about things, you can’t tell your partner that you are on contraceptives because he won’t allow you. It’s going to be the same with these things”*

*“I would not tell him because men have a lot of questions, and even when they know about something, they do not allow us to do it”*

(Female participant, Urban, MP, March 2016)

*“I would not tell him because men have a lot of questions, and even when they know about something, they do not allow us to do it”*

(Female participant, Urban, KZN, April 2016)

*“Our partners don’t even want to see the family planning card, so how much more with microbicides?”*

(Female participant, Rural, MP, March 2016)

Some women were afraid disclosing microbicide use would result in men making excuses to use against utilisation. This was captured from the following responses:

*“That’s where the problem is... that when you tell them, for instance with the contraceptive injection, they say things like your vagina is not tight enough, but when you haven’t told them they don’t notice any difference”*

(Female participant, Rural, MP, March 2016)

*“I think hiding the products is good because, once you tell him, he will start noticing even the smallest things when you are having sex. He will complain about side effects”*

(Female participant, Rural, MP, March 2016)

Female’s views on the issue of disclosing microbicides includes the fear that men would object to using them. Drawing from their experiences with female-centred programmes such as family planning, women demonstrated certainty that men would be against microbicides use. This observation is supported by other studies (Mantell *et al*, 2005; Nota, 2016), that offering women uncontested protection may be perceived as posing a threat to men’s dominant positions in relationships and in sexual decision-making. Other studies (Lanham *et al*; 2014, Moodley, 2007) caution against the possibility of diminishing women’s autonomy to decide whether or not to adopt the use of microbicides. This finding therefore sustains the recommendation to promote “Male-Supported Female- Initiated” (MSFI) methods (Govender and Nota’s, Forth coming), rather than the previously proposed female-initiated prevention methods (FIPM) methods.

## **Summary of findings**

The findings revealed;

- Varying product acceptability amongst men and women- based on product characteristics, the dosing regimen, and the application process.
- Long-term, less user-reliant products and non-interference with male sexual pleasure are key to the success of PrEP products.
- Male sexual pleasure precedes the need to protect against infection
- The study also found that partial efficacy is deemed futile.
- Women are not empowered to make independent sexual decisions
- Covert use of microbicides is not the most appealing quality, perceived as impractical and culturally inappropriate, and potentially harmful for women.
- While male involvement has the potential to promote acceptability and uptake in other contexts, it can be detrimental in other contexts- taking away from the initial goal of microbicides to empower agency and autonomous decisions for sexual protection amongst women.
- Open use could result in risk compensation. Microbicides may be used as a substitute for condoms.

## CHAPTER SIX: DISCUSSION

### Introduction

This study explored the perceptions of men and women across urban and rural settings in Durban and Nelspruit towards microbicides as female-initiated HIV prevention methods for women. A major part of this research sought to build on a paucity of studies assessing the impact of male involvement in female-initiated prevention methods (FIPM), as well identifying if doing so can help in promoting and acceptance and uptake of microbicides amongst women.

The study was located within the Social Ecological Model of Communication Health Behaviour (SEMCHB) and the Culture-Centered Approach (CCA), examining women's acceptability and use of microbicides amongst the greater structures of social networks and the community, while also examining microbicides viability within the various cultural contexts. The SEMCHB and CCA proved to be appropriate frameworks to examine the perceptions of males and females towards microbicides. At the core of the SEMCHB is the importance of understanding the impact of various structures of social networks, the community and society on individual behaviour change. While environmental factors such as socio-cultural, structural and economic factors also have the greatest influence on health behaviour. Central to the CCA is the notions that the best approaches to HIV prevention should create platform for the people whom the intervention programme is designed. This approach leads to the understanding that these biomedical tools must be culture-sensitive in order to be relevant and effective for women in diverse contexts. These theories therefore assisted in examining the perceptions of microbicides through various structures of influence.

The data was gathered through the CCA, which encouraged dialogue and critical thinking amongst the male and female participants on the subject of microbicides as FIPM. The data was analysed through thematic analysis, which involved re-reading the data and searching for recurrent themes and thereafter discussing the data under the identified themes. This chapter thus provides a discussion of the study findings captured through the following themes:

*1, Perception of microbicides; 2, Microbicide: Varying product acceptability between males and females; 3, Barriers to product use; 4, The impact of male involvement in a female-initiated prevention method.*

In the next section of this chapter, the discussion will be systematically presented under each of the study's objectives below:

***To investigate men and women's perceptions of microbicides as a female-initiated HIV prevention method.***

In investigating the perceptions of microbicides, the study found generally positive views and attitudes towards microbicides as a possible prevention method against HIV. A large proportion of male and female participants from all study settings were aware of the risk of HIV infection amongst women. It is encouraging therefore to note that participants comprehend the need for additional prevention methods for protection against HIV acquisition, especially in the absence of an effective HIV and AIDS vaccine.

