



HAL
open science

Couple-centred testing and counselling for HIV serodiscordant heterosexual couples in sub-saharan Africa

Annabel Desgrées Du Loû, J. Orne Gliemann

► **To cite this version:**

Annabel Desgrées Du Loû, J. Orne Gliemann. Couple-centred testing and counselling for HIV serodiscordant heterosexual couples in sub-saharan Africa. *Reproductive Health Matters*, 2008, 16 (32), pp.151-161. 10.1016/S0968-8080(08)32407-0 . ird-00353518

HAL Id: ird-00353518

<https://ird.hal.science/ird-00353518>

Submitted on 15 Jan 2009

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

HIV serodiscordance in heterosexual couples and the need for couple-centred HIV counselling and testing approaches.

Annabel Desgrées du Loû and Joanna Orne-Gliemann

Annabel Desgrées du Loû, PhD, Demographer,

Institute of Research for Development (IRD)

CEPED

221 Bd Davout, 75020 Paris, France

Tel : 00 33 1 78 94 98 74/ Fax : 00 33 1 78 94 98 79

Email: annabel.desgrees@ird.fr

Joanna Orne-Gliemann, PhD

Institut de Santé Publique Epidémiologie Développement (ISPED)

Université Victor Segalen Bordeaux 2.

146 rue Léo Saignat, 33076 Bordeaux, France

Tel: 00 33 5 57 57 45 17/ Fax: 00 33 5 57 57 45 28

Email: Joanna.Orne-Gliemann@isped.u-bordeaux2.fr

Abstract: (202 words)

In Africa, a large proportion of HIV infections occur within stable relationships, either because of prior infection of one of the partners or because of infidelity. Hence, there is an urgent need to define strategies to improve HIV prevention in a conjugal context.

HIV counselling and testing have largely been organised within individual and sex-specific services such as prevention of mother-to-child transmission of HIV programs for women, or STI consultations for men. This does not facilitate the communication around the HIV status of each couple member and the adoption of preventive behaviours within the couple. One of the potential strategies is a couple-centred approach to HIV counselling and testing.

In this paper, we first describe the stakes of HIV prevention within serodiscordant heterosexual couples in sub-Saharan Africa. We then systematically reviewed all couple-centred initiatives for HIV counselling and testing that have been evaluated in the scientific literature since the early nineties. It appears that despite positive results, such couple-oriented programs have not been implemented at a large scale.

In order to further stimulate and strengthen HIV prevention efforts, renewed and increased attention is urgently required to identify and promote adequate prevention messages and programmes to improve HIV prevention behaviours in conjugal contexts.

Keywords: HIV prevention – counselling and testing – couple – sero-discordance - Africa

Introduction

Although access to antiretroviral treatment is increasing worldwide, the need to reinforce HIV prevention efforts has never been stronger. In sub-Saharan Africa, 1.7 million people were newly infected in 2007 (1), highlighting the world's failure in slowing the spread of the epidemic, and the need to both further implement and scale-up efficient strategies for HIV prevention, and find new prevention approaches (2). Since the beginning of the epidemic on the African continent, HIV prevention campaigns and messages have mainly been focused on the prevention of "at risk" sexual behaviours, involving professional sex workers or occasional partners. And yet, many studies have shown that a large proportion of HIV infections occur within stable relationships, either because of prior infection of one of the partners or because of infidelity (3-5). It seems to be much more difficult to adopt preventive behaviours with a regular partner than with an occasional partner. The difficulties that women have to face to protect their sexual intercourses in a conjugal relationship have been largely described (6, 7). Recent studies tend to reveal that it may also be difficult for men to protect themselves from HIV within their couple (8, 9). And overall, many men and women live as a couple with an HIV-infected partner, most of them without knowing their HIV status. Serodiscordancy in heterosexual couples is highly prevalent in sub-Saharan Africa (10). Hence, there is an urgent need to define relevant, feasible and acceptable strategies to improve HIV prevention in a conjugal context. In this paper, we focus on one of them: couple-centred approaches to HIV counselling and testing. We first describe the stakes of HIV prevention within serodiscordant couple in sub-Saharan Africa. We then systematically review all couple-centred approaches to HIV counselling and testing that have been evaluated in the research literature since the early nineties. We finally discuss their outcomes and their place within global HIV prevention programmes.

Methodology

We reviewed the published scientific literature addressing couple-oriented HIV counselling and testing, from the early nineties to May 2008. We focus on the case of sub-Saharan Africa, the continent most severely affected by the HIV/Aids epidemic and where HIV transmission is mainly heterosexual. Our bibliographic strategy was the consultation of the scientific databases Medline and Scopus for peer-reviewed papers. Among the search terms used were “HIV infections”, “counselling or counseling”, “couple or couples” and “Africa”.

