

**HUMAN IMMUNODEFICIENCY VIRUS INFECTION PREVENTION  
STRATEGIES IN HETEROSEXUAL COUPLES IN KAKAMEGA COUNTY,  
KENYA**

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**Abstract**

The principal form of HIV transmission is sexual contact. Heterosexual contact spread accounts for 80- 90% of all HIV infection, 5- 10% are spread from mother-to-child, while a small percentage are spread through injecting drug use, infected blood transfusions, or occupational exposure. To prevent HIV infection one must avoid these modes of transmission. Intravenous drug users are advised to use disposable syringes and never to share. It is difficult advising one regarding prevention of HIV through sexual contact or attempting to modify ones' sexual habits. Thus programs designed to slow the spread of HIV infection need to focus on reducing transmission through sexual intercourse. The main objective of this study was to find out HIV infection prevention strategies used by heterosexual couples in Kakamega County. Methods used by the heterosexual partners to prevent new HIV infections were analyzed and their effectiveness evaluated. Descriptive survey using cross sectional and evaluation study designs were used to investigate HIV infection prevention strategies among the study group. Purposive, multi-stage and simple random sampling strategies were utilized to select study site and sample size. Sample size was 1180 couples. Questionnaire was used to generate data; analysis showed faithfulness as the major strategy used to prevent new HIV infection among heterosexual couples in the County.

**Keywords:** HIV, infection, prevention, strategies, heterosexual couples, Kenya

## 1. Introduction

Acquired Immune Deficiency Syndrome (AIDS) is caused by Human Immunodeficiency Virus (HIV) that weakens the immune system making the body susceptible to and unable to recover from opportunistic diseases that lead to death through secondary infections (UNAIDS/WHO, 2011).

HIV/AIDS ranks among the world's most devastating diseases because it spreads rapidly and mainly affects young people in their most productive years. Globally, 36.7 million people are living with HIV (UNAIDS, 2016). This number has risen from 8 million in 1990 (UNAIDS, 2007) to 34 million people in 2013 (WHO, 2013). 2.6 million new HIV infections occur every year despite the implementation of prevention strategies (UNAIDS, 2010). New HIV infection is maintained at 1.7 million people per year since 2014 (UNAIDS, 2016). Globally, nearly 17 million children have lost their parents of HIV (UNAIDS/WHO, 2011) and 35.0 million people have died of AIDS related illnesses since the start of the epidemic (UNAIDS, 2016).

Sub-Saharan Africa has the highest prevalence of HIV infection globally. Seventy one percent of all people living with HIV, 25 million, live in this region (UNAIDS, 2016). The adult HIV prevalence rate is 7.2% (UNAIDS, WHO, 2013). In 2012, 1.6 million people in the region became newly infected, and 1.2 million adults and children died of AIDS, accounting for 75 percent of the world's AIDS deaths in 2012 (UNAIDS, 2013).

Seventy five percent of adults are in marital relationships with 44% of new HIV infections occurring heterosexually in couples who are in such long term relationships (UNAIDS, 2011). HIV sero-discordance is common in sub-Saharan Africa (UNAIDS, 2011). Nearly half of couples are HIV sero-discordant (De Walque, 2007) resulting in 2-8% of all stable couples being HIV sero-discordant in some settings (De Walque, 2007).

Five million people living with HIV in low- and middle-income countries have been provided with Anti-Retroviral Treatment (ART) (UNAIDS, 2010); however, reduced funding for AIDS programs as a result of the global economic crisis threatens these achievements, and a sustainable response to the HIV epidemic requires a large reduction in the numbers becoming infected (UNAIDS, 2010).

Besides, despite the benefits of ART, in 2013 Sub Saharan Africa still accounted for 74% of death from AIDS related illnesses (Buse, 2015). This therefore calls for HIV infection prevention besides treatment.

In Africa, a large proportion of new HIV infections occur in cohabitating couples many of whom are unaware of both partners' sero-status (Dunkle, 2008). In East Africa, 40–50% of

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married or cohabitating HIV-infected persons are in an HIV- discordant partnership (Bunnell, 2008).

In Kenya, Uganda and Malawi, over 80% of all unprotected sex acts by HIV-infected persons occur with spouses or cohabitating partners (Bunnell, 2008). Consequently, a high proportion of incident HIV infections occur within marriage (Dunkle, 2008).

Kenya has the largest number of individuals in sub-Saharan Africa infected with HIV (UNAIDS, 2013). It has the highest prevalence rate of any country outside Southern Africa (UNAIDS, 2014). Kenya's infection rate dropped from 14% in mid- 1990's to 5% in 2006 (UNAIDS, 2010), but rose again to 6.0% by 2014 (UNAIDS, 2014). Kenya is one of the six HIV 'high burden' countries in Africa. About 1,600,000 people were living with HIV at the end of 2013. National HIV prevalence rate is 6.0%, with the highest value among married couples (NACC, 2013). One hundred thousand new HIV infections occur among adults annually (NASCOP, 2014). Stable and married couples account for 44% of the new infections (NACC, 2013).

Former Western province was purposively selected for the study because of its increasing HIV prevalence of 5.0% (KDHS, 2003) and 5.4% (KAIS, 2007), which increased to 6.6% (KDHS, 2009), whereas, the National prevalence decreased from 7.1% in 2007 to 6.3% in 2009 and 6.2% in 2011 (UNAIDS, 2012). HIV discordance among couples also increased from 6.6% KDHS, 2003 to 7.0% KDHS, 2009. The study site was Kakamega County of former Western Province with the highest HIV prevalence of 5.9% (KAIS, 2012).

Sexual intercourse accounts for 93% of all the HIV transmissions, heterosexual intercourse represents 77% of incident infections (NASCOP, 2012). Two thirds of HIV infected Kenyans are in a heterosexual union. Eight percent of heterosexual couples are infected with HIV, 3.2% concordantly and 4.8% discordantly (KAIS, 2012).