The possibility of options to be provided by microbicides in the near future was perceived positively women across all settings, as they expressed a need for prevention methods that offer them heightened control of their protection against HIV. Reasons provided in support of microbicides included the inability to initiate condom use due to the fear of physical or financial abuse, alcohol use- often resulting in non-use of the condom, and challenges with using the female condom covertly. Other reasons were due to the desire to have the option to choose a product that aligns with one's lifestyle. Confirming the widely acknowledged need for multiple prevention methods so as to widen prevention options for women, thus increasing their ability to protect themselves against HIV (Peters *et al*, 2010).

Further evaluation of participant's perceptions towards microbicides yielded negative views amongst men. Despite knowledge of high risk of infection, a large proportion of men reported that PrEP products should be used only by younger women, uncommitted women and promiscuous women. These findings are disturbing, as a high proportion of men admitted to engaging in multiple and concurrent sexual relations. Some male participants stated that protection is not used for all sexual acts, but only with women they believed to be promiscuous therefore this entails a high risk of infection. For married and cohabiting women, this may present an even greater risk as the norm across all settings remains that barrier methods are not to be used in such relationships. The results are consistent with those of other studies (Woodsong, 2004; Greene *et al*, 2010), in which barrier methods were viewed as inappropriate for use by married couples or people in long-term relationships.

The study also found that the production of products that offer partial efficacy is a futile attempt towards HIV prevention. A fatal attitude was noted amongst men who perceived microbicide's

partial efficacy as providing false hope for protection. The requirement to be used in conjunction with the condom was perceived negatively. Male participants demonstrated possible risk compensation due to the preference for unprotected sex. The results demonstrate a high probability of condoms being substituted for PrEP products. The results therefore suggest that men's acceptance of microbicides would be encouraged by perceived ability to engage in condom-less sex. While this may encourage the use of microbicides, it can also be detrimental as women would still be partially exposed to HIV. This affirms a study by Woodsong (2004), that male involvement may impact negatively on women's autonomy for protection; as they may be forced into using microbicides unwillingly by men who prefer microbicides over condoms (Woodsong, 2004).

Long-term protection and non-interference with sexual pleasure appears to be key to the success of PrEP products. Varying product acceptability, based on the product characteristics, dosing regimen, and the application process. Both male and female participants in all study settings demonstrated a substantially high acceptance for the injectable PrEP. Four main reasons largely accounted for the preference to use the injectable: the familiar dosing strategy, its feasibility due to long-term protection, accommodative of spontaneous sex and non-interference with male sexual pleasure.

The study found that microbicide use may be challenging for married and cohabitating couples. Daily oral Truvada was considered safe and familiar however, daily intake is not the most appealing quality. The findings suggest that oral Truvada may not be easy to adhere to, mainly due to the possibility of failing to adhere to routine. The tenofovir gel's dosing regimen is found unappealing and impractical. Concerns included the likelihood of not being able to use the gel for every sexual encounter, as sex is mainly unanticipated. The lubricative properties were of greatest concern. For female participants, excessive wetness of the vagina could result in of unfaithfulness, while male participants were more concerned about how it could affect their sexual pleasure, due to the dominant preference of dry sex. The dapivirine ring was found to be a considerable option, after the injectable, mainly due to the long-term protection offered however, the product characteristic and its application process was found undesirable by a high proportion of men and women. Women are worried that the ring may be uncomfortable, that it may fall out or that the male may feel it during sex. Men on the other hand disapprove of a product that is applied through the vagina, this includes the tenofovir gel. In the case of KZN rural men, the dislike of vaginal application is informed by the trend of vaginal practices for vaginal enhancement amongst women in the community. Products such as tenofovir gel and the dapivirine ring

therefore are most likely to be rejected in such contexts. The most preferable product was the injectable, due to the long-term protection which is perceived as addressing issues of spontaneous sex, frequent clinic visits or the possibility of being discovered by the male partner.

The findings are consistent with those from another microbicide acceptability study (Ramjee *et al*, 2001), which found that men were against prevention methods that interfere with sexual pleasure. The findings suggest that the proposed microbicide products may still not be sufficient for effective prevention of HIV amongst women. Women desire a long-term, less user-reliant prevention method, with a desirable application regimen that does not include vaginal insertion or application, or affect sexual pleasure.