General context: an urgent need to focus on couple issues in the fight against HIV infection

Facing HIV serodiscordance within the couple*: new elements

It has long been demonstrated that HIV transmission occurs in the context of a stable couple (formally married or not) (4, 5, 13). In Zambia, DNA sequencing confirmed that 87% of new HIV infections among negative individuals living in a sero-discordant couple were acquired from the spouse (14). Until recently, most of the studies following-up HIV-negative or sero-discordant couples in countries facing generalised HIV epidemics tended to show that women are specifically at high risk of HIV infection within their regular partnership, presumably due to the infidelity of men and an increased biological susceptibility for women. These biomedical figures are also relayed by individual representations: women fear being

* The notion of couple in itself is difficult to define, since it covers various realities: from a formal marriage between cohabiting spouses, to a regular relationship without any formalization of the union, and sometimes without cohabitation of partners (11, 12). We will consider this notion of couple in its broader approach of “regular relationship”, whatever the nature of the union. In addition, here we consider heterosexual couples only. Male-male couples are also at high-risk of HIV but they require specific analysis.

infected by HIV by their spouse or regular partner, whereas men fear HIV infection from outside partners (15).

Recent analysis of large-scale studies has shed a new light on the question of HIV infection within the couple. The latest Demographic and Health Surveys (DHS) have been collecting HIV data and it is now possible to assess the HIV status of cohabiting couples, at a country level. The analysis of these DHS data in Burkina Faso, Cameroon, Ghana, Kenya and Tanzania revealed that, in each of these countries, at least two-thirds of HIV-infected couples were serodiscordant couples. In half of these serodifferent couples, the woman was HIV-positive and the man HIV-negative (10). This may be partly explained by women HIV infection during premarital sex. And indeed in Africa, a high proportion of young women are infected by HIV during their teens, before marriage, because they engage in transactional relations with older men (16). However De Walque's analysis suggests that extramarital sexual activity among women in union, as it has been described for men, is also a substantial source of vulnerability to HIV infection (10). A study in rural South Africa had also shown, a few years ago, that the direction of spread of the epidemic was not only from returning migrant men to their female partners, but also from women to their migrant partners (17). More recently, concordant results were presented on 8500 cohabiting couples who sought couple HIV testing in Lusaka, Zambia, between 1994 and 2000: nearly half of them were discordant couples, equally distributed between HIV-positive man/negative woman, and negative man/HIV-positive woman (3). These recent findings suggest the need to reconsider the general assumption that HIV infection among cohabiting couples is due to the extramarital sexual activity of men, and to the difficulties that women encounter in protecting themselves from this conjugal risk. Obviously, this is a reality, but women are not the only "victims" in the couple. Men are also at high-risk of HIV infection within their regular couple. Conjugal sexuality is at high-risk of HIV infection in countries heavily affected by the epidemic, for women and for men. Hence it is not sufficient to promote preventive behaviours for occasional or transactional intercourses, and fidelity to the regular partner. The prevention

of HIV transmission within sero-discordant couples should be a key strategy for HIV prevention. This is rarely mentioned as a priority in prevention efforts as regular sero-discordant couples usually don't belong to the list of "key populations" to whom prevention programs should be targeted[†].

Challenges of HIV prevention within a serodiscordant couple

The lack of HIV prevention within the couple partly comes from misperceptions of HIV sero-difference. As reported by Bunnell and colleagues (19), sero-discordant partners may deny this difference (*'I have failed to understand how discordance is possible, and up to now I have never believed that I am HIV negative when my partner is positive'*) or on the contrary may believe that the HIV-negative partner will never become HIV-infected (*'If all along I was not infected, how will I get infected now ?'*). Another study in Abidjan among HIV-negative women showed that their male partners did not seek HIV testing, although it was proposed free of charge, because they thought their serostatus was necessarily the same than their wife's (20). When both partners believe that they must have the same HIV serostatus because they have been a couple for a while, then usually they do not see why they should protect their sexual relationships.

The other main reason explaining why sexual intercourses in a regular relationship are at risk of HIV infection is well known: condom use remains low in a conjugal context (10, 21). Condoms are frequently associated with occasional sexual intercourse and suggesting condom use to a regular partner may be interpreted as a proof of infidelity or unfaithfulness (8, 22).

Nevertheless, encouraging results have been recently published. First, women appear to be less powerless at negotiating condom use than it is frequently reported. Women seem to

[†] Things may be slowly changing: in 2006, the PEPFAR's programme added couple's counseling to the priorities for Voluntary Counseling and Testing (18) .

manage to use condoms when they perceive themselves at risk of HIV infection, as suggested in a South African study (9). Second, attitudes towards condoms have changed over the past decade. In particular, men's reaction to condom use in a conjugal context appears to be less negative than anticipated, as shown in a study among married couples in Uganda (23). The dual protection nature of condoms is a strong argument to use with a regular partner: promoting condoms not only as a protection from HIV and other STIs but also as a family planning method appears to be more acceptable in a stable couple since it doesn't imply distrust (23-25). HIV prevention in a stable couple also seems related to the communication level on sexual risks between partners: condom use is greater in couples where there is a conjugal dialogue on sexual risks (26, 27). The few studies available on this subject underline the crucial need of a structure providing men and women with information, support and condom supplies, in order to sustain long-standing conjugal condom use. In the absence of continuous support, condom use increases in the immediate period after counselling, and then decreases gradually. In Abidjan, where less than 10% of stable couples use condom on a regular basis, 28% of women HIV-tested and counselled during a pregnancy used condom with their regular partner when they resumed a sexual activity after delivery. Two years after delivery, condom use with the regular partner had come back to the national level (28).