The sources of these new infections were heterosexual sex within union 44.1%, casual heterosexual sex 20.3%, MSM 15.2%, sex work 14.1%, injecting drug use 3.8%, and health facility related 2.5% (NACC, 2012).

There are 260,000 couples in Kenya who are sero discordant; these could contribute to new HIV infections, therefore putting their discordance at risk (NASCOP, 2012). This poses a great risk for HIV infection which could lead to increase in new HIV infections unless couples HIV counseling and testing is encouraged to facilitate knowledge of sero-status and disclosure.

A principal aim of the 2014/15 - 2018/19 Kenya National HIV and AIDS Strategic Framework is to reduce the number of new HIV infections by 75% (NACC, 2014). New HIV

infections in Kenya are estimated at 88,620 for adults and 12,940 among children annually and prevalence is still increasing in many parts of the country, despite the efforts being made to prevent them (NASCO, 2014). About 44% of all new infections occur as a result of unprotected sexual intercourse between regular partners who are in union (NASCO, 2014). Data indicates that 4.8 % of the couples are discordant (KAIS, 2012). These discordant couples are at high risk for HIV transmission, especially if they do not mutually know their HIV status or do not use condoms correctly and consistently.

The Government of Kenya initiated programs directed at couples to prevent HIV infection. These include Education and Awareness, Couple HIV Testing and Counselling, Disclosure Counselling, ART, Post Exposure Prophylaxis, Pre Exposure Prophylaxis, Voluntary Medical Male Circumcision, Condom use and Prevention with the positives (KAIS, 2012).

It was critical that the study explores HIV infection prevention strategies among heterosexual couples to establish efforts they have taken to prevent new HIV infections if we have to meet the Millennium Development Goal- Combating HIV and reducing the number of new infections by 75% (NACC 2014).

## **1.2 Research Objective**

To establish methods being used to prevent new HIV infections among heterosexual partners and analyze the preferred strategies for HIV infection prevention by heterosexual couples.

## **2. Literature Review**

Several HIV prevention strategies are available to prevent HIV transmission within heterosexual couples. These include HIV testing and counseling, Antiretroviral Therapy, Post Exposure Prophylaxis, Pre risk Exposure Prophylaxis, Voluntary Medical Male Circumcision and Behavior Change Strategies.

### **2.1.1 HIV Testing and Counseling (HTC)**

HTC refers to the process by which an individual, couple, or family receives HIV testing and counselling on HIV prevention, treatment, care, and support (USAID, 2010).

Many people are unaware of their partner's, or their own HIV status and therefore may unknowingly be at risk of becoming infected with HIV or transmitting HIV to their partner(s) (WHO, 2012). More than 53% of the 1.6 million people living with HIV in Kenya are unaware of their HIV status.

There are about 260,000 couples in HIV sero- discordant couples. These couples significantly contribute to new infections (NACC, 2016). One cannot prevent HIV infection without knowing whether one is infected or not.

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Data from nationally representative surveys and studies continue to point to low proportions of people who have ever been tested for HIV, and a lack of knowledge about partners' HIV status (Kaiser *et al.*, 2011 ; WHO, 2010 (WHO, Delivering HIV test results and messages for re-testing and counselling:in adults, 2010) ).

Demographic and Health Surveys from 13 sub-Saharan African and five non-African countries show a median of 12% of women and 7% of men having been tested in the 12 months preceding the survey, and a median of 34% of women and 17% of men reporting having ever been tested (WHO, 2010).

The HTC process allows for identification of PLWH, which in turn supports programs like treatment that can protect their HIV negative partners from infection (Cohen *et al.*, 2011). HIV testing is an essential first step in the identification of sero-discordant couples, and disclosure is facilitated if couples test for HIV together (CDC, 2011). Besides, knowledge of sero-status within sero-discordant couples is a highly effective HIV prevention strategy (El-Bassel *et al.*, 2010).

HIV transmission rates were as high as 20-25% per year among HIV sero-discordant couples unaware of their HIV status and before ART scale-up in Africa (Celum, 2010). In contrast, annual HIV incidence rates of 6% were observed in couples who had participated in CHCT in an observational study in 1992 and 2% a randomized trial of a biomedical HIV intervention among HIV sero-discordant couples (Celum, 2010).

Facilitated disclosure of sero-status within a stable partnership fosters family support, which has been associated with improved engagement in HIV care for HIV infected partners and high adherence to ART (Wawer, 2009).

With a large portion of HIV infections occurring within stable relationships, Couples' HTC (CHCT) is extremely important (WHO, 2012). In CHCT, partners attend counseling and testing sessions together and learn their results together.

A benefit of couples learning their test results together is that they can support each other, if one or both partners are HIV-positive, to access and adhere to ART for their own health and to prevent transmitting HIV to their partner or infant. `

Besides, the HIV-negative partner in a sero discordant relationship may be able to protect themselves from HIV infection by taking antiretroviral (WHO, 2012). CHCT with support for disclosure, may help couples come to terms with their partner's HIV status in a way that strengthens their relationship and can prevent stigma and violence (El-Bassel, 2010). A counsellor can play an important role in creating a safe environment that can help ease tension and diffuse blame.

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Some studies have found higher rates of divorce, separation, and intimate partner violence among HIV sero-discordant couples than among HIV positive concordant couples, although most reports have found intimate partner violence to be relatively rare (Were, 2011).

Counselors can identify couples at risk of violence based on a history of abuse, help ensure safety and care for those who experience violence, and make appropriate referrals, including peer support groups for HIV sero-discordant couples (WHO, 2011).

HIV re-testing is suggested for HIV sero-discordant couples, as with other populations at high risk of exposure to HIV, in order to promote early detection of HIV infection and timely referral to care and treatment (WHO, 2010). The World Health Organization recommends that individuals with a known HIV infected partner re-test in four weeks to assess for recent HIV transmission and annually thereafter if they continue to be sexually active (WHO, 2010). In addition, prevention strategies recommended for the HIV uninfected partner, include condoms use, male circumcision, and PrEP (WHO, 2010).