***Identify the underlying socio-cultural, economic and structural factors that may impede acceptance and utilisation of microbicides as an HIV prevention method.***

Given the patriarchal and cultural context of South Africa, perceptions of covert use of microbicides as an unappealing quality were common amongst male participants. The greatest factor influencing men's decision against microbicides is the perceived threat it hovers over men's dominant positions in sexual relationships. The main reason informing this view is the control of discreet use that microbicides offers women, perceived as having the likelihood to encourage unfaithfulness amongst women due to uncontested protection. Men's concerns about the potential of infidelity amongst women overshadows the acknowledged need for women's protection. Overall, men demonstrated a sense of entitlement to being informed and involved in the decision to use, and about which product to use, if at all utilisation is allowed.

The findings are consistent with Nota's (2016) study that men are likely to be against microbicides due to the perceived threat over men's dominant position in sexual decision-making. Therefore it is evident that women's decisions to use protection is influenced by various notions nested within gender inequality (Beksinska *et al*, 2012).

For women, the utmost pronounced difference was on views regarding covert use. Although women demonstrated a clear understanding of the option of discreet use. A high proportion of women were against discreet use of microbicides due to issues of communication, trust and commitment, particularly in long-term relationships. Older women in particular demonstrated an obligation to disclose microbicide use, while younger women demonstrated more empowerment, expressing that they do not require the male partner's permission for use. The findings show that women in these settings are not empowered to make independent decisions on sexual protection.



Cultural and socio-economic imbalances between men and women were identified as key barriers to acceptance of microbicides, the cultural aspect applying mostly in KZN rural.

Moreover, high proportions of women across all settings in this study expressed concerns on adherence when microbicides are used covertly. Concerns included not being able to use microbicides in the men's presence which could hinder adherence, the inability to store the products at home, and the constant worrying about being discovered by the male partner, which could result problems in relationships- IPV, financial abuse, etc.

***Explore the impact of male involvement in acceptance and use of microbicides.***

The study found that male involvement in the use of microbicides has complexities. The results indicate that including men could encourage acceptance and uptake however, there is likelihood that doing so could be detrimental; as it could take away from the initial goal of empowering women to make independent decisions for their sexual health. Although male involvement has been found to be successful, and is increasingly encouraged in promoting acceptance and use of microbicides (Lanham *et al*, 2014; Kelly *et al*, Mngadi *et al*, 2014), the findings indicate that it needs to be explored further because, as with covert use, this recommendation may not be applicable to all women.

## CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATIONS

### Introduction

The first chapter sought to highlight the statistics relating to HIV and AIDS prevalence globally and more particularly in South Africa. The second chapter reviewed literature *on HIV amongst women*, the underlying factors that perpetuate women's susceptibility to HIV infection, the history of prevention strategies and methods for women to date, microbicides as possible female-initiated prevention methods (FIPM) and the issue of male involvement in microbicide use. In Chapter Three, the study is placed within an ecological perspective, whereby Kincaid et al's (2007) Social Ecology Model of Communication and Health Behaviour (SEMCHB) was employed and within the Culture-Centered Approach (CCA). The perceptions on microbicides were thus examined within the greater structures of social networks and the community and the various cultural contexts. Chapter four discussed the research methods and data collection procedures employed in the study. The research methods included a case study as a research design under the qualitative approach, using focus group discussions (FGD) for data collection and thematic analysis for analysing the data. Chapter five provides an analysis of the data under the study objectives to show the success of the study in relation to its objectives. In chapter five, a discussion of the findings is presented. In the final chapter (Chapter Seven), an overall conclusion for the study is provided, as well as recommendations for future research.

### Conclusion

While the development of microbicides has brought hope that the HIV crisis amongst women can be controlled, the effectiveness of these new prevention technologies can only be realised when there is acceptance as well as correct and consistent use amongst women. In addressing the issue of decision-making for protection, efforts should be extended to understanding relationship power dynamics in heterosexual relationships and how these can impact on women's acceptance and up-take of microbicides as prevention methods for HIV.

While there is an acknowledged need for male involvement, it is critically important that the goal to empower women is not neglected. Greater emphasis should still be placed on empowering women to make independent sexual health decisions in cases where involving men could be detrimental. Overall the findings argue that while male involvement may yield positive outcomes such as adherence and partner support in some settings, this may not be achievable in some

settings. Understanding relationship norms therefore is imperative to acceptance and use of microbicides.