Sex-specific opportunities for HIV counselling and testing

HIV counselling and testing are the first steps for efficient HIV prevention and have largely been organised as individual and sex-specific services. For a long time, most HIV testing opportunities were provided to women only, within prevention of mother-to-child transmission of HIV (PMTCT) programs. And in areas covered by PMTCT programs, it is still generally through the woman, who decides to disclose her HIV test result to her partner or not, that male partners are informed about HIV and PMTCT. In an African context, where the coverage of PMTCT services is largely insufficient but the coverage of voluntary HIV

counselling and testing for the general population remains even lower, the proportion of men tested for HIV is very small. Thus women who discover their HIV infection during pregnancy are often the first member of the couple to be aware of their HIV status and to have received HIV counselling.

Within PMTCT programs, this lack of information provided to the male partner has proven to be most constraining. Some pregnant women refuse HIV testing without their partner's approval (29), and it seems that the recently promoted "opt-out" approach to routine prenatal HIV testing (30) has not modified women's attitudes (31). Women also tend to refuse the antiretroviral prophylaxis or infant formula because they fear the reaction of their husband when he realizes they have taken health decisions without discussing them with him (32). Finally as explained above, it is difficult for a pregnant woman who knows she is HIV-infected to systematically protect her sexual intercourses with her spouse, if her male partner is unaware of her serostatus. Condom use with the regular partner is very low after prenatal HIV testing (33), but it increases when the partner has been notified of his wife's HIV status (27) or has been tested himself (34). A recent study in Abidjan has shown that, for all these reasons, HIV infected women tended to inform their partner of their HIV status before opting for formula feeding for the baby, and when sexual activity is resumed (35).

For men, the main options for HIV testing so far have been within outpatients STIs consultations or the rare anonymous and voluntary HIV counselling and testing centres. In the near future, male circumcision programmes should provide new opportunities (36). The consequences, within the couple, of men's HIV testing will need to be thoroughly evaluated. HIV testing initiatives for men will need to ensure appropriate counselling of both men and women. Indeed, it was recently shown that women were not always the victims, willing to use condoms but facing their partner's refusal: in KwaZulu Natal, 65% of the rural women interviewed had a negative attitude towards condoms (9). And thus, will it be possible for men aware of their HIV status to suggest condom use to their partner if they have not informed her of their HIV test?

For the moment overall, HIV testing is often proposed to men and women separately, and on very different occasions. This does not facilitate the communication around the HIV status of each of the couple members. And yet, this dialogue is critical for the adoption of preventive behaviours within the couple. One of the potential strategies would be the development of a couple-centred approach to HIV counselling and testing.

What place for couple-centred approaches to HIV counselling and testing in Africa?

Couple-centred HIV counselling and testing initiatives have been developed as early as during the 1990s. In the scientific literature, couple-centred HIV counselling and testing initiatives published to date concern five countries from Eastern and Central Africa, where adult HIV prevalence ranged from 3 to 17% in 2007 (1): former Zaire, Rwanda, Zambia, Tanzania and Kenya (Table 1). Couple Voluntary Counselling and Testing (CVCT) initiatives reported to date have been organised in different ways. In former Zaire, the first experience of a couple approach to HIV counselling and testing to have been published, couples were recruited after HIV diagnosis and provided with continuous individual and couple counselling for 18 months (37). In Rwanda and in Zambia, the programmes were initiated by the same research group[‡] and the organisation of CVCT activities were similar: couples arriving in the CVCT centre were offered group pre-test counselling in the morning, with a video and a group discussion on HIV (20 couples on average). Each couple then spoke privately with a counsellor and decided whether to be tested for HIV. Individual counselling was provided only on request, or if the counsellor felt it was necessary. On the same day, each couple received joint confidential post-test counselling (3, 38). Finally in the VCT Efficacy study conducted in Kenya, Tanzania and Trinidad, the process was slightly different: when couples arrived to seek VCT in a health centre, both partners of the couple were counselled together or individually by their choice. Some individual time with a counsellor was given to ensure

[‡] The Rwanda Zambia HIV Research Group, lead by Susan Allen, Emory University, Atlanta

accurate risk assessment. Couples were informed before HIV testing that they were expected to share their test results. Test results were given two weeks later, individually first, and then partners were encouraged to share their results within a couple post-test counselling session (39, 40).