Kenya has made great strides in increasing HIV/AIDS awareness to halt new infections and increasing access of anti-retroviral drugs among people living with the disease (NACC, 2016). 1.6 million People live with HIV/AIDS in Kenya and 100, 000 new infections are recorded annually (UNAIDS, 2014). Nearly half of all new infections in 2008 were transmitted during heterosexual sex whilst in a relationship and 20% during casual heterosexual sex (UNGASS, 2010). However, the prevalence has declined from 13.4 % in 2000 to its present level of about 6.0 % (UNAIDS, 2015).

The government scaled up its fight against the disease in 2006 when it launched the Kenya National HIV and AIDS Strategic Plan of 2006-2010(KNASP II), whose aim was to reduce HIV prevalence rate by increasing the number of people being tested for HIV to 2 million annually (NACC, 2009).

To achieve this target, the government and its associates expanded access to Voluntary Counseling and Testing centres (VCT) countrywide. This saw an increase in VCT facilities from three nationwide in the year 2000, by 2010 there were over 4000 centres (NACC, 2014). The government also launched a door-to-door counselling and testing service in rural areas across the country.

To bolster these efforts, it launched an aggressive media campaign aimed at encouraging people to know their HIV status. Access to VCTs therefore led to an increase in the number of people who know their HIV status particularly those aged between 15 and 49 (NACC, 2009).

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The government's initiative to fight against HIV has assisted the number of people who got tested to rise from 37 % in 2007 to 48 % (KDHS, 2009). In 2008, 860,000 people were being tested annually for HIV, by 2013; this had increased to 6.4 million (NACC, 2014).

However, majority of Kenyans are still unaware of their HIV status. The 2007 Kenya AIDS Indicator Survey revealed that 83 % of HIV infected people between 15 and 64 years were ignorant of their status. Ironically, most of these people believed that they were at a low risk of HIV infection, (KAIS, 2012).

Cited literature pin-points the benefits of HTC to couples, yet data from surveys reveal low proportions of people who have ever been tested either as individuals or as couples. This presents a delicate situation for Kenya which would translate into increased HIV prevalence given that 6% of heterosexual couples are HIV sero-discordant and 3% are concordant positive (KDHS, 2009).

### **2.1.2 Voluntary Medical Male Circumcision (VMMC)**

Voluntary medical male circumcision is the surgical removal of the foreskin from the penis by trained medical personnel under aseptic conditions. Male circumcision has a protective effect against HIV infection (Sanchez, 2010). Three randomized control trials indicated that VMMC reduces men's risk of HIV acquisition by 50-60% (Auvert *et al.*, 2008; Bailey, 2007).

Extended follow-up of participants at up to five years' post-trial indicated that the protective effect increased to 68% (Kong, 2011). WHO and UNAIDS have concluded that VMMC should be actively promoted as part of comprehensive HIV prevention efforts in settings where circumcision rates are low and HIV prevalence is high (WHO ; UNAIDS 2011). Evidence strongly supports VMMC's effectiveness in preventing infection of men in penile-vaginal intercourse (Sanchez, 2010).

Studies on the effect of circumcision on male-to-female HIV transmission have produced contradicting results. One trial involving 922 HIV-positive men in Uganda found circumcision did not reduce HIV transmission to uninfected female partners (Wawer *et al.*, 2009). Another study found that male circumcision was not significantly associated with decreasing women's HIV risk (Turner, 2007).

However, a prospective study enrolling HIV sero-discordant couples found a promising, although not statistically significant, 40% reduction in sero-conversions of women whose male partners were circumcised (Baeten, 2010).

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Three randomized controlled trials provide strong evidence that male circumcision reduces the risk of female-to-male HIV transmission by 50-60% (Bailey et al., 2007; Gray *et al.*, 2007). Circumcision is not generally recommended for HIV infected men, given conflicting evidence between observational data and a clinical trial in terms of reduced male-to-female HIV transmission (Baeten, 2009; Wawer *et al.*, 2009).

Regardless of a direct benefit to women, there is no doubt of an indirect benefit that accrues over time. Modelling has confirmed that properly implemented VMMC programs that lower HIV prevalence among the male population would thereby also reduce women's risk of exposure to men infected with the virus (Weiss, 2009). Having a circumcised partner could make women less likely to be infected with HIV.

A study in Uganda suggests that male circumcision could protect women from HIV (Quinn *et al.*, 2006). They studied 300 Ugandan couples in which the man had HIV but the woman did not, and found women's risk of infection was 30 per cent lower if her partner was circumcised. For centuries, many of Africa's ethnic groups have practiced male circumcision, which usually takes place in late childhood or early adolescence. This made researchers led by Brian Williams of the World Health Organization, to say that although male circumcision alone cannot bring HIV/AIDS in Africa under control, it should become a major part of programmes to control the epidemic (WHO, 2007). Clinical trials on the efficacy of circumcision in preventing HIV reveal that circumcised men are less likely to contract HIV (Auvert *et al.*, 2005). However, in Malawi the incidence of HIV in 2004 is estimated at 13.2 % among circumcised males and 9.5 % among uncircumcised males (Poulin & Muula, 2007). In Cameroon the incidence of HIV in 2003 is estimated at 4.1 % among circumcised and 1.1 % among uncircumcised males (INS and ORC Macro 2004). In Ethiopia the difference in HIV status between circumcised and uncircumcised males is negligible (0.9 % among circumcised and 1.1 % among uncircumcised males) (CSA and ORC Macro, 2006).

Male circumcision could provide substantial protection against acquisition of HIV infection in heterosexual partners. Results from a randomized controlled trial of 2784 men aged 18–24 years in Kisumu, Kenya; used to determine whether male circumcision had a protective effect against HIV infection; reveals that the protective effect of circumcision is 60% (Bailey, 2007).

