

Challenges Facing HIV Discordant Couples in Kenya

Florence Chizi Tsuma

Allan Siangu Wekesa

Tutorial Fellow

Technical University of Mombasa

Department of Media and Graphic Design

Mombasa

Kenya

Abstract

Since Kenya recorded its first case of Human Immunodeficiency Virus (HIV) in 1984, the Acquired Immunodeficiency Syndrome (AIDS) epidemic has evolved to become one of the central impediments to national health, well being and development. Prevalence of HIV serostatus discordance is high. There is therefore need to shed light on HIV discordance as most public communication on HIV revolves around individual counseling and testing. Public communication campaigns targeting couples are not as vibrant, memorable and personalized as messages targeting individuals. This paper will review literature on the causes of HIV discordance, the challenges faced by discordant couples and the public' perception of HIV discordant couples. It will provide insight on the various HIV communication campaigns targeting couples, in a bid to establish whether these communication messages are effective in addressing the issue of discordance.

Keywords: HIV, Discordance, Concordance, Antiretroviral therapy, Sero-discordance, Sero-conversion

1.1 Introduction

The Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome (HIV/AIDS) epidemic is probably the greatest challenge facing Africa. According to UNAIDS (2005), between 23.8 and 28.9 million people were infected by HIV/AIDS in Sub-Saharan Africa in 2005 (this represents around 65 percent of the worldwide total and implies that 7.2 percent of adults living in that region are HIV positive) (Walque, 2006.) There are an estimated 33 million people in the world infected with HIV, 60% of whom reside in sub-Saharan Africa (World Health Organization, 2009).

Emerging data indicate that a large proportion of new infections in this region occur in stable HIV discordant relationships (Farquhar, 2007). In Kenya, at least two thirds of the infected couples are discordant couples, i.e. couples where only one of the two partners is HIV. This means that there is scope for prevention among couples, even though this is rarely mentioned as a priority in prevention efforts. The United Nations agency for AIDS (UNAIDS, 2005) mentions the following groups as being key populations to whom prevention programs should be specifically targeted: women and girls, youth, men who have sex with men, injecting and other drug users, sex workers, people living in poverty, prisoners, migrant laborers, people in conflict and post-conflict situations and refugees and internally displaced persons. This is a very broad list, but it doesn't mention HIV negative cohabiting partners of HIV positive individuals as a group that should be specially targeted for prevention (Walque, 2006.)

HIV prevention messages have focused on risk in the context of casual relationships outside of marriage (Barden-O'Fallon et al., 2004; Merson et al., 2000). This has led to the view that marriage is a safe haven, usually without emphasizing the importance of HIV testing before marriage or within already long time married couples who have not been previously tested.

Both HIV/AIDS care and antiretroviral therapy (ART) are rapidly expanding in Africa and other resource-limited settings. Most care and treatment programs are clinic-based and utilize an individual approach to HIV care and treatment. However, the burden of HIV infection in households of people living with HIV may be high (Kabatesi et al,2002).

In addition, HIV discordance is common within couples in Africa, ranging from 3% to 20% in the general population (Zaba,2005) and 30% to 51% within couples in which one partner seeks HIV care services (Kabatesi et al,2002).However, knowledge of partner's HIV status is extremely low. Systematic efforts to identify HIV-infected members and HIV-discordant couples in households of individuals taking ART could theoretically reduce HIV transmission and drug sharing pressures, improve ART adherence, and prolong survival for people with previously unrecognized HIV infection.

