IUSSP ■ International Union for the Scientific Study of Population
Policy & Research Papers
23

Contributions of Behavioural Change to Curbing the Spread of HIV

Gigi Santow

The International Union for the Scientific Study of Population (IUSSP) is an international professional association that brings together over 2,000 population specialists from all over the world to address key population issues. It is composed of demographers, economists, sociologists, statisticians, physicians, public health officers, family planners, administrators and policy makers from 140 countries. Founded in 1928, the IUSSP is internationally recognized for its role in identifying emerging and critical population and development issues, encouraging scientific research on these topics, and sponsoring international seminars, workshops, conferences, training sessions, and Internet forums at which critical issues can be discussed and debated.

One of the main functions of the IUSSP is to stimulate interest in population matters among governments, national and international organizations, the scientific community and the general public. In order to bring the results of policy relevant IUSSP scientific activities to the attention of governments and civil society organizations concerned with population issues, the IUSSP began the Policy and Research Papers series.

The outcomes of IUSSP meetings are also disseminated through a wide range of publications: the IUSSP website, edited volumes and articles in leading peer-reviewed journals. The results of its work are also communicated to international governing and policy-making institutions with which IUSSP has special consultative status, such as the Economic and Social Council of the United Nations.

The IUSSP is funded through membership dues and grants from governments, international donors and private foundations. It has recently received funding from the governments of France and the Netherlands, UNFPA, the William and Flora Hewlett Foundation, the World Health Organization and the Wellcome Trust.

IUSSP
3-5 rue Nicolas, 75980 Paris cedex 20, France

ISBN 978-2-87108-072-5

Contributions of Behavioural Change to Curbing the Spread of HIV

Gigi Santow

IUSSP ■ Policy & Research Papers n° 23

This Policy and Research Paper is based on papers and associated discussion at the seminar on Potential and Actual Contributions of Behavioural Change to Curbing the Spread of HIV, which was organized by the IUSSP Scientific Panel on Sexual Behaviour and HIV/AIDS and the Population Council, Nairobi, Kenya, and held in Entebbe, Uganda, 18-20 February, 2008. The seminar was supported by the Wellcome Trust, the Population Council, Nairobi, Kenya, and the United Nations Population Fund (UNFPA).

IUSSP
3-5, rue Nicolas
75980 Paris cedex 20 France

Table of contents

EXECUTIVE SUMMARY

• Sub-Saharan Africa, and especially the countries of southern and east Africa, is the region worst affected globally by the human immunodeficiency virus (HIV), which leads to the autoimmune deficiency syndrome (AIDS). Transmission there is largely through heterosexual coitus. Now, twenty years after mortality rates began to rise, epidemics are generalized into the wider population rather than concentrated in small groups characterized by atypical sexual behaviour.

• The key to curbing the continuing spread of HIV is behavioural change. Even if such change falls short of the strict injunctions of ABC (Abstinence, Be faithful, use a Condom) it will ameliorate an epidemic. People already know a great deal about the virus, including the behavioural determinants of infection.

• Most transmission in mature epidemics occurs within cohabiting partnerships. It is essential, therefore, that major interventions be targeted at couples. A major obstacle, however, is the widespread misconception that if one partner is HIV positive, mutual infection is inevitable. In order to mount successful couple-based interventions, it is imperative that this belief be dispelled.

• To be motivated and encouraged to change their behaviour people need, first, *general knowledge* about the workings of the virus; and secondly, *specific information* about their own infection status. This means, first, that ways must be devised to saturate communities with general knowledge concerning such facts as that, for example, if one partner is infected it is more likely than not that the other partner is uninfected.

• It means, secondly, that efforts to promote voluntary counselling and testing (VCT) must be strengthened, and in particular the testing of couples. It will be

impossible, however, to expand VCT without providing accurate information about how the virus works. Only if people accept that mutual infection is not inevitable will couple-based VCT be successful.