### ***Recommendations***

In view of the above-mentioned findings, the following recommendations are made:

#### **1. Focus on empowering independent decision-making amongst women**

Firstly, the recommendation to promote partner support needs to be explored further because it may not be feasible for all women. Presenting and promoting microbicides as requiring male support may be misleading, resulting in misinterpretations where male partner involvement is understood as a requirement and therefore resulting in challenges for women who choose not to disclose. As a result, the decision on how to use microbicides should be left at the hands of women, as an option (Nota, 2016). Much emphasis however must be placed on empowering women to make independent sexual decisions without involving the male partner.

#### **2. Further exploration of the impact of male involvement in microbicide use**

Inconsistencies regarding the quality of covert use amongst women call for further assessment of what works for women. While covert use is desired for ensuring adherence, this however may not be achievable when microbicides are used covertly. On the other hand, disclosing microbicide use may further disempower women, as it could take away from the initial goal of empowering women to make independent decisions regarding their protection against sexually acquired HIV. Development and policy makers have a task to explore the issue of male involvement, in identifying effective solutions for cases where the attempt to involve men harvests unfavourable results.

#### **3. Focus on possible risk compensation**

It is critically important to understand that demonstrated acceptance of microbicides amongst women may not translate into adoption or use, while use may not necessarily entail protection. In a context where the use of condoms is at a decline, due to preferences for unprotected sex, the use of microbicides may be as detrimental as non-use of condoms, if not worse. It is apparent that microbicide use may substitute the use of condoms as prevention methods against HIV infection. Development planners need to specifically and specially target marital and cohabitating couples, offer partner-tailored informational and educational programmes to create and increase understanding of microbicides on both partners, so as to eliminate non-use of condoms once women commence use of microbicides.

# Appendices

## Appendix 1: Ethical approval letter



12 November 2015

Ms Londeka S. Mbewe 210547513  
School of Applied Human Sciences  
Howard College Campus

Dear Ms Mbewe

Protocol reference number : HSS/0876/015M

Project title: Microbicide acceptability and utility study: Investigating perceptions of men and women across urban and rural settings in Durban and Nelspruit.

#### Full Approval – Full Committee Reviewed Protocol

In response to your revised application received on 10 November 2015, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

**PLEASE NOTE:** Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Dr Shenuka Singh (Chair)

/ms

cc Supervisor: Dr Eliza Govender  
cc Academic Leader Research: Dr Jean Steyn  
cc School Administrator: Ms Ayanda Ntuli

Humanities & Social Sciences Research Ethics Committee

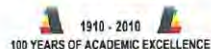
Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: [zimhap@ukzn.ac.za](mailto:zimhap@ukzn.ac.za) / [snymam@ukzn.ac.za](mailto:snymam@ukzn.ac.za) / [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Website: [www.ukzn.ac.za](http://www.ukzn.ac.za)



Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

## **Appendix 2: Focus group guiding questions**

The study will consist of twelve focus groups that will each be an hour and a half long. Each focus group will comprise of eight to ten participants, four of which will be males only, another four being females only, as well as four mixed groups with an equal number of males and females. The researcher will start by providing background information on microbicides in order to ensure that the participants understand the subject of the study they are being questioned about. The researcher will make it clear that no product will be administered or promoted, this is simply research on the people's perceptions on microbicides. Participants will be told upfront that these products are undergoing clinical trial and are not available and may not be available in the future, we just want to gain insight into what they think about the product if it was to be available. The researcher will start by asking more general questions such as the participant's knowledge about HIV, other female prevention methods and then move onto microbicide studies.

### **Questions for female participants**

#### **1. What knowledge do you have of the HIV pandemic amongst women?**

- Do you know of any female-centred HIV prevention methods?
- Do you think those methods are enough, considering the high rate of HIV infections amongst women?
- Do you think those methods have been successful in preventing new HIV infections among women?
- Do you think there is a need for more HIV prevention methods women can use?

#### **2. What are your views and opinions about microbicides as a future prevention method for HIV amongst women?**

- Who do you think should use microbicides?
- 
- What are your views about the ability for microbicides to be used by females without the male partner's knowledge?
- Do you think microbicides are practical for women all women, or is there still a need for more context- specific prevention methods?

#### **3. What are the factors that you believe may prevent women from using microbicides?**

- How do you think these factors can be addressed to ensure effective use of microbicides?

#### **4. What would your male partner's reaction be if he were to discover that you are using microbicides?**

- Would you stop using microbicides if your partner discovered its use, and why?