1.2: Review of Related Literature

1.2.1: Causes of HIV Discordance

Most HIV transmission in Africa occurs among HIV discordant couples (in which one partner is HIV-infected while the other one is not) who are unaware of their discordant HIV serostatus. HIV-negative individuals living in stable HIV-discordant partnerships are twice as likely to get infected with HIV as those living in concordant HIV-negative relationships. The percentages of couples in HIV sero-discordant relationships range from 5 to 31% in the various countries of Africa. What accounts for high rates of HIV discordance and why some individuals remain uninfected despite repeated sexual exposure to HIV is unknown. HIV sero-discordance within stable sexual partnerships is a phenomenon that is poorly understood by the lay community and even by some HIV counselors (Were et al, 2008). Studying HIV discordant couples may contribute to understanding of HIV immunity and acute infection. Consequently, HIV discordant couples are increasingly viewed as a valuable source of participants for HIV vaccine and prevention trials. (Were et al, 2008)

Misconceptions about discordance are widespread among discordant couples. They include: the view that HIV transmission was based on luck and that their luck could end at any time, that it was an act of God, that the HIV-negative couple member had peculiar protective characteristics, rather than on the infectiousness of the HIV-positive partner, belief in protection by God, hidden infection not detectable by HIV tests, that the negative partner may be in the 'window period', the thought that transmission is a consequence of 'rough sex' and that 'gentle sex' will protect HIV-negative partners, (Gitonga et al, 2012). Similar findings are reported by Bunnell et al, (2005) and Senyonjo & Atenu, (2011).

Studies conducted by Walque,(2006) in six countries namely Uganda, Kenya, Botswana, Lesotho, Tanzania and Cameroon showed that the proportion of heterosexual couples that are HIV sero-discordant is much higher than the proportion where both couples are HIV-positive. The only exception being Lesotho. In Tanzania and Kenya, the proportion of sero-discordant couples is at least twice as high as the proportion of sero-concordant couples. The analysis also shows that in most cases where a couple is HIV sero-discordant, the man is the infected partner. The study further reveals that between 30 and 40 percent of the infected couples are discordant female couples where the female partner only is infected. This is at odds with the common perception or assumption in the public and in the HIV/AIDS community that unfaithful males are the main link between high risk groups and the general population.

The following illustrates how male infidelity is often perceived as the main source of infection for women: "At its heart, this is a crisis of gender inequality, with women less able than men to exercise control over their bodies and lives. Nearly universally, cultural expectations have encouraged men to have multiple partners, while women are expected to abstain or be faithful. There is also a culture of silence around sexual and reproductive health. Simply by fulfilling their expected gender roles, men and women are likely to increase their risk of HIV infection. With less ability to control sexual encounters, and increased physiological susceptibility to HIV, many women are finding that commonly accepted methods(ABCs) of prevention are insufficient." (UNAIDS, UNFPA and UNIFEM 2004, p.16).

1.2.2: Challenges and Perception of HIV Discordance

Serodiscordant couples have faced a number of challenges over the decades of HIV/AIDS (Beckerman , 2000). Combination therapies have added hope to the survival of the HIV positive partner, but it also has created new challenges to intimacy (Beckerman et.al.2002).

A study carried out in Eldoret, Kenya by Gitonga Moses, Ballidawa Joyce & Ndege Samson (2012) identified the following as the major challenges facing HIV discordant couples: Issues pertaining to sex posed the most difficult challenge, disagreements over sex and blame about bringing HIV into the family, issues regarding procreation, lack of interest in sex initially after testing, psychological stress due to inadequate social support to help in coping with discordance, the feeling that society looked down at them as being promiscuous and a risk to their families especially their spouses (Gitonga et al, 2012). Stigma related to formula feeding (avoidance of breastfeeding), as part of prevention of mother to child transmission of HIV (Were et al, 2008). Given that formula feeding is considered in this community as an indication of an HIV diagnosis, it is not surprising that this issue is of great concern to HIV infected couples (Were et al, 2008). Despite these challenges the rate of separation among discordant couples remains surprisingly low (Gitonga et al, 2012), (Were et al, 2008) & (Senyonjo & Atenu, 2011)