The highest prevalence of HIV among the Luos is associated with low rates of circumcision (KDHS, 2009) as 17% of Luo men are infected with HIV as compared with 4 % of all Kenyan men. Although it may seem that low rates of circumcision may account for much of

this difference, Luo men who are circumcised have roughly the same HIV prevalence as Luo men who are uncircumcised (16 % compared with 17 %) (KDHS, 2009).

In Kenya HIV prevalence is 13 % among uncircumcised and 3 % among circumcised men age 15-49 (KDHS, 2009). There are large differences in HIV infection levels between circumcised and uncircumcised men in both urban and rural areas with 15% of uncircumcised men age 15-49 HIV-positive compared with only 3 % of circumcised men.

The voluntary medical male circumcision (VMMC) programme for HIV prevention was implemented in 2008 with the aim to circumcise 860,000 males aged 15-49 by 2013 to achieve universal coverage of 80%. The number of VMMCs performed annually has increased dramatically, although by the end of 2013 only 670,000 VMMCs were performed, about 77% of the original target, with roughly 50% of Kenyan men aged 15-19 circumcised. Regions with the highest HIV prevalence among uncircumcised adult males - Nairobi (20.2%), Nyanza (17.3%), Rift Valley (7%) and Western (6.8%) were selected as priority regions for the implementation of VMMC (CDC, 2012) with 80% of all operations conducted in the Nyanza region (NACC, 2014).

In 2012, a new initiative was introduced to boost the number of men being circumcised annually. It involved handing out vouchers to men who had the procedure, which could be exchanged for money upon attending a follow-up appointment. They were also encouraged to bring a friend who was interested in becoming circumcised (IRIN, 2012, 6<sup>th</sup> November).

Evidence from this literature indicates that multivariate analysis including circumcision status and risk factors for HIV transmission is needed to better understand the relationship between circumcision and HIV transmission.

Do the circumcised males in heterosexual relationships use circumcision as the only preventive measure against HIV infection? This research has established the methods being used by heterosexual couples to prevent HIV infection among partners.

### **2.1.3 Behaviour Change**

Behaviour change strategies available to HIV sero-discordant couples to prevent HIV transmission include sexual abstinence, correct and consistent condom use, and reduction of outside sexual partnerships. These have been reviewed as follows:

#### **2.1.3.1 Sexual Abstinence**

Sexual abstinence is an effective strategy to eliminate risk of HIV transmission, but it may not be a desirable or feasible, life-long strategy for many couples (Allen *et al.*, 2011). Cultural and social norms of sex and childbearing within marriage and long-term relationships, as well as personal desires to conceive, present a major impediment to sexual abstinence for couples.

Sexual partners outside of the marriage or primary relationship present additional risks for HIV infection. HIV uninfected partners may perceive new outside partners to be a safer option for unprotected sex than their infected partners. The Partners in Prevention HSV/HIV Transmission Study and HPTN 052 study found through viral linkage that 25-29% of HIV infections were from outside partnerships (Celum *et al.*, 2010).

In the Partners in Prevention HSV/HIV Transmission Study, a significant increase in reported new partnerships was observed, however, most of these were not concurrent or overlapping partnerships and most were reported after partners reported no longer having sex with their known HIV infected partner (Ndase *et al.*, 2012).

Condom use was reported to be much lower with their new partners than with their known HIV infected partners. Some prior studies have noted lower reported condom use during extramarital sex (Mermin *et al.*, 2008). Risk reduction counseling for HIV uninfected partners in sero-discordant relationships should emphasize the risk of infection from any unprotected sex and encourage HIV testing, disclosure, and protection with all sex partners.

#### **2.1.3.2 Male and Female Condoms**

When used consistently and correctly, male latex condoms are highly effective in preventing the sexual transmission and acquisition of HIV and other STIs at the individual level (Foss & Hossain, 2007).

In heterosexual sero-discordant relationships in which condoms were consistently used, HIV-negative partners were 80% less likely to become infected compared with persons in similar relationships in which condoms were not used (Weller & Davis, 2003).

Correct and consistent condom use significantly reduces the risk of HIV transmission from both men to women and also from women to men (Holmes *et al.*, 2004). The failure of male condoms to protect against HIV usually results from inconsistent or incorrect use rather than condom breakage (CDC, 2008). Couples-focused HIV prevention behavioural interventions have reduced reported unprotected sex and dramatically increased reported condom use (Burton, 2010).

In the Partners in Prevention HSV/HIV Transmission Study, in which HIV sero-discordant couples received monthly risk reduction counseling and free condoms, self-reported unprotected sex decreased from 29% at baseline to 7% over up to 24 months of follow-up ( $p < 0.001$ ) (Celum, *et al.*, 2010). Correct and consistent use of condoms is a highly effective tool for HIV prevention; analyses from the Partners in Prevention HSV/HIV Transmission Study found that male condoms were associated with 79% lower risk of HIV transmission on a per-contact basis (Hughes, *et al.*, 2011).

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However, introducing condoms into a long-term sexual relationship can be challenging. Couples often stop using condoms when they commit to a partner and if they are trying to conceive (Allen *et al.*, 2011).

Additional challenges include perceptions that condoms interfere with sexual pleasure, spontaneity, and are a cause of sexual dysfunction (Allen, *et al.*, 2011; Rispel *et al.*, 2011). Alcohol use has been linked to unprotected sex in sero-discordant couples (King *et al.*, 2011). Couples should be counselled about the high efficacy of condoms for HIV, STIs and pregnancy (Wagner *et al.*, 2010), how condoms can enhance sexual pleasure by reducing anxiety about risk of HIV transmission and can become a symbol of love and commitment to the partner's well-being (Wagner *et al.*, 2010).

Laboratory studies indicate that the female condom is an effective mechanical barrier to semen and viruses, including HIV (Drew *et al.*, 1990). In 2006, WHO concluded that female condoms, when used consistently and correctly, have comparable effectiveness to male condoms.

In 2009, the Food and Drug Administration approved the second generation of the female condom for prevention of HIV and other STIs. Evidence shows that effective female condom promotion to both women and men can increase the proportion of protected sex acts (Shane & Herdman, 2006).