### **Questions for male participants**

1. What do you know about HIV?
2. What are your views on available prevention methods for HIV?
  - Do you think those methods have been effective in preventing new HIV infections to date?
  - Do you think there is a need for diverse HIV prevention methods, including ones that women can use?
3. How different do you think PrEP products are from available prevention methods such as male and female condoms?
  - Which microbicide product would you prefer your female partner to use?
  - What motivates your choice?
  - What do you think of the other products in relation to your sex life- (convenience, comfort, etc)?
4. What are your views about the ability of microbicide to be used without the male partner's knowledge?
  - Do you think females should consult their male sexual partners about utilizing microbicides?
  - What would your reaction be if you were to find out your female partner was using microbicide without your knowledge?
5. Would you support your female partner in using microbicides?
  - Do you think you can influence your partner's decision to use microbicide?
  - What role do you think you can play in encouraging your female partner to acceptance and adhere to microbicides?

### **Appendix 3: English informed consent form**

**Topic:**

**Correspondence with interviewees: Letter of invitation to participate in the study**

Dear Sir/Madam

My name is Londeka Mbewe, I am writing to request your participation in a research project titled *Microbicide acceptability and utility study: Investigating perceptions of men and women across urban and rural settings in Durban and Nelspruit*.

The study is conducted under the supervision of University of KwaZulu-Natal Centre for Culture and Media in society (CCMS), under the supervision of Dr Eliza Govender. The study sets out to identify the feasibility of microbicides in HIV prevention amongst women in urban and rural settings.

You are therefore requested to participate in a focus group discussion that will take place at ..... On ... The day of .....2016.  
The duration of the focus group will be an hour and a half long, commencing at 13h00pm to 14h30pm. I am requesting your permission to record the focus group proceedings for the purpose of this research.

The data obtained through the focus group will be kept securely for a period five years for purposes of verification by the supervisor, Dr Eliza Govender, at the University Of KwaZulu-Natal. Should the participants' request it, an electronic copy of the final thesis will be sent to them on completion.

Participation in this study is voluntary. Participants will not be paid for in money, however, they will be provided with refreshments. Participants may withdraw from the research at any time without any negative consequences. In general, responses will be treated in a confidential manner however, participants are urged not to disclose any personally sensitive information during the research proceedings. I will not use confidential information without the participant's permission. Participants will be treated with respect and dignity, and they will not be deceived or tricked into reality information unwillingly. I will provide a consent form that includes approval for publishing names, in a case where the respondents have asked for anonymity, they will be referred to by a coded number system or pseudonyms.

Please note that this HIV prevention method that is still undergoing various clinical trials, therefore there are no licensed microbicides available in the public health service at the moment. The importance of the study lies in uncovering the underlying factors that may impede or facilitate the use of microbicides. The purpose is to identify ways in which to promote acceptability and ensure effective utility and up-take in each context.

Your willingness to participate in this study will greatly be appreciated.

## Appendix 4: Zulu Informed consent form

### Isihloko:

**Inkulumo nabazoba ingxenye : Inqwadi yesimemo sokubamba iqhaza kulolu cwaningo.**

Mnumzane/Nkosazane

Igama lami ngu Londeka Mbewe, Ngibhalela ukucela ukuthi sizohlanganyela ucwaningo engizobe ngilenza. Isihloko salolu cwaningo sithi: *Ukwamukelwa noku setshenziswa kwe microbicide: Ucwaningo lwemibono yabantu besilisa nabe sifazane ezindaweni zase madolobheni nase makhaya eThekwini nase Naspoti.*

Lolucwaningo lwenzelwa ngaphantsi kwemigomo ye Nyuvesi ya KwaZulu-Natal, Centre for Communication, Media and Society (CCMS), ngaphansi komhloli u-Dokotela Eliza Govender. Lolu cwaningo luphenya ukuthi ukusetshenziswa kwale microbicide ingabe buhambiselana nabuphi ubunzima ekusetshenzisweni kwayo njenge ndlela eyokuvikela igciwane le sandulela ngculaza ezindzaweni zase dolobheni nase makhaya.

Ingqikithi yalolu cwaningo lilele ekutheni kutholakale izimo ezinga vimbela noma ezinga thuthukisa ukuthi abantu besi mame bakwazi ukusebenzisa ama microbocides. Iphinde ibheke ukuthi lezo zimo zingalungiswa kanjani, nanokuthi abantu besilisa bangasetshenziswa kanjani ekutheni bakhuthaze omama ukuthi bamukele, basebenzise, baphinde baqhubeke nokusebenzisa lama microbicide ukuze bazivikile ekutholeni isandulela ngculaza.