Several practices are recommended to prevent HIV transmission among couples. Abstinence is a practice where couples agree to have no sexual intercourse for reasons of prevention of HIV transmission, re-infection and safeguarding against other STDs. A qualitative research conducted in Uganda showed that, although few couples had chosen abstinence as their coping strategy, many of the HIV negative females said they would have preferred abstinence had their HIV-positive partners not refused the practice (Bunnell R E, et al 2005). Abstinence has proved to be unsuccessful as a long term prevention message because it is born out of negative feelings after HIV diagnosis (Orza 2006). A study conducted in Democratic Republic of Congo among married couples with discordant HIV sero status showed that sex (Male or Female) was a predictor factor for safe sex practices among HIV discordance, which also explained the rates of sero-conversion. Results of the study showed that none out of the 10 Sero negative men sero converted as compared to two who sero converted out of the 14 women of HIV positive men, who were HIV negative at enrollment (Ryder et al 2000).

All sexual activities are carried out in the context of power relations in any society. Societal gender inequalities are among the factors forming power relations of intimate realm, which means that women's sexual activity is often enacted from the position of lower status compared to men. It is unrealistic to talk about faithfulness in cultures that permit polygamy and promote masculinity based on the number of sexual conquest the individual male is able to make. The use of condoms and safe sex methods currently require at least consent-if not actual application from the male partner but not the women (Oxfam 2006). Exceptions from recent reports by United Nations Agencies indicate that, with less ability to control sexual encounters and increased physiological susceptibility to HIV, many women are finding that, commonly accepted methods are insufficient. While the ABC has been successful in some countries, such as Uganda, there is mounting evidence that the approach needs to be expanded to meet the needs of women and girls. For example, abstinence is meaningless to women and girls who are coerced into sexual activity ... Condoms require the cooperation of men, who may refuse them (UNAIDS, UNFPA and UNIFEM 2004)

Male condom-promotion interventions increase condom use and are the cornerstone of HIV prevention. When combined with one or more of several other interventions, male condom distribution is particularly successful in reducing behavior that places individuals at risk of being infected with HIV (The Cochrane Collaboration, 2004). For prevention of HIV infection, STDs, re-infections and maintaining stability of families, discordant couples are encouraged to use condoms during sexual encounters. Condom use within discordance couples reduces HIV transmission by 90% (Davis & Weller 2007). However, a qualitative research carried out on clients in a discordant relationship in Kampala revealed inconsistent condom use. (Bunnell et al 2005). Another research on sexual behaviors among discordant couples after HIV counseling and testing reported that within three months of the study, there were only 23% of regular condom users. The majority of the couples reported regular condom use with occasional lapses; 26% reported unprotected sex in only one interval, 24% in two and 17% in three of the four intervals (Allen S et al 2003). Almost similar findings were found in a study that was conducted among discordant couples in Bushenyi in western Uganda, in which out of the 880 individuals in discordant couples who were found to be sexually active in the previous three months, 94% reported to rarely use condoms and over 96% did not use condoms in their previous sexual encounter (Tumwesigye et al 2008).

United Nations Agencies have noted that a population may use large numbers of condoms but the impact will be limited if the persons who use them most do not do so consistently. There is little evidence that using condoms sometimes (but not always) provides any greater protection than not using condoms, one study found that individuals who sometimes used condoms were at higher risk of infection than those who never used them. (UNAIDS UNFPA 2004).

1.2.3 The Health Belief Model

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. The model was developed in response to the failure of a free tuberculosis health screening program. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS.

According to this model, a perceived health risk influences individuals who are vulnerable to adopt behaviors to protect them from the risk. However several research studies indicate that misconceptions about Health risk may lead some members of the couples to make faulty decisions that place them at a high risk for adverse health consequences (Halkitis P.N et al 2004), contrary to health belief model. A study carried out by Bunnell et al, 2005 shows that even those clients who knew their sero status to be HIV negative, did not take actions of prevention yet they perceived the risk. The study also indicated that even the clients who acknowledge their HIV negative status appeared to doubt their future risk. Studies have made various conclusions about relationship length impact on sero discordance risk taking. Some identified greater risk taking in the early stages while others found risk taking increased with the duration of the relationship (Murphy et al 2003). A study conducted on discordance in the Democratic Republic of Congo indicated that women who had married for a shorter period of time (8.6 years Vs 12 and above) had 56% of unprotected sexual contact and higher pregnancy as compared to the women who had been married for a longer period of time. In the same study, discordant couples who became pregnant during follow up had significantly higher rates of non-protective sex than couples who did not become pregnant (Ryder R. W 2000).