Whatever the CVCT procedures adopted, all programmes have shown globally positive outputs (Table 1). The rates of HIV status disclosure to the partner were high. In the multisite VCT study, disclosure rates were 91% among participants enrolled as couples vs 70% among individuals (40). In all other experiences reported, participants were enrolled as couples and couple post-test HIV counselling sessions were provided, so disclosure rates to the partner were automatically 100%. An important result was that HIV status disclosure was rarely accompanied by a negative reaction from the partner. In Tanzania, less partner violence was reported among women who disclosed their serostatus to their partner comparatively to those who did not (10% vs 17%) (41). The consequences of disclosing HIV test results in the context of couple counselling were usually positive among both HIV-infected and HIV-negative men and among HIV-negative women, resulting in the strengthening of the sexual relationship in particular. But the situation appeared to be more uncertain for HIV-infected women. In the multisite study conducted in Kenya, Tanzania and Trinidad, serodiscordant couples with an HIV-infected woman were more likely to report the break-up of a marriage than other couples (20 vs 0-7%) (39, 40). In other settings without couple VCT, the breaking-off of union among HIV-infected women has also been documented, but it was not related to the partner's notification (33, 42). It may be possible then that these union dissolutions don't result from a negative reaction of the partner, but rather occur because the HIV-infected woman prefers to separate rather than having to face the difficulties of a conjugal relationship coping with HIV infection. The CVCT studies published to date have also reported on condom use with the regular partner. All programmes reported a dramatic impact of CVCT, with rates increasing from 5% to 77% in Kinshasa, 4% to 57% in Kigali, 3% to 80% in Lusaka (see table 1).

Table 1 here

In spite of the positive consequences of CVCT programs, the acceptability of this couple service is still low. In Zambia in the early 1990s, the same-day VCT programme was acceptable to only 30% of invited couples (43), and more recently, the acceptability of CVCT only reached 14% of invited couples (38). One of the keys to an improved acceptability and attendance to available couple-oriented services seem to be the promotional efforts of CVCT. In Zambia, CVCT was promoted via the mass-media and by outreach door-to-door invitations by community workers: promotion messages mainly addressed the misconception that cohabiting couples always have the same HIV serostatus, and emphasized the confidentiality of CVCT services. But attendance to CVCT dropped when community outreach ceased, despite continued mass media advertisement (3). The experience of Rwanda and Zambia show that door-to-door promotion of CVCT by well-trained and influential members of the community is necessary to overcome the fear of stigma among couples (38).

Further than general VCT, a couple-centred approach has also been developed within PMTCT programmes (Table 2). To our knowledge, only two African couple-centred PMTCT experiences have been conducted and described in the international literature, one in Zambia and another in Kenya (44, 45). Both studies also concluded to very positive outcomes: couple counselling was associated to an increase in HIV testing acceptance, in the uptake of antiretroviral prophylaxis and of formula feeding. In Zambia, there were no significant differences in reported adverse social events among couple-counselled versus individually-counselled women, but a trend towards higher level of divorce or separation among serodiscordant couples was however observed (44).

Table 2 here

In the early 2000, UNAIDS was already advocating in favour of such couple-centred approaches to HIV prevention: « *Married couples should be encouraged to go for HIV counselling together so that serodiscordant couples can be identified and counselled (...). Offering VCT to couples overcomes the problem of sharing results (...). The majority of studies of couple counselling report successful outcomes (...)* » (46). The same year, Thomas Painter called for an increased attention to couple-focused HIV counselling and testing (47). He underlined that, while many studies have pointed out the interest and success of couple-centred HIV counselling and testing, follow-up in this area has been extremely limited. At the same time, other PMTCT studies, not specifically couple-centred, also concluded on the need to involve male partners (48, 49).

However, in spite of the data available since the 1990s and of repeated recommendations made since, couple-centred approaches for HIV prevention (whether aiming for PMTCT or the prevention of sexual transmission of HIV) have not been implemented at a large scale. And apart from the experiences reported in Rwanda (38), Uganda (19), Zambia (3, 44) and Kenya (45), it is hard to find in the recent years any mention of a couple-centred approach in the scientific literature as well as in the programmatic documents[§]. Even in the latest UNAIDS Global Report on HIV/AIDS, no mention is made of the potential of couple-centred approaches for the fight against HIV/AIDS worldwide (51). Such couple-centred approaches may currently be implemented at a large scale but their results are not yet documented in the scientific literature.