Studies conducted in a variety of contexts show that the female condom is widely acceptable and a realistic alternative to the male condom (French *et al.*, 2003). Condom use is low in many parts of Africa. In a population study in Uganda, only 4.4 % reported consistent condom use (Ahmed *et al.*, 2001).

Condom use among urban Zambia males was 68% while it was only 15% among rural males at last non-regular sex (Fylkesnes *et al.*, 2001). Even among HIV positive patients, condom use can be alarmingly deficient. It was observed that 54.4 % of sexually active HIV positive study participants had not used a condom during their most recent intercourse. Olley *et al.*, (2005) and Bunnell *et al.*, (2008) show 83 % of last sex acts of an HIV positive sample in Uganda were unprotected, though many of these were with a married or cohabitating partner. Studies by Kiene *et al.*, 2006 reinforce these findings. Condom use by males is more than by females. Mnyika *et al.*, (1997) in Tanzania find significantly more men (34.1 %) than women (14.1 %) have ever used a condom.

Ten years later, 18.1 % of rural males in Uganda reported condom use compared to 9.9 % of rural females (Biraro *et al.*, 2009). Various other studies report similar differences (Gregson *et al.*, 2006). Hendrikson *et al.*, (2007) (Hendrikson E. S., 2007) show that condom use is

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higher among youth than adults but the differences between the genders are maintained with 59 % of young males and 48 % of young females reporting condom use at their last intercourse.

Condom use within marriage is very low. Ali *et al.*, (2004) report that only 2 % of married couples used condoms. Cleland *et al.*, (2006) compared condom use for single and married women in 1993 and 2001 using nationally representative data sets from 13 countries. While single women reporting condom use at last sex increased from 19.3 % to 28.1 %, married women reporting condom use at last sex was much lower and hardly increased (3.7 % to 4.5 %). The level of condom use for unmarried individuals was more than double that of the married respondents in a study done in Kenya (Bauni & Jarabi, 2000).

Biraro *et al.*, (2009) find that unmarried women were 11.4 times and unmarried men were 7.0 times more likely to use a condom at last sex than married women and men, respectively. Studies demonstrate that condom use with a spouse is very low, (DeWalque, 2009) analysis illustrates the vast differences between condom use with a spouse and condom use with another type of partner. De Walque (2009) analysis shows that significantly more men than women report using condoms.

Much less has been said about condom use during extramarital intercourse. There seems to be agreement among researchers that there are higher instances of extramarital sex in men than women. In Tanzania 40 % of married men and only 3 % of married women reported having non-marital partners in the last year (Nnko *et al.*, 2004).

In rural Uganda, 63 % of males and 38 % of females used a condom at last sex outside their marriage though females reported fewer extramarital intercourses overall (Biraro *et al.*, 2009). Based on a nationally representative sample for Uganda, Kirungi *et al.* (2009) report that 12 % of males versus 3 % of females report extramarital sex in the previous 12 months.

In Zimbabwe, 30 % of married males compared with 10 % of married females reported partners outside their marriage in the last year (Mumtaz *et al.*, 2005). According to Pullum *et al.*, (2005) report on the Demographic Health Survey data on men's extramarital partners from five African countries; the highest is Tanzania with 36 % of men reporting at least one more partner other than a spouse and Uganda is the lowest with 12 % of men reporting at least one extramarital partner in the past year.

Awareness and access to condom has been increased in Kenya as the fight against AIDS intensifies. In 2008, the government imported 124.5 million condoms compared to a mere 10 million imported in previous years. These were mainly distributed through health centres to enhance access. However, church leaders have perceived promotion of condom use in Kenya

as fanning immorality especially among the youth. Their objections have hindered access and use of condoms in the country.

The Kenyan government has only actively promoted the use of condoms since 2001, but distribution has substantially increased year on year (NACC, 2010; BBC News, 2001, 11<sup>th</sup> July). In 2013 180 million free condoms were distributed although this fell far below demand (38). However, many people still find condoms difficult to acquire.

One report from rural northern Kenya showed how men could only afford to use condoms once, and due to a shortage in supply, would often wash condoms and hang them out to dry for reuse, or use plastic bags and cloth rags instead:

*"Many rural areas in the country are inaccessible due to the poor road network and this makes distribution of condoms difficult and challenging...because government condoms are mostly made available at health facilities and there are not many in rural areas, this creates another challenge in distribution." - Peter Cherutich, NASCOP, (IRIN, 2011 29<sup>th</sup> March).*

Even where condoms are widely available, this does not guarantee their use. The 2014 Kenya Demographic and Health Survey revealed that only 40% of women and 43% of men who had two or more partners in the last 12 months, reported using a condom the last time they had sex (KNBS, 2015).

Based on the above-described percentages of extramarital relations, condom use is of concern because of the substantial chances of contracting HIV through having multiple partners and then passing it to a spouse. This research has findings on the utility of condoms during extramarital or marital partners' sex among males and females in Kenya.

### **2.1.3.3 Extramarital Sex**

Within cohabiting couples, self-reported sexual intercourse outside the union is generally much lower among women than men. In Burkina Faso, it is 0.7 % for women and 8.7 % for men and Tanzania 4.1 % for women and 22.0 % among men (Biraro *et al.*, 2009). These Figures should be viewed with some caution, as substantial reporting biases in self-reported sexual behaviour among both men and women have been reported (Gersovitz, 2005).

De Walque (2007) explores alternative explanations for the sizable portion of discordant couples in which only the woman is HIV-positive. These include polygamy, bias in the coverage of HIV testing in the survey, or infections before the current union. For the most part, these possibilities do not explain the data in Burkina Faso, Cameroon, Ghana, Kenya, or Tanzania. To exclude most cases of infections before the current union, the sample is limited to couples in which the woman has been in only one union for 10 years or more.