The model proposes that a person's behaviour can be predicted based on how vulnerable the individual considers themselves to be. 'Vulnerability' is expressed in the HBM through risk (perceived susceptibility) and the seriousness of consequences (severity). These two vulnerability variables need to be considered before a decision can take place. This means a person has to weigh up the costs/benefits (Naidoo and Wills 2000) or pros/cons of performing a behaviour. For example, this could include how 'susceptible' they feel they are to contracting an illness, for example HIV/AIDS, and how 'severe' the consequences of having HIV/AIDS is, or how 'susceptible' they are. A person's decision to perform the health-promoting (or damaging) behaviour will be based on the outcome of this 'weighing up' process. Self-efficacy is also added to the HBM to enable prediction of behaviour. Self-efficacy is a person's perceived confidence of their ability to perform that behaviour (Figure 2 illustrates the health belief model.)

The HBM includes four factors that need to take place for a behaviour change to occur: the person needs to have an 'incentive' to change their behavior, the person must feel there is a 'risk' of continuing the current behavior, the person must believe change will have 'benefits', and these need to outweigh the 'barriers' and the person must have the 'confidence' (self-efficacy) to make the change to their behaviour. The HBM additionally suggests that there is a 'cue to action' to prompt the behaviour change process. This could be a conversation with a friend or a television program or counseling. The prompt, however, has to be appropriate to that person.

There are a number of criticisms of the HBM alongside other social cognitive models. Social cognitive models (the HBM in particular) emphasize a rational approach to behaviour and may exclude influential aspects such as friends, family or social norms. In addition, the role of cultural contexts is missing and in non-Western populations these theories may be less culturally sensitive (Lin et al. 2005), especially if they promote individualism and remove emphasis on family or group behaviours.

1.2.4: HIV Communication

Until 2000, when President Moi declared HIV/AIDS a national disaster, all information about the disease was treated with much secrecy, and this hindered openness in discussing issues surrounding the disease. This climate of fear on the part of medical officials and the secretive behavior of victims and their families made it difficult for journalists to report effectively and accurately on the subject. However, many in Kenya still lag behind on information due to the nation's high level of illiteracy (Ngome, 2003). In Kenya today, HIV/AIDS remains a controversial subject.

The science involved with understanding the disease, its prevention and treatment, is also quite complicated, so what happens is that the public—and even medical experts—are often confused in terms of how to act. And because of this confusion, less attention than is needed is given to the fight against this killer (Ngome, 2003).

As a journalist, reporting on HIV/AIDS presented many challenges. The disease itself presents a lot of scientific issues. To cover them accurately requires medical knowledge and science writing skills, and these hurdles have been difficult for journalists here to get past. The primary role journalists can play in reporting on this situation is to bridge the gap between what scientists know and what the public needs to know. And this is only possible if the journalist understands the subject well enough to disseminate information about it. In Kenya, very few journalists have had training in science writing, and those who are science writers head for greener pastures in research institutions (Ngome, 2003).

A 2005 study by the African Woman and Child Feature services reveals (AWCF) that the media has been accused of being focused on making money and ignoring social responsibility to educate and inform. The most vulnerable groups – women and children – are also the most disadvantaged when it comes to accessing public health information from the mainstream media. The youth, especially in urban areas, have been carried away by western influence and would rather pay more attention to pop music instead of watching/ listening to documentaries on public health issues. The challenge therefore is to interest them into such educational programmes.