INTRODUCTION

The human immunodeficiency virus leads eventually to AIDS and, if untreated with antiretrovirals, to death. The virus spreads from an infected to an uninfected person in three primary ways: first, by penetrative sexual intercourse (heterosexual or homosexual); secondly, by so-called vertical transmission from HIV-positive mothers to their children during delivery or breastfeeding; and thirdly, through contaminated blood (for example through intravenous drug use or transfusion). Reductions in transmission through the second and third of these routes have been achieved by, respectively, the provision of antiretrovirals to pregnant women; and the promotion of single-use syringes and the screening of blood products. However, in the absence of a vaccine, a microbicide, or a cure, the principal key to reducing the spread of HIV and AIDS lies with people changing their sexual behaviour.

More than 30 million people world wide are now estimated to be HIV positive. Two-thirds of these are in sub-Saharan Africa, where transmission of the virus is largely through heterosexual sex. Since the global pandemic is so strongly concentrated in sub-Saharan Africa, and especially in southern and east Africa, this document focuses on that region, and on the potential and actual contributions of changes in heterosexual behaviour to stemming the epidemic there.

Although it will have taken some years for people to register that they were attending increasingly many funerals, AIDS-related deaths began to elevate mortality rates in many countries in the region from around 1990 (Timæus and Jasseh 2004). Perhaps understandably, then, lay people and researchers alike sometimes express impatience that AIDS epidemics appear to be continuing

in sub-Saharan Africa, and that in no country has an unequivocal decline been recorded in the rates of acquisition of HIV. In many countries the proportion of infected people appears to have stabilized, yet because AIDS-related deaths remove infected people from the population such stabilization implies that new infections are compensating for these deaths. The indirect evidence is therefore that there must be considerable barriers to behavioural change. Identifying these barriers in order to overcome them is of paramount importance if attempts to encourage and facilitate behavioural change are to have any chance of success.

CONTEXT

Sexual behaviour in sub-Saharan Africa has long been characterized by early sexual debut. Moreover, polygyny is traditionally acceptable within many African societies (independently of Islam) or even viewed as an ideal state. As a result, first, the notion of sexual exclusivity is perhaps weaker than elsewhere, at least for men. Secondly, since polygyny can be achieved only when a large proportion of such marriages involve a considerable age gap between husband and at least some of his wives, the pairing of very young women and considerably older men does not attract disapprobation. These days such partnerships do not necessarily involve polygynous marriage as such but may imply a commercial element, however subtly realized in practice. Outright prostitution flourishes both formally and informally, and recourse to female prostitutes is common both by young unmarried men and by men who work for extended periods away from their homes (see for example Caldwell 2000).

Such sexual behaviour is not unique to sub-Saharan Africa. It may, however, be more common there than elsewhere, and the transactional element may be stronger. Certainly, the resulting additional factors of high rates of change of sexual partners and of concurrent partnerships, and hence of dense networks of sexual partners, are conducive to the spread of HIV.

It is highly significant that this sexual behaviour occurs in an environment in which sexually transmitted diseases (STDs) are endemic. This significance arises not merely because it indicates that people are sexually active with numerous partners but because individuals with an infectious STD are both more susceptible to infection by HIV, and more likely to transmit HIV (see for example Galvin and Cohen 2004). The probability of acquiring HIV through one heterosexual coital act in the absence of STD infection is actually very low. In combination with STD infection, however, and among people whose immune systems are already under assault from other infections such as

malaria and tuberculosis, transmission becomes much more likely. The tragic results of these synergisms are all too evident today.

The explosion of AIDS across much of sub-Saharan Africa is not the first time that a combination of the behavioural factors singled out above has led to a serious outbreak of disease in the region. For example, the discovery of diamonds and gold in mid-nineteenth-century South Africa attracted large numbers of migrant labourers to the new mines, and syphilis for the first time established itself in the black population. Away from their homes and families for considerable periods of time, many miners were drawn to seek the services of prostitutes, with serious consequences not just for themselves but later on for their home communities: see box 1. Nevertheless, although untreated syphilis can cause great suffering it does not inevitably do so nor is it inevitably fatal. This contrasts starkly with HIV, which, if untreated, and unless death from some completely unrelated cause intervenes before progression to an AIDS-related illness, inevitably causes both suffering and death.