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In five countries the number of HIV-positive couples who had been in the same union for at least 10 years is too small for meaningful statistical analysis. In the other countries the proportion of discordant female couples decreases but not very substantially.

De Walque (2007) found the proportion of discordant female couples in Côte d'Ivoire, Cameroon, and Kenya exceeds 30 % of HIV-positive couples.

It is 20–30 % in Burkina Faso, Malawi, and Tanzania and 10–20 % in Zimbabwe, Rwanda, and Lesotho. In many of the countries studied, HIV infection before the union does not explain the sizable proportion of discordant female couples.

That proportion is difficult to explain unless women are sexually active outside the union. Sexual intercourse among women outside marriage may be more common than reported (Biraro *et al.*, 2009). De Walque (2009) reports that married women who engage in extra-marital sex are less likely to use a condom than single women or married men. Even if it is infrequent, women may be more vulnerable to infection during such encounters, if, they are less likely to use condoms than unmarried women or married men (Cleland *et al.*, 2006).

In both cases, this implies that extramarital sexual activity among cohabiting women, whatever its causes, is a substantial source of vulnerability to HIV infection that should be, as much as male infidelity, targeted by prevention efforts.

This literature confirms the occurrence of extramarital sex among cohabiting couples with infrequent use of condoms during such encounters. The research therefore has findings on the prevention efforts that have been designed for this population of women as ignoring the role female sexual activity outside the union plays in the transmission of the epidemic would be a disservice to women and men.

### 3. Data Analysis/ Findings

#### **3.1 Introduction**

Using the SPSS computer software version 17, the data collected was analyzed and the results presented by the use of descriptive and inferential statistics where cross tabulations of variables was computed bringing out important information.

Qualitative data was represented in form of text information. Quantitative data was presented in form of pie charts, frequency Tables and percentages.

In Kenya, the ABC message of 'Abstinence, Be faithful to an uninfected and faithful partner, and/ or use of a Condom' includes a fourth component: Diagnosis: know your status.

Promoting HIV testing in health settings and in the community both helps prevent infection and gives access to treatment for the infection. If these are services available for HIV

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infection prevention, how are they utilized by the consumers? Figure 1 shows the findings of the study on this question.

Figure I shows different behavioral methods respondents use to prevent new HIV infection among sexual partners and the percentage of respondents who use these methods. The most preferred method to prevent HIV infection is being faithful.

Of the 1180 respondents 55% stay faithful to their partners, 32% use condoms always, 5.9% limit number of sexual partners, 1.0% avoids sex with persons with many partners and 0.8% avoids sex with prostitutes.

To evaluate the effectiveness of being faithful as a strategy for preventing new HIV infection, respondents were asked the number of people they've had sexual intercourse with in the last 12 months. Information on the percentage of respondents and their sexual activity in the 12 months preceding the survey and in their lifetime is presented in Table 1 and 2.

The results in table 1 show that 43.1% of the respondents have had sexual intercourse with one other sexual partner and 56.2% of the respondents have had two or more than two sexual partner in the 12 months preceding the survey. Only 0.7% (8) of the respondents had had sexual intercourse with none other than their spouses compared to 99.3% who had had sexual intercourse with at least one other sexual partner within the twelve months' prior to the survey.

Half of the respondents (56.2%) had had sexual intercourse with two or more than two sexual partners twelve months' prior to the survey as shown in Table 1. The number of reported sexual partners in the 12 months prior to the survey varied significantly by gender, 35.2% of the males and 49.8% of the females had had sexual intercourse with only one other partner whereas 64.4% of the males and 49.3% of the females had had sexual intercourse with either two or more than two sexual partners within the last 12 months.

Very small percentages of the males (0.4%) and 0.9% of the females had not had sexual intercourse with any other sexual partner. These findings reveal that more males than females have had sexual intercourse with another partner. These Figures though higher are in agreement with those reported by KAIS, 2012 where a lower proportion of women (2.2%) than men (14.2%) reported two or more sexual partners in the year prior to the survey and 3.7% of women and 12.7% of men reported multiple sexual partnerships as reported by KDHS, 2014.

Table 2 shows the results when the respondents were asked the number of different people one has had sexual intercourse with in lifetime. Only 2.4% of the respondents had had sexual

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intercourse with none other than the spouse, 20.7% of the respondents had had one other sexual partner, 77% had had two or more than two sexual partner in their lifetime.

Of those respondents who had had one, two or three different people they had sexual intercourse with in life a larger percentage were females (37.4%) and 18.9% were males, yet those who had three or more sexual partners were males, 28.3% were females and 31.1% were males. These results concur with those reported by KAIS, 2012 that more women (38.0%) than men (12.5%) reported having only one lifetime sexual partner. More men (39.7%) reported four or more lifetime sexual partner, than did women (10.3%).

These findings show that multiple sexual partnerships are high among the respondents yet the number of sexual partners is a risk factor for HIV infection. The most preferred strategy for preventing HIV infection among the respondents is Being faithful with 55% of the responses as shown in figure 1. Nevertheless, one cannot be faithful yet one has more than one sexual partner at the same time. It can be concluded from the findings of this study that that multiple sexual partnerships are high among the respondents. Only 0.7% of the respondents were faithful to their partners twelve months before the research. Basing on the findings of this research it is only 2.4% of the respondents who can use being faithful as the strategy for HIV infection prevention as shown in table 4; yet Being faithful was established as the most preferred strategy for preventing HIV infection among the respondents.

Therefore, Being faithful is not an effective strategy for preventing HIV infection since faithfulness may be used by one of the partners in the heterosexual couples but not both thereby failing to comply with the rule as it is stated to be used for HIV infection prevention; “Be faithful to an uninfected and faithful partner.”

Another strategy used to prevent HIV infection among heterosexual couples in Kakamega County is Condom use. Thirty two percent of the respondents use condoms always as shown in figure 1. This corresponds with KAIS, 2012 report that condom use is higher among concordant positive and lowest among concordant negative couples. Among concordant positive couples, 39.6% of women and 36.9% of men reported using condoms consistently with their partners, whereas among concordant negative couples, only 2.5% of women and 1.7% of men reported using condoms consistently with their partners.