Cultural and religious issues play a huge role in the fight against HIV/AIDS. There is still that belief that sex is a power game and that men are the ones who should be in control, yet if HIV prevalence should reduce, women should be at an equal platform as men in terms of control over their sexuality. In March 2013 a Kenyan TV advert promoting the use of condoms in extra-marital affairs caused a stir among a section of religious leaders and some on social media in the country. The advert dubbed 'Weka Condom Mpangoni' was sponsored by Kenya's ministry of public health, USAID and UKAID and was intended to educate the public on the importance of condom use. This demonstrates that society still views that the power to decide when and how to have sex as the preserve of men, even at a time when both male and female condoms are available.

In April 2013, another condom advert in billboard at the Museum hill overpass in Nairobi was pulled down and banned. The advert read "We believe in God. We believe that sex is sacred. We believe in caring for each other. We believe in using condoms. Good Catholics use condoms." This therefore poses a challenge to communicators who should promote the ABC (Abstain, Be faithful, Use a condom). Several research studies reveal that abstinence does not work in discordant relationships while "Be faithful" is no longer relevant in such a scenario. What communicators should push for is the condoms despite opposition from religious bodies and society.

Segregation has been reported in several research studies as one of the challenges facing the HIV infected and affected. The fear of HIV is further worsened by the available public posters which portray HIV/AIDS as a death sentence (figure 3.) In addition the local media in Kenya still refers to people with Aids as victims.

1.3 Conclusion/Recommendation

HIV/AIDS is the biggest development challenge in Kenya today. Women bear the brunt of so many of the problems associated with this disease. First, as people who are unable to negotiate safer sex and secondly because of poverty they end up trading in sex. Thirdly as caregivers, women who are HIV positive still have to care for family members who are ill. HIV/AIDS awareness should be handled through in-depth investigation and regular campaigns repeatedly focusing on specific situations where women are vulnerable. The priority should be highlighting the structures that put women at risk and especially the adolescent girls. These are the majority of those that are affected and infected by the disease. Biological and social factors make women vulnerable to HIV/Aids thus need to be discussed openly in the media. Women need adequate information on prevention, abstinence and the skills on how they can practice it (African Women and Child Feature Services, 2005.)

In the Kenyan society HIV has is perceived as a poor people's diseases due to factors such as economic inability to purchase condoms, poverty, insecurity leading to rape etc. The Kenya AIDS epidemic update 2012 reveals that HIV affects Kenyans from all socioeconomic strata. Highest HIV prevalence (7.2%) is among the top wealth quintile, with the second highest HIV prevalence among the second lowest (6.8%). The poorest Kenyans (lowest wealth quintile) are least likely to be living with HIV, with a prevalence of 4.6%. There is therefore need to highlight this in public communication campaigns. HIV messages should no longer be structured only for the poor, illiterate Kenyan but also for the educated rich of society where HIV prevalence is at its highest.

In order to address the issue of discordance public communication messages should cover the following information: The true meaning and the causes of discordance, The existence of HIV and HIV discordance, The importance of couples testing for HIV together, The importance of disclosure in a discordant relationship, How people in a discordant relationship can live happily together, How the HIV negative partner can be prevented from getting infected with the virus, How HIV discordant couples can safely have children. (Senyonjo&Atenu,2009.) Couple prevention interventions should begin early in relationships and include mutual knowledge of HIV status. The fact that a large majority of infected couples are actually discordant represents an opportunity for prevention. Prevention among couples is not easy given cultural resistances, but policy makers should be imaginative and increase their prevention efforts towards the partners of individuals who have been identified as HIV positive. (Kamenga et al 1991; Allen et al 1992; Roth et al, 2001; and Allen et al, 2003).