So overall, it seems that couple HIV counselling and testing services are both little promoted by policymakers and other influential groups, and little demanded for, despite positive results. Two reasons may explain this continuing cycle of low supply and low demand (38) of couple-

[§] Both authors of this review paper are involved in an ongoing HIV intervention trial evaluating a prenatal CVCT in Cameroon, Georgia, India and Dominican Republic (50).

centred approaches: first, the wrong belief that regular partnership is safe from couple HIV transmission, and second, women's reluctance to involve their partner by fear of stigma. The latter point should be further explored, as the data available to date is very contrasted. Qualitative studies report cases of women who have been rejected by their male partner because they were HIV-infected (52). But it seems that, in quantitative studies, negative outcomes after disclosure are relatively rare (53, 54). Relation between disclosure and violence may indeed be biased: women who fear a negative reaction from their partner may avoid disclosing whereas women who expect a comprehensive reaction disclose more easily their HIV status to their partner. Hence, couple-oriented approaches may be desirable in certain conjugal contexts but not in all. Additional scientific and operational research is thus urgently needed to further document the feasibility and impact on women and men of couple-centred HIV counselling and testing approaches.

Conclusion

In order to further stimulate and strengthen HIV prevention efforts, increased attention is required to identify and promote adequate prevention messages and programmes aiming at HIV prevention within the couple. Pilot couple-oriented programmes have led to positive results but they were not scaled-up and generalized to other countries. This couple-centred approach could be made available in HIV testing settings traditionally sex-specific: prenatal care consultations or male circumcision programmes for example. Additional research should also explore new means of communication for improving the image of condoms and promoting condoms as a conjugal object (14, 47, 55). New counselling tools like group-based couples' interventions could also contribute to increasing condom use in a conjugal context (56). Finally, research on HIV risk management and prevention within the couple relationship will need to be strengthened. In Africa, there is still an inadequate socio-behavioural knowledge-base on HIV prevention and the dynamics of couple relationships in general (47). Specifically, several topics need to be urgently addressed: the couple

communication on sexual risks; the evolution of preventive behaviours over time (according to the duration of the relationship, the time since VCT); gender issues within the couple (negotiation, violence) or the links between sexual and reproductive issues, among others. This field of research needs particular attention, keeping in mind that, if the increased involvement of men within HIV prevention is urgently required, this should not be done to the detriment of the individual rights and freedom of women.

Acknowledgements:

An earlier version of this paper was presented under the title: "Women facing HIV prevention within their couple : a question at a standstill ?" in plenary session at the VIIIth conference of "AIDS Impact" held in Marseille, France, 1-4 July 2007. The text was expanded and updated for RHM.

Table 1. Couple-centred voluntary counselling and testing programmes in Sub-Saharan Africa. Scientific literature published between 1990 and May 2008.

Location	Objective	Method	Content of the intervention	Reported positive effects
Former Zaïre (Kinshasa) (37)	- To determine the effect of VCT on serodiscordant couples	- Prospective cohort study - Sample: 149 serodiscordant couples	- Setting: counselling centre - Individual then couple post-test counselling - Monthly post-counselling follow-up until 18 months after enrolment (first individual then couple sessions)	- Increase in reported regular use of condoms after 18-months follow-up (5% to 77.4%) - Low rate of sero-conversion (3.1 per 100 person.years (PY) of observation)
Rwanda (Kigali) (38, 57)	- To determine the effect of VCT on condom use and HIV transmission in sero-discordant couples	- Prospective cohort study - Sample : 53 serodiscordant couples	- Setting: counselling centre - Follow-up for an average of 2.2 years	- Increase in reported condom use from 4 to 57% after 1 year - Rate of sero-conversion of 4 and 9 per 100 PY among men and women respectively
Rwanda (Kigali) and Zambia (Lusaka) (38, 57)	- To assess the impact of a promotional intervention to increase community awareness and invite couples for CVCT	- Intervention study - Sample: 61 Influence Network Agents and 9900 couples	- Setting: outreach + CVCT centres - Recruitment and training of Influence Network Agents and delivery of invitations to couples - Provision of CVCT	- Acceptability of CVCT: 14% of invited couples - Invitations delivered at home stronger predictor of attendance to CVCT than community invitations
Zambia (Lusaka) (43)	- To assess the impact of a promotional programme on the acceptance of same-day CVCT	- Cross-sectional study - Sample: over 3500 couples	- Setting: community and VCT centre - Outreach promotion of VCT - Same-day VCT programme: group and couple pre-test counselling + same day couple post-test counselling	- Acceptability of same-day VCT programme: 30% of invited couples
Zambia (Lusaka) (3, 14)	- To describe condom use prior to and after VCT	- Prospective cohort study - Sample: 963 discordant cohabiting couples	- Group then couple pre-test counselling + same day couple post-test counselling	- Increase in condom use before/after VCT (from 3% to 80%)
Zambia (Lusaka) (3, 14)	- To describe the evolution in impact of promotional strategies for CVCT	- Observational study	- Mass media campaigns + contact with large-scale employers and NGOs (by project counsellors and then by peer recruitment of couples trained as community workers)	- Attendance to CVCT dropped when community outreach ceased, despite continued mass media advertisements
Kenya, Tanzania, Trinidad (39, 40)	- To determine the efficacy of VCT in reducing unprotected sexual intercourse	- Randomised trial of couple vs individual health information or HIV counselling and testing - Sample: 3120 individuals and 586 couples	- Setting: health centre - Health information (HI) group: 15mn video + discussion with counsellor - HIV Counselling and Testing (VCT) group: individual or couple counselling by choice; post-test counselling 2 weeks after testing, first individually, then as a couple by choice - 2 follow-up visits at mean 7.3 and 13.9 months after enrolment	- Disclosure rate: 91% among participants enrolled as couples vs 70% among individuals - Overall strengthening of sexual relationship - Reduction of reported unprotected sexual intercourse among women enrolled as couples