Uyacelwa ukuthi uzohlanganyela kule ngqoxo ezoba khona e.....  
ngomhlaka..... enyangeni ya .....2016. Lengxoxo izothatha isikhathi esi ngange hora nemi zuzu engamashumi amathathu. Izoqala nge hora lokuqala (13h00) kuye ku hora lesibili namashumi ama thathu (14h30) emini. Ngicela imvumo yakho ukuthi ngisebenzise i-tape recorder uma ngenza lolu cwaningo khona ngizokwazi ukulalela uma sengi hlaziya imiphumela.

Lemininingwane ezotholwa kulolu qwaningo izo bekwa ehhovisi lika Dokotela Eliza Govender, eNyuvesi ya KwaZulu-Natal iminyaka emi hlanu. Lokhu kwenzelwa ukuthi kuzobuyela kuyo uma kudingeka isiqiniseko esithize mayelana nalolu cwaningo. Uma labantu abazoba ingxenye yalolu cwaningo bazocela ukubona lomsebenzi, bazo thunyelelwa imiphumela yalomsebenzi uma umcwaningi ese qedile.

Abazobamba iqhaza kulolu cwaningo bazobe bayi ngxenye yalo ngokuzi nikezela. Abantu ngeke bakhokhelwe ngemali, kodwa bazophiwa okuncane okuya ethunjani. Abantu banga yeka noma inini ukuba ingxenye yalolu cwaningo ngaphandle kokuthi kube khona okubi okubehlelayo. Izmpendulo zabantu zizofihlwa, ziphathwe ngentlonipho kodwa abantu baya nxuswa ukuthi bangakhulumi ngezinto noma izindzaba zabo abangeke bafune ukuzi dalula kalula.

Umcwaningi ngeke asebenzise ulwazi azoluthola kulolu qwaningo ngaphandle kwemvumo yabantu ababe yingxenye yalo lolu cwaningo. Abantu bazophathwa ngentlonipho enkulu, ngeke futhi bakhohliswe ngokuthi bakhulume ngezinto ezihambisana ngqo nezimpilo zabo nolwazi abangeke bathande ludalulwe ngaphandle kwemvumo yabo. Umcwaningi uzo nikeza abantu ifomu abazoli sayina, elizobe lichaza ukuthi abantu bayamuvumela ukuthi asebenzise amagama



abo eqiniso noma okuzalwa, noma aqambe amagama amanga uma bangathandi ukuthi kubhalwe amagama abo.

Ngicela ukuthi wazi ukuthi i-microbicide isa cwaningwa, yikho akukho lapho itholakala khona. Okubalulekile ngalolu cwaningo ukuthi kutholakale lezinto ezingavimbela abantu besi fazane ukuthi basebenzise ama microbicide njengendlela yokuzivikela ukuthi bathole isifo se sandulela ngculaza. Lokhu kuzo siza ekutheni abantu abenza le microbicide yokuvikela isandulela ngculaza bakwazi ukwenzela bonke abantu besi fazane kuzo zonke izindawo, nanokuthi kutholakale izindlela ezingasiza ekutheni bonke abantu besi fazane bayamukele, baphinde baqhubeke noku sebenzisa ama microbicide.

Nginga bonga kakhulu uma ungavuma ukuzobamba iqhaza uphinde ube ingxenye yalolu cwaningo

## **Appendix 5: Swati informed consent form**

### **SIHLOKO:**

#### **Inkhulumo nalabatoba incenye: Incwadzi yesimemo sekuhlanganyela kuleli cwaningo**

Mnumzane/Nkhosikati

Ligama lami ngingu Londeka Mbewe, Ngibhalela kucela kutsi utohlanganyela kuleli cwaningo lengitobe ngilenta lesihloko lesitsi: *Kwamukelwa neku setjentiswa kwe microbicide: Licwaningo lwemibono yabo babe nabo make etindzaweni tase madolobheni nase makhaya eThekwini nase Naspoti.*

Leli cwaningo lwentelwa ngaphansi kwemigomo ye Nyuvesi ya KwaZulu-Natal, e-Centre for Communication, Media and Society (CCMS), ngaphansi kwe mhlozi Dokodela Eliza Govender. Lelicwaningo liphenya kwekutsi ngabe imicrobicide inga sebentiseka lula njenge ndlela yokuvikela ligciwane le HIV kubo make etindzaweni tase madolobheni nase makhaya.