1.4 Table and Figures

Figure 1: Conceptual Framework

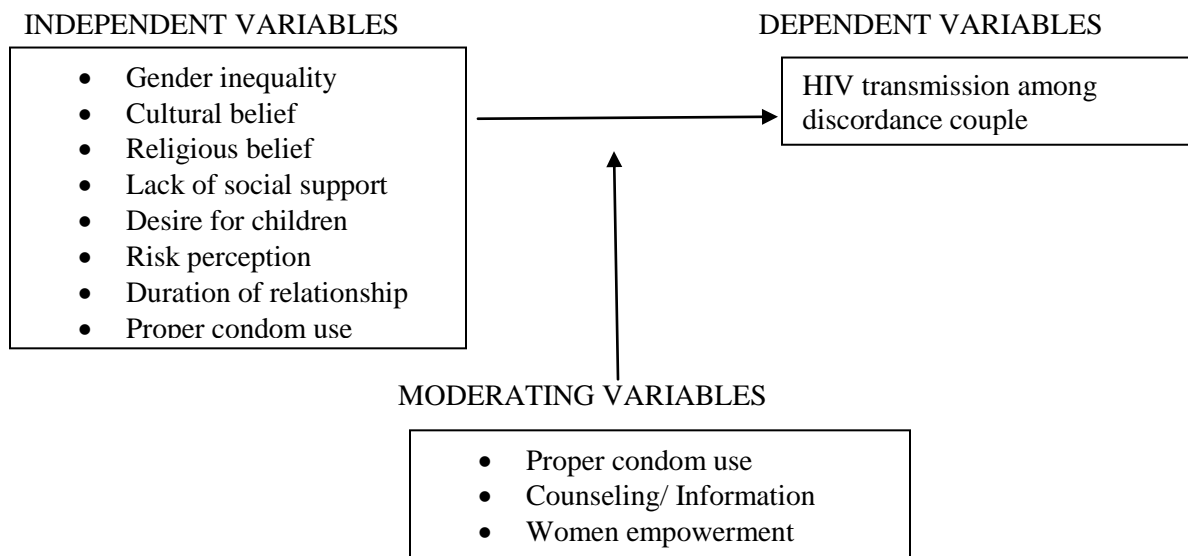
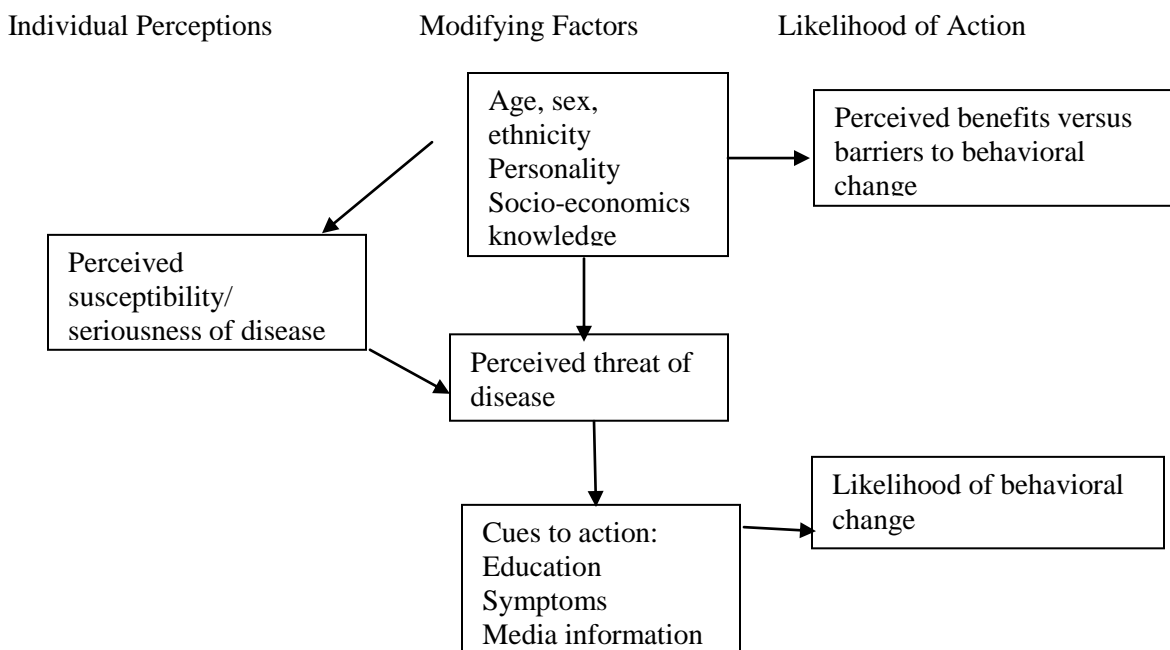