Consistent condom use means using condoms with ones’ partner every time they have sexual intercourse. When used correctly and consistently condoms are highly effective in preventing transmission and acquisition of HIV (Foss and Hossain, 2007).

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Among discordant couples, less than quarter of susceptible partners reported using condoms consistently with their HIV infected partner, with 19% of uninfected women and 21.1% of uninfected men reporting that condoms were used every time they had sexual intercourse with their infected partner (KAIS, 2012).

Among all women and men aged 15 to 64 years who had sex with partners of unknown HIV status in the past 12 months, consistent condom use was almost four times higher among men (27.1%) than women (7.1%). Within casual relationships only 35.1% of women and 48.5% of men used condoms consistently with partners of unknown HIV status in the past 12 months. Consistent condom use with sexual partner(s) of unknown HIV status in the past 12 months was lowest among married and cohabiting partnerships, at 2.5% for women and 3.4% for men.

The Kenyan government has promoted condom use since 2001 when 300 million condoms were imported (UNAIDS, 2001). Since then, condom distribution has been radically scaled up; 10 million were distributed in 2004 and 124.5 million in 2008 (UNGASS, 2008; UNGASS, 2010).

However, there have been a number of obstacles either preventing people from accessing condoms, or preventing people from wanting to use them. Many religious leaders have expressed opposition to condom use (IRIN, 2007) in 2006 Kenya's First Lady said during a visit to some Kenyan girls' school: *"I am not telling you to use condoms. I am not in favour of condoms* (LifeSiteNews.com, 2006).

Results from the 2008/2009 Kenya Demographic and Health Survey revealed that, of the respondents who in the last 12 months had sex with two or more partners, only 32 per cent of women and 37 per cent of men reported using a condom, KNBS (2009). Within partnerships, consistent condom use was lowest in married or cohabiting partnerships, with only 3.8% of women and 5.2% of men reporting this safer sexual behaviour in the year before the survey (KAIS, 2012). A 2011 study in Kilifi district, found that only 1 per cent of married couples regularly used condoms, Papo *et al.*, (2011). Reports of people washing and re-using condoms, during condom shortages, indicate that more needs to be done to ensure people have consistent access to condoms (World Bank, 2009); IRIN/Plus news (2011). Female condom uptake has also been low, and in 2009 there was a reported shortage of female condoms in public hospitals in Kenya's Coast Province, IRIN (2009).

The strategy that is not commonly used by heterosexual couples is secondary abstinence. Only 4.8% of the respondents use secondary abstinence.

#### 4. Conclusion

Being faithful is the most preferred strategy to prevent HIV infection in Kakamega County yet it is least practiced by heterosexual couples. Condom use, Couple HIV Counseling and Testing, limiting number of sexual partners and secondary abstinence are other strategies used but at lower and varied levels.

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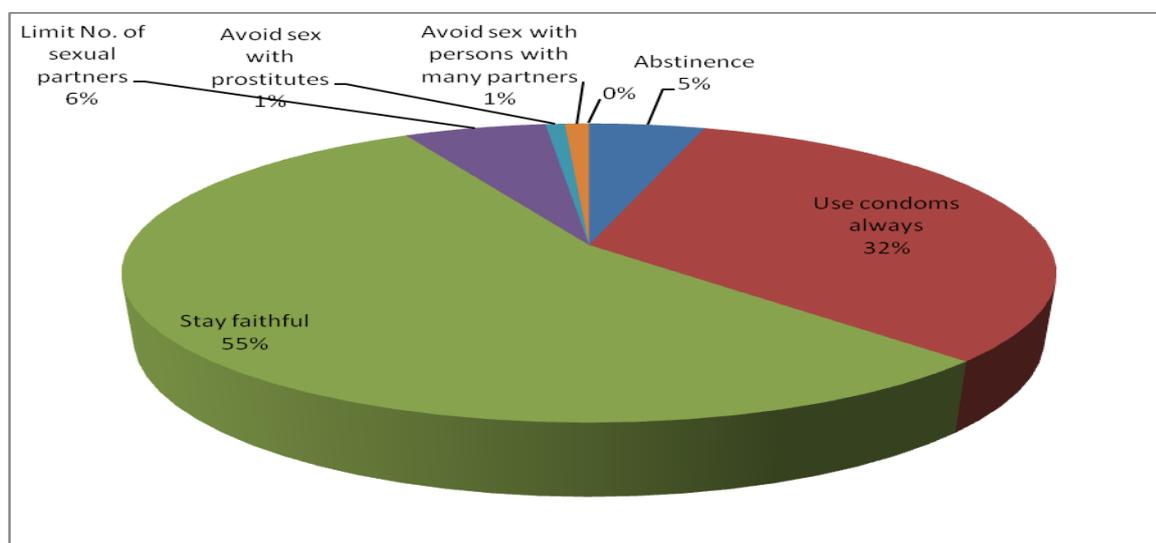
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**Tables and Figures**

**Figure 1: Behavior Change Methods used to prevent HIV Infection**



Source: (field data, 2016)

**Table: 1: Number of people you've had sexual intercourse with in the last 12 months**

|        |        | No. of people you've had sexual intercourse with in the last 12 months          |            |             |       | Total |       |       |
|--------|--------|---|------------|-------------|-------|-------|-------|-------|
|        |        | 1   | 2          | More than 2 | None  |       |       |       |
| Gender | Male   | Count   | 189        | 172         | 174   | 2     | 537   |       |
|        |        | % within No. of people you've had sexual intercourse with in the last 12 months | 35.2%      | 32.0%       | 32.4% | 0.4%  | 100%  |       |
|        |        |   | % of Total | 16.0%       | 14.6% | 14.7% | .2%   | 45.5% |
|        | Female | Count   | 320        | 183         | 134   | 6     | 643   |       |
|        |        | % within No. of people you've had sexual intercourse with                       | 49.8%      | 28.5%       | 20.8% | 0.9%  | 100%  |       |
|        |        | % of Total  | 16.0%      | 14.6%       | 14.7% | .2%   | 45.5% |       |

|              |                       |            |            |            |          |             |
|--------------|-----------------------|------------|------------|------------|----------|-------------|
|              | in the last 12 months |            |            |            |          |             |
|              | % of Total            | 27.1%      | 15.5%      | 11.4%      | 0.5%     | 54.5%       |
| <b>Total</b> | <b>Count</b>          | <b>509</b> | <b>355</b> | <b>308</b> | <b>8</b> | <b>1180</b> |
|              | % of Total            | 43.1%      | 30.1%      | 26.1%      | 0.7%     | 100.0%      |