HI: Health Information
VCT: Voluntary Counselling and Testing
CVCT: Couple Voluntary Counselling and Testing

Table 2. Couple-oriented prevention of mother-to-child transmission of HIV programmes, Sub-Saharan Africa. Scientific literature published between 1990 and May 2008.

Location	Objective	Method	Content of the intervention	Reported positive effects
Zambia (Lusaka) (44)	- To assess the impact of couple counselling on women's acceptance of HIV testing and ARV prophylaxis and on adverse social events	- Prospective cohort study - Sample: 8541 pregnant women counselled as individuals and 848 women counselled as couples	- Individual or couple prenatal HIV counselling by choice	- Increase in HIV testing acceptance (79 vs 96% among individually vs couple-counselling women) - No more adverse social events among couple-counselled women vs individually counselled
Kenya (Nairobi) (45)	- To determine the effect of couple counselling on the uptake of PMTCT interventions	- Sample: 1796 women individually counselled, 308 women accompanied by their partner for VCT, 116 women couple-counselled	- Individual or couple prenatal HIV counselling by choice	- Increase in uptake of antiretroviral prophylaxis for PMTCT - Increase in uptake of formula feeding - Increase in condom use

References

1. UNAIDS. Aids Epidemic update : december 2007. Geneva; 2007.
2. Bunnell RE, Mermin JH, De Cock KM. HIV prevention for a threatened continent. Implementing positive prevention in Africa. *Journal of American Medical Association* 2006;296(7):855-858.
3. Chomba E, Allen S, Kanweka W, Tichacek A, Cox G, Shutes E, et al. Evolution of couples' voluntary counseling and testing for HIV in Lusaka, Zambia. *Journal of Acquired Immune Deficiency Syndromes* 2008;47(1):108-115.
4. Carpenter LM, Kamali A, Ruberantwari A, Malamba S, Whitworth JA. Rates of HIV-1 transmission within marriage in rural Uganda in relation to the HIV sero-status of the partners. *Aids* 1999;13:1083-1089.
5. Malamba S, Mermin JH, Bunnell RE, Mubangizi J, Kalule J, Marum E, et al. Couples at risk. HIV-1 concordance and discordance among sexual partners receiving voluntary counseling and testing in Uganda. *J Acquir Immune Defic Syndr* 2005;39(5):576-580.
6. Van Rossem R, Meekers D, Zkinyemi Z. Consistent condom use with different types of partners: evidence from two Nigerian surveys. *AIDS Education and Prevention* 2001;13(3):252-67.
7. Worth D. Sexual decision-making and AIDS : why condom promotion among vulnerable women is likely to fail. *Studies in Family Planning*. 1989;20(6):297-307.
8. Chimbiri AM. The condom is an 'intruder' in marriage : evidence from rural Malawi. *Soc Sci Med* 2007;64(5):1102-1115.
9. Maharaj P, Cleland J. Risk perception and condom use among married or cohabiting couples in KwaZulu-Natal, South Africa. *International Family Planning Perspectives* 2005;31(1):24-29.
10. De Walque D. Serodiscordant couples in five African countries : Implication for prevention strategies. *Population and development review* 2007;33(3):501-523.
11. Meekers D. The process of marriage in African societies : a multiple indicator approach. *Population and development review* 1992;18(1):61-78.
12. Meekers D, Calves AE. "Main" girlfriends, girlfriends, marriage, and money: the social context of HIV risk behaviour in sub-Saharan Africa. *Health Transition Review* 1997;7 Suppl:361-75.
13. Hugonnet S, Mosha F, Todd J, Mugeye K, Klokke A, Ndeki L, et al. Incidence of HIV infection in stable sexual partnerships: a retrospective cohort study of 1802 couples in Mwanza Region, Tanzania. *J Acquir Immune Defic Syndr* 2002;30(1):73-80.
14. Allen S, Meinzen-Derr J, Kautzman M, Zulu I, Trask S. Sexual behavior of HIV discordant couples after HIV counseling and testing. *Aids* 2003;17(5):733-740.
15. Smith KP, Watkins SC. Perceptions of risk and strategies for prevention: responses to HIV AIDS in rural Malawi. *Social Science and Medicine* 2005;60:649-660.
16. Pisani E. AIDS into the 21st century : some critical considerations. *Reprod Health Matters* 2000;8(15):63-76.
17. Lurie M, Williams J, Zuma K, Mkaya-Mwamburi D, Garnett G, Sweat M, et al. Who infects whom ? HIV-1 concordance and discordance among migrant and non-migrant couples in South Africa. *Aids* 2003;17:2245-2252.
18. PEPFAR. The Emergency Plan's Priorities for HIV Counseling and Testing. In; 2007.
19. Bunnell RE, Nassozi J, Marum E, Mubangizi J, Malamba S, Dillon B, et al. Living with discordance: knowledge, challenges, and prevention strategies of HIV-discordant couples in Uganda. *AIDS Care* 2005;17(8):999-1012.