Ingcikitsi yaleli cwaningo incike ekutseni kutfolakale letintfo letinga vimbela noma letinga tfulukisa kutsi bantfu bomake bakhone kusebentisa i-microbicide. Iphindze ibuke kutsi leto tintfo tinga lungiswa njani, nanokutsi bantfu besilisa bangasetjentiswa ngayiphi indlela ekutseni bakhutsate bomake kutsi bamukele, basebentise, baphindze bachubeke nekusebentisa i-microbicide.

Uyacelwa kutsi utohlanganyela kuleti ngcogco letotoba khona e..... mhlaka..... enyangeni ya .....2016. Letingcogco titawu tsatsa sikhatsi lesi ngange lihora nema minitsi lalishumi lamatsatfu. Itawucala ngensimbi yekucala (13h00) kuye ku yesibili nemashumi lamatsatfu (14h30) emini. Ngicela imvumo yakho kutsi ngisebentise i-tape recorder uma ngenta leli cwaningo ngitokwati kulalela uma sengihlatiya miphumela.

Lemininingwane letawu tfolwa kuleli cwaningo itawu bekwa ehhovisini la Dokodela Eliza Govender, eNyuvesi ya KwaZulu-Natal minyaka lesihlanu, kwentele kutsi kutawubuyela kuyo uma kudzingeka siciniseko lesitsite mayelana naleli cwaningo. Uma labantfu labatawu tsatsa incenye kuleli cwaningo batocela kuwubona, batotfumelelwa miphumela yaleli cwaningo uma mcwaningi sekacedzile.

Labatotsatsa incenye kuleli cwaningo benta njalo ngeku nikelela. Bantfu ngeke babhadalwe ngemali, kepha batophiwa lokuncane lokuya ethunjwini. Bantfu banga yekela noma ngabe ngunini kuba incenye yaleli cwaningo ngaphandle kwekutsi kube khona lokubi lokunga behlela. Timphendvulo tebantfu titawu fihlwa, tiphatswe ngenhlonipho kepha bantfu baya ncuswa kwekutsi bangakhulumi ngetintfo noma tindzaba tabo lebangeke batsandze kutsi tatiwe ngulabanye bantfu.

Mcwaningi ngeke asebentise lelwati latalutfo kuleli cwaningo ngaphandle kwemvumo yebantfu lebabe yincenye yaleli cwaningo. Bantfu batophatswa ngalengkhulu inhlonipho, ngeke futsi bakhohliswe ngekutsi bakhulume ngetintfo letihambisana ngco netimphilo tabo noma lebangeke batsandze kutsi tatiwe ngulabanye bantfu ngaphandle kwemvumo yabo. Mcwaningi utawu nika bantfu lifomu lebatawuli sayinda, lelitobe lichaza kutsi bantfu bayamuvumela kwekutsi asebentise magama abo eliciniso noma ekutalwa, noma acambe emagama emanga uma bangatsandzi kwekutsi kubhalwe emagama abo.

Ngcicela kutsi wati kwekutsi ma microbicides asa cwaningwa, kungako akukho lapho itfolakala khona. Lokubalulekile ngaleli cwaningo kuseku tzeni kutfolakale letintfo letingavimbela bafati ekutseni basebentise imicrobicide njengendlela yekutivikela kutsi bangatfoli i-HIV. Loku kutosita ekutseni bantfu labenta letinsita bakwati kwentela bonkhe bafati kuto tonkhe tindzawo, nekutsi kutfolakale tindlela letingasita ekutseni bonkhe bafati bamukele, baphindze bachubeke neku sebentisa lendlela yekuvikela i-HIV.

Nginga bonga kakhulu uma ungavuma kuba incenye yaleli cwaningo.

#### Details of the researcher and institution of research:

|                    | address  | Phone Number                | Email address  |
|--------------------|--|-----------------------------|--|
| <b>Researcher</b>  | <b>Miss<br/>Londeka<br/>Shereen<br/>Mbewe<br/>Stand no.<br/>131<br/>Mataffin,<br/>Nelspruit<br/>1205</b> | <b>+27-73-612-<br/>1656</b> | <b><a href="mailto:londekaowami@gmail.com">londekaowami@gmail.com/</a><br/><a href="mailto:210547513@stu.ukzn.ac.za">210547513@stu.ukzn.ac.za/</a></b> |
| <b>Department</b>  | <b>Centre for<br/>Culture and<br/>Media in<br/>Society<br/>(CCMS)</b>                                    | <b>+27-31-260-<br/>2505</b> | <b><a href="http://ccms.ukzn.ac.za/Homepage.aspx">http://ccms.ukzn.ac.za/Homepage.aspx</a></b>   |
| <b>Institution</b> | <b>University of<br/>KwaZulu-</b>  | <b>+27-31-260-<br/>1813</b> | <b><a href="http://www.ukzn.ac.za">www.ukzn.ac.za</a></b>  |