(Source: Field data, 2016)

**Table 2: Number of different people you've had sexual intercourse with in your life**

|        |        | No of different people you've had sexual int. within your life |       |       |             |       | Total |        |
|--------|--------|--|-------|-------|-------------|-------|-------|--------|
|        |        | 1  | 2     | 3     | More than 3 | None  |       |        |
| Gender | Male   | Count  | 76    | 67    | 80          | 287   | 27    | 537    |
|        |        | % within No of people you've had sexual int. within your life  | 31.0% | 32.5% | 37.6%       | 58.8% | 96.4% | 45.5%  |
|        |        | % of Total   | 6.4%  | 5.7%  | 6.8%        | 24.3% | 2.3%  | 45.5%  |
|        | Female | Count  | 169   | 139   | 133         | 201   | 1     | 643    |
|        |        | % within No of people you've had sexual int. within your life  | 69.0% | 67.5% | 62.4%       | 41.2% | 3.6%  | 54.5%  |
|        |        | % of Total   | 14.3% | 11.8% | 11.3%       | 17.0% | .1%   | 54.5%  |
| Total  |        | Count  | 245   | 206   | 213         | 488   | 28    | 1180   |
|        |        | % of Total   | 20.7% | 17.5% | 18.1%       | 41.3% | 2.4%  | 100.0% |

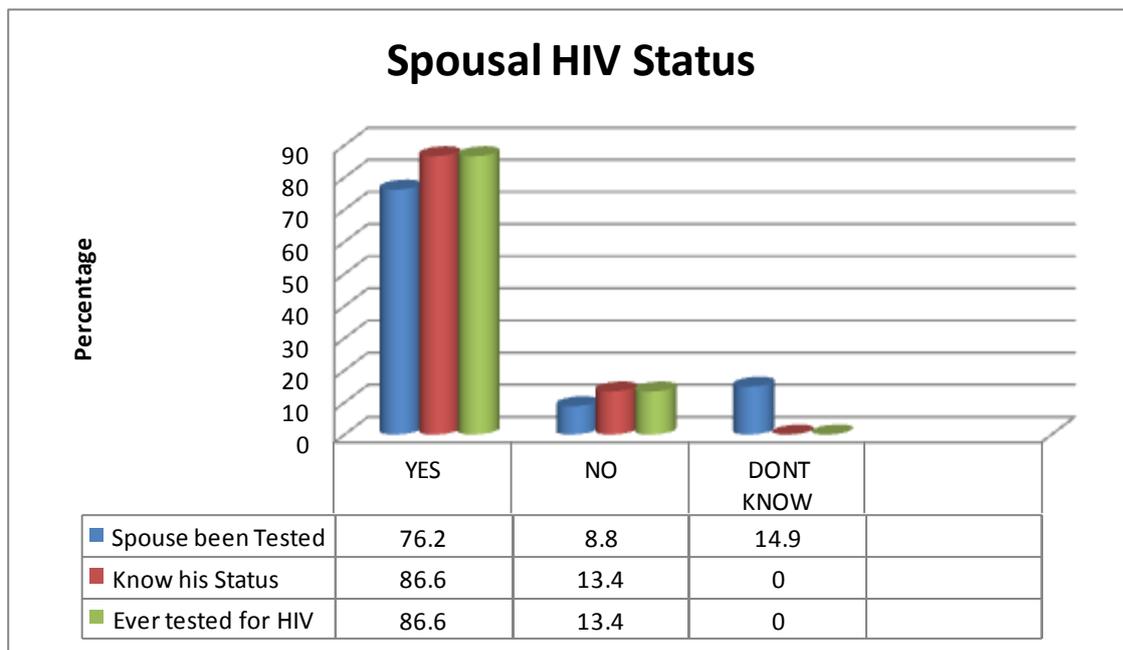
(Source: Field data, 2016)

**Table 4.8: The type of client a couple was 'seen as' during the HIV test**

|              |        |   | What type of client were you 'seen as' during the test |            |           |                  | Total       |
|--------------|--------|---|--|------------|-----------|------------------|-------------|
|              |        |   | Individual   | Couple     | Group     | Polygamous group |             |
| Gender       | Male   | Count   | 359  | 169        | 5         | 4                | 537         |
|              |        | % within What type of client were you 'seen as' during the test | 44.1%  | 48.7%      | 33.3%     | 100.0%           | 45.5%       |
|              |        | % of Total  | 30.4%  | 14.3%      | .4%       | .3%              | 45.5%       |
|              | female | Count   | 455  | 178        | 10        | 0                | 643         |
|              |        | % within What type of client were you 'seen as' during the test | 55.9%  | 51.3%      | 66.7%     | .0%              | 54.5%       |
|              |        | % of Total  | 38.6%  | 15.1%      | .8%       | .0%              | 54.5%       |
| <b>Total</b> |        | <b>Count</b>  | <b>814</b>   | <b>347</b> | <b>15</b> | <b>4</b>         | <b>1180</b> |
|              |        | % of Total  | 69.0%  | 29.4%      | 1.3%      | .3%              | 100.0%      |

(Source: Field data, 2016)

**Figure 2: Testing for HIV by Respondents and their Spouses**



**Source: field data, 2016**