20. Brou H, Agbo H, Desgrees Du Lou A. [Impact of HIV counseling and testing during antenatal consultation for HIV- women in Abidjan (Cote d'Ivoire): a quantitative and qualitative study (Ditrane Plus 3 project, ANRS 1253)]. *Sante* 2005;15(2):81-91.
21. United nations U. Levels and trends of contraceptive use as assessed in 2000. New York; 2002.
22. Bauni EK, Jarabi BO. The low acceptability and use of condoms within marriage: evidence from Nakuru district, Kenya. *Etude de la Population Africaine / African Population Studies* 2003;18(1):51-65.
23. Williamson NE, Liku J, McLoughlin K, Nyamongo I, Nakayima F. A qualitative study of Condom Use among married couples in Kampala, Uganda. *Reprod Health Matters* 2006;14(28):89-98.
24. Cleland J, Ali MM. Sexual abstinence, contraception, and condom use by young african women : a secondary analysis of survey data. *The Lancet* 2006;368:1788-93.
25. Cleland J, Ali MM, Shah I. Trends in protective behaviour among single versus married young women in Sub-Saharan Africa : the big picture. *Reprod Health Matters* 2006;14(28):17-22.
26. Zamboni B, Crawford I, Williams P. Examining communication and assertiveness as predictors of condom use : implications for HIV prevention. *AIDS education and prevention* 2000(12):492-504.
27. Desgrées-du-Loû A, Brou H, Djohan G, Becquet R, Ekouevi D, Zanou B, et al. Beneficial effects of offering prenatal HIV counselling and testing on developing a HIV preventive attitude among couples . Abidjan, 2002-2005. *Aids and Behavior* 2007(Online first. DOI : 10.1007/s10461-007-9316-6).
28. Brou H, Djohan G, Becquet R, Allou G, Ekouevi D, Zanou B, et al. Sexual prevention of HIV within the couple after prenatal HIV-testing in West Africa. *Aids Care* 2008;20(4):413-418.
29. Desgrees du Lou A, Brou H, Djohan G, Tijou Traore A. Le refus du dépistage prénatal : une étude de cas à Abidjan, Côte d'Ivoire. [Refusal of prenatal HIV-testing : a case study in Abidjan, Côte d'Ivoire]. *Sante* 2007;17(3):133-141.
30. World Health Organisation, UNAIDS. Guidance on provider-initiated HIV testing and counselling in health facilities. Geneva: World Health Organisation; 2007.
31. Homsey J, King R, Malamba S, Opio C, Kalanya J, Olonyo J, et al. The need for partner consent is a main reason for opting out of routine HIV testing for prevention of mother-to-child transmission in a rural Ugandan hospital. *J Acquir Immune Defic Syndr*. 2007;44(3):366-9.
32. Kiarie J, Kreiss J, Richardson B, JohnStewart GC. Compliance with antiretroviral regimens to prevent perinatal HIV-1 transmission in Kenya. *Aids* 2003;17(1):65-71.
33. Nebie Y, Meda N, Leroy V, Mandelbrot L, Yaro S. Sexual and reproductive life of women informed of their HIV seropositivity: a prospective cohort study in Burkina Faso. *JAIDS. Journal of Acquired Immune Deficiency Syndromes* 2001;28(4):367-72.
34. van der Straten A, King R, Grinstead O, Serufilira A, Allen S. Couple communication, sexual coercion and HIV risk reduction in Kigali, Rwanda. *Aids* 1995;9(8):935-944.
35. Brou H, Djohan G, Becquet R, Allou G, Ekouevi D, Viho I, et al. When do HIV-Infected Women Disclose their Serostatus to their Male Partner and Why? A study in a PMTCT programme, Abidjan. *PLoS medicine* 2007;4(12):e342.
36. Hankins C. Male circumcision : implication for women as sexual partners and parents. *Reprod Health Matters* 2007;15(29):62-67.
37. Kamenga C, Ryder RW, Jingu M, Mbuyi N, Mbu L, Behets F, et al. Evidence of marked sexual behavior change associated with low HIV-1 seroconversion in 149 married