|   |   |                             |   |  |
|---|---|-----------------------------|---|--|
|   | <b>Natal<br/>(UKZN)<br/>Howard<br/>College<br/>Campus,<br/>Masizi<br/>Kunene Ave,<br/>Glenwood,<br/>Durban,<br/>South<br/>Africa.</b> |                             |   |  |
| <b>Supervisor</b>   | <b>Dr Eliza<br/>Govender<br/>Centre for<br/>Communication, Media<br/>and Society<br/>(CCMS)</b>                                       | <b>+27-31-260-<br/>1044</b> | <a href="mailto:Govendere1@ukzn.ac.za"><u>Govendere1@ukzn.ac.za</u></a> |  |
| <b>Chair, UKZN<br/>Human<br/>Sciences<br/>Research<br/>Committee</b>  | <b>Dr. Shenuka<br/>Singh</b>  | <b>+27-31-260-<br/>8591</b> | <b>singshen@ukzn.ac.za</b>  |  |
| <b>Committee<br/>Clerk, UKZN<br/>Human<br/>Sciences<br/>Research<br/>Committee</b>  | <b>Mr. Prem<br/>Mohun</b>   | <b>+27-31-260-<br/>4557</b> | <b>hssrechumanities@ukzn.ac.za</b>                                      |  |
| <i>Please do not hesitate to contact any of the above persons, should you want further information on this research, or should you want to discuss any aspect of the interview process.</i> |   |                             |   |  |

**Signed consent**

|  |                              |                             |
|--|------------------------------|-----------------------------|
| <ul style="list-style-type: none"> <li>• I understand that the purpose of this interview is for solely academic purpose. The findings will be published as a thesis, and may be published in academic journals.</li> </ul> | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• I understand I may choose to remain anonymous. (Please choose whether or not you would like to remain anonymous.)</li> </ul>  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• I understand that I may choose whether or not my name will be quoted in remarks and or information attributed to yourself in the final research documents.</li> </ul>             | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|  |  |             |
|--|--|-------------|
| • I choose to use a pseudonym, not my real name.   |  |             |
| • I understand that I will not be paid for participating but a small, non-monetary souvenir will be given.                           | Yes <input type="checkbox"/> No <input type="checkbox"/> |             |
| • I understand that I reserve the right to discontinue and withdraw my participation any time.                                       | Yes <input type="checkbox"/> No <input type="checkbox"/> |             |
| • I consent to be frank to give the information.   | Yes <input type="checkbox"/> No <input type="checkbox"/> |             |
| • I understand I will not be coerced into commenting on issues against my will, and that I may decline to answer specific questions. | Yes <input type="checkbox"/> No <input type="checkbox"/> |             |
| • I understand I reserve the right to schedule the <i>time</i> and <i>location</i> of the interview.                                 | Yes <input type="checkbox"/> No <input type="checkbox"/> |             |
| • I understand that an audio recorder will be used during the research proceedings.  | Yes <input type="checkbox"/> No <input type="checkbox"/> |             |
| <b>* By signing this form, I consent that I have duly read and understood its content.</b>   |  |             |
| _____  | _____  | _____       |
| <b>Name of Participant</b>   | <b>Signature</b>   | <b>Date</b> |
| _____  | _____  | _____       |
| <b>Name of Researcher</b>  | <b>Signature</b>   | <b>Date</b> |

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Focus Group Discussion 3, MP urban females. Moderated by Londeka Mbewe, in Tekwane South- Nelspruit, March 2016.

Focus Group Discussion 4, MP rural females. Moderated by Londeka Mbewe, in Tekwane South-Nelspruit, March 2016.

Focus Group Discussion 5, MP rural females. Moderated by Londeka Mbewe, in Umlazi-Durban, KwaZulu-Natal, April 2016.

Focus Group Discussion 6, MP rural females. Moderated by Londeka Mbewe, in Umlazi-Durban, KwaZulu-Natal, April 2016.

Focus Group Discussion 7, MP rural females. Moderated by Londeka Mbewe, in Umnini-Durban, KwaZulu-Natal, April 2016.

Focus Group Discussion 8, MP rural females. Moderated by Londeka Mbewe, in Umnini-Durban, KwaZulu-Natal, April 2016.

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