Figure 2: Health belief model



Source: Glanz et al, 2002.

Figure 3: Kenyan HIV Poster

References

- Allen, S, Van de Perre, P., et al. Effect of serotesting with counseling on condom use and seroconversion among HI V discordant couples in Africa. *British Med. J.* 1992; 304: 1605-1609.
- African Women and Child Feature Services (2005). Media Coverage of HIV/AIDS & Health Issues in Africa: Needs Assessment in Kenya. Retrieved from www.awcfs.org/
- Barden-O'Fallon, J.L., Degraft-Johnson, J., Bisika, T., Sulzbach, S., Benson, A., & Tsui, A.O.. Factors Associated with HIV/AIDS Knowledge and Risk Perception in Rural Malawi. *AIDS Behavior* 2004; 8, 131-140.
- Beckerman N. L, Letteny S, Lorber K. Key Emotional Issues for Couples of Mixed HIV status. *Social Work in Health Care* 2000; 31(4): 25-41
- Beckerman N. L, Serodiscordant couples in the age of combination therapies: Challenges and Coping. *Journal of HIV/AIDS and Social Work: Research, Practice, and Policy*, Vol; 1 Issue: 3, 2002 pg; 67-80.
- Bunnell, R. E.; Nassozi, J.; Marum, E.; Mubangizi, J.; Malamba, S.; Dillon, B.; Kalule, J.; Bahizi, J.; Musoke, N.; Mermin, J. H. Living with discordance: knowledge, challenges, and prevention strategies of HIV-discordant couples in Uganda; *AIDS Care*, Volume 17, Issue November 2005 , pages 999 – 1012.
- Eisen, M et.al. (1992). A Health Belief Model — Social Learning Theory Approach to Adolescents' Fertility Control: Findings from a Controlled Field Trial. *Health Education Quarterly*. Vol. 19.
- Gitonga Moses, Ballidawa Joyce & Ndege Samson(2012). Challenges and Coping Strategies among Couples of Mixed HIV Status Presenting at a Large Comprehensive Care Centre in Eldoret, Kenya. *Journal of Biology, Agriculture and Healthcare* Vol 2, No.8, 2012
- Glanz, K., Marcus Lewis, F. & Rimer, B.K. (1997). *Theory at a Glance: A Guide for Health Promotion Practice*. National Institute of Health.
- Halkitis, P. N., Parsons, J. T., Wolitski, R. J., & Remien, R. H. (2003). Characteristics of HIV antiretroviral treatments, access and adherence in an ethnically diverse sample of men who have sex with men. *AIDS Care*, 15, 89-102.
- Kabatesi, D, Ransom, R, Lule, J.R, et al.(2002). HI V prevalence among household members of people living with HI V in rural U ganda. XIV international. AIDS Conference, Barcelona.
- Kenya Government and ORC Macro. 2004. Kenya Demographic and Health Survey 2003. Kenya AIDS Indicator Survey 2007, NASCOP, MOH July 2008, Preliminary report, Nairobi, Kenya