- couples with discordant HIV-1 serostatus : experience at an HIV counselling center in Zaire. *Aids* 1991;5(1):61-67.
38. Allen S, Karita E, Chomba E, Roth DL, Telfair J, Zulu I, et al. Promotion of couples' voluntary counselling and testing through influential networks in two African capital cities. *BMC Public Health* 2007;7(349):doi:10.1186/1471-2458-7-349.
 39. The voluntary HIV-1 counselling and testing study group. Efficacy of voluntary HIV-1 counselling and testing in individuals and couples in Kenya, Tanzania, and Trinidad: a randomised trial. *Lancet* 2000;356(9224):103-12.
 40. Grinstead O, Gregorich S, Choi K, Coates T, and the voluntary HIV-1 counselling and testing study group. Positive and negative life events after counselling and testing : the Voluntary HIV-1 Counseling and Testing Efficacy study. *Aids* 2001;15:1045-1052.
 41. Maman S, Mbwapo J, Hogan M, Kilonzo G, Sweat M, Weiss E. HIV and partner violence: implications for HIV voluntary counseling and testing programs in Dar es Salaam, Tanzania. 2001. <http://www.populationcouncil.org>
 42. Desgrées-du-Loû A, Brou H, for the DITRAME PLUS study group. Conjugal risks after a prenatal HIV testing : experiences from a PMTCT program in Abidjan, Côte d'Ivoire, 2001-2005. In: *AIDSIMPACT; 2007 1-4 July 2007; Marseille; 2007.*
 43. Mc Kenna SL, Muyinda GK, Roth DL, Mwali M, Ng'andu N, Myrick A, et al. Rapid HIV testing and counseling for voluntary testing centers in Africa. *Aids* 1997;11(Suppl 1):S 103-110.
 44. Semrau K, Kuhn L, Vwalika C, Kasonde P, Sinkala M, Kankasa C, et al. Women in couples antenatal HIV counseling and testing are not more likely to report adverse social events. *Aids* 2005;19(6):603-9.
 45. Farquhar C, Kiarie J, Richardson B, Kabura M, John F, Nduati R, et al. Antenatal couple counseling increases uptake of interventions to prevent HIV-1 transmission. *J Acquir Immune Defic Syndr* 2004;37(5):1620-1626.
 46. UNAIDS. The impact of Voluntary counseling and testing. A global review of the benefits and challenges. Geneva: UNAIDS; 2001
 47. Painter TM. Voluntary counseling and testing for couples: a high-leverage intervention for HIV AIDS prevention in sub-Saharan Africa. *Social Science and Medicine* 2001;53(11):1397-411.
 48. Gaillard P, Melis R, Mwanyumba F, Claeys P, Muigai E. Vulnerability of women in an African setting: lessons for mother-to-child HIV transmission prevention programmes. *Aids* 2002;16(6):937-939.
 49. Ekouevi DK, Leroy V, Viho I, et al. Acceptability and uptake of a package to prevent mother-to-child transmission using rapid HIV testing in Abidjan, Cote d'Ivoire. *Aids* 2004;18(4):697-700.
 50. Orne-Gliemann J, Tchendjou P, Miric M, Gadgil M, M B, Eboko Fea. Evaluating the feasibility and impact of couple-oriented prenatal HIV counselling and testing in low and medium HIV prevalence countries. Abstract TUPE0387. In: XVII International AIDS Conference; 2008 3-8 August; 2008; Mexico City (Mexico); 2008.
 51. UNAIDS, WHO. AIDS epidemic update : special report on HIV/AIDS : december 2006. In: UNAIDS, editor. Geneva: UNAIDS; 2006.
 52. Temmerman M, Ndinya-Achola J, et al. The right not to know HIV test results. *The Lancet* 1995;345:969-970.
 53. Medley A, Garcia-Moreno C, McGill S, Maman S. Rates, barriers and outcomes of HIV serostatus disclosure among women in developing countries: implications for prevention of mother-to-child transmission programmes. *Bulletin of the World Health Organization* 2004;82(4):299-307.

54. Desgrées du Loû A. The couple and HIV/AIDS in Sub-Saharan Africa. Telling the partner, sexual activity and childbearing. *Population-E* 2005; 60(3):179-188.
55. Philpott A, Knerr W, Boydell V. Pleasure and prevention : when good sex is safer sex. *Reprod Health Matters* 2006;14(28):23-31.
56. Mc Grath J, Celentano D, Chard S, Fullem A, Kanya M, Gangakedar R, et al. A group-based intervention to increase condom use among HIV serodiscordant couples in India, Thailand and Uganda. *AIDS Care* 2007;19(3):418-424.
57. Allen S, et al. Effect of serotesting with counselling on condom use and seroconversion among HIV discordant couples in Africa. *BMJ* 1992;304:1605-1609.