- Kenya National Bureau of Statistics and ICF Macro. 2010. 2008–09 Kenya Demographic and Health Survey: Key Findings. Calverton, Maryland, USA: KNBS and ICF Macro.
- Murphy DA, Roberts KJ, Hoffman D, Molina A, Lu MC. (2003). Barriers and successful strategies to antiretroviral adherence among HIV-infected monolingual Spanish-speaking patients. *AIDS Care* 15(2):217-30.
- Merson, M.H., Dayton, J.M., & O'Reilly, K. (2000). Effectiveness of HIV prevention interventions in developing countries. *AIDS*, 14 suppl 2, S68-S84
- Ngome Joseph. Reporting on HIV/AIDS in Kenya. Retrieved from <http://www.nieman.harvard.edu/reports/article/101179/Reporting-on-HIVAIDS-in-Kenya.aspx>
- Oster, Emily. 2005. Sexually Transmitted Infections, Sexual Behavior, and the HIV/AIDS epidemic. *Quarterly Journal of Economics*, 120, 467-516.
- Ryder, R .W., Kamenga, C ., Jingu, M., et al. Pregnancy and HI V-1 incidence in 178 married couples with discordant HI V-1 serostatus: Additional experience at an HI V-1 counselling centre in the Democratic Republic of the Congo. *Tropical Medicine & International Health*. 2000; 5: 482-487.
- Senyonjo Martin & Atenu Edward (2006). Report on Findings from the Formative Research on HIV Discordance Straten Van der, Ariane, Rachel King, Olga Grinstead, Eric Vittinghoff, Antoine Serufulira, and Susan Allen. 1998. Sexual Coercion, Physical Violence, and HIV Infection among Women in Steady Relationships in Kigali, Rwanda. *AIDS and Behavior*, 2: 61-73.
- Tumwesigye E, Asiimwe S, Muganzi E, Achom M, Kabatesi D & Tappero J (2008). HIV prevalence among males in discordant partnerships in a full access door-to-door VCT programme in rural Uganda. Fifteenth Conference on Retroviruses and Opportunistic Infections, Boston, MA, USA (abstract 129LB).
- UNAIDS, UNFPA and UNIFEM. 2004. Women and HIV/AIDS: Confronting the Crisis., Geneva, Switzerland and New-York, USA.
- UNAIDS. 2005a. "Intensifying HIV prevention: a UNAIDS policy position paper" .Geneva, Switzerland.
- UNAIDS. 2005b. "AIDS epidemic update: December 2005" Geneva, Switzerland.
- UNAIDS Global report: UNAIDS report on the global AIDS epidemic 2010. UNAIDS. Geneva, Switzerland
- Walque Damien (2006). Discordant couples HIV infection among couples in Burkina Faso, Cameroon, Ghana, Kenya and Tanzania
- Walque, Damien. 2006. " Who Gets AIDS and How? The determinants of HIV infection and sexual behaviors in Burkina Faso, Cameroon, Ghana, Kenya and Tanzania., Policy Research Working Paper 3844, World Bank, Washington, DC.
- Weller SC, Davis-Beaty K.(2007). Condom effectiveness in reducing heterosexual HIV transmission (Review . The Cochrane Library. The Cochrane Collaboration 2007, Issue 4
- Were, K. Wools-Kaloustian, J. Baliddawa, P.O. Ayuo, J. Sidle and K. Fife .Stakeholders perception of HIV sero-discordant couples in western Kenya. *East African Medical Journal* Vol. 85 No. 7 July 2008
- Zaba B, Whitworth J, Marston M, et al. HIV and mortality of mothers and children: evidence from cohort studies in Uganda, Tanzania, and Malawi. *Epidemiology*, 2005.

Acronyms

- AIDS- acquired immunodeficiency syndrome
- ART- antiretroviral therapy/treatment
- HBM - Health Belief Model
- HIV- Human Immunodeficiency Virus
- UNAID- United States Agency for International Development
- UNIFEM -United Nations Development Fund for Women
- UNFPA- United Nations Fund for Population Activities
- WHO- World Health Organization