BOX 1

In a paper that has become a classic, Sidney Kark (1949) drew attention to the role of migrant labour in establishing syphilis among the black population (whom he calls "Africans") of South Africa. Syphilis was unknown before Europeans came to the area; the Zulu had no specific word for the disease, calling it instead "disease of white men" or "disease of the town". Kark describes the living condition of the diamond miners, and the even worse ones of the gold miners, no attempt having been made to provide for the accommodation of miners' families or the creation of any sort of stable community life. Instead, men lived for extended periods away from their families in crowded and dirty conditions, and drunkenness and prostitution were rife. Kark charts deeply unbalanced sex ratios in the 1930s, with excessive numbers of men in urban areas and excessive numbers of women in the rural homelands. In addition, he documents startlingly high prevalences of syphilis between 1921 and the mid-1940s among various groups of people, ranging from infants (congenital syphilis) to schoolchildren, pregnant women, miners and more representative population groups.

Kark's paper was republished in 2003, along with commentary that draws explicit parallels with the AIDS epidemics of today.

THE ISSUES

Researching sexual behaviour

No controversy surrounds the issue of what sorts of behavioural change would reduce HIV transmission and ultimately halt and reverse the heterosexually-driven epidemic: sexual activity should be restricted to marriage; and couples should be mutually faithful. Thus, in the case of HIV interventions, the difficulty lies first, not in judging what sort of change would be beneficial but in discovering in what ways actual behaviour deviates from the ideal, and secondly, in determining how to promote and facilitate change in sexual behaviour.

The sexual impulse is both basic and universal, and in no society in the world are these two conditions—sex only within marriage, and then only between married partners—universally observed, however strongly the particular society idealizes these two conditions. The idealization of these two conditions creates serious problems both for the observational researcher and the aspiring interventionist (see for example Cleland, Boerma, Caräel et al. 2004; and Nnko, Boerma, Urassa et al. 2004). Observational researchers—who in the strictest sense are not "observers" at all, in the sense of, say, laboratory scientists—must necessarily rely on what their study subjects choose to tell them about their sexual behaviour. However carefully questionnaires are constructed or less structured investigations conducted, such reports will be influenced by respondents' embarrassment at being asked to divulge intimate details of their most private behaviour, and such embarrassment is likely to occur even when study subjects' sexual behaviour conforms perfectly to societal prescriptions. In some cases subjects' reports will be tainted by shame that their behaviour diverges from the ideal, or fear that the confidentiality of their

reports will not be respected. In other cases their reports will be affected by exaggeration. In all cases there is the possibility that reports will be contaminated by simple problems of recall. Coital frequency, for example, is likely to be reported accurately only if it is extraordinarily high or extremely low.

Modes of possible change

The best-known behavioural intervention, which pragmatically recognizes human frailty, has been popularized as ABC: Abstinence, Be faithful, use a Condom. The message is to abstain before marriage, to be faithful within marriage, and if all else fails, to use a condom. There is an implicit gradient, in terms of difficulty, from the most to the least difficult: certainly, abstinence is the most difficult injunction to promote. Programmes of "abstinence-only education" for young people, for example, which proliferated in the United States under the last federal administration, have not proved to be a success (see for example Kirby 2008) despite the considerable funding they attracted and despite being devised by individuals who could be expected to be sensitive to the cultural environment in which the programmes were being promoted. There is little reason to believe that "abstinence-only" programmes could be more successful elsewhere.

Many people may find the stark injunctions of ABC difficult or even impossible to follow. Abstinence will be impossible for some, and not only within marriage. People, whether married or not, may still be tempted into sexual affairs. Condom use may be unpopular, especially within marriage where pregnancy may be desired, or where such use may be seen to reflect a lack of trust between spouses (see for example Chimbiri 2007).

Nevertheless, weaker versions of these injunctions may also be protective, at least in part, against viral transmission. These might include, for example, reducing the number of sexual partners, greater care in partner selection,

avoiding a sexual partner who is suspected to have other partners or has symptoms of a sexually transmitted infection, or using a condom outside marriage or with a partner who is believed to be "risky". It is highly encouraging to discover that people are now beginning to discuss and pursue such diverse strategies on their own initiative (for example Reniers 2008).

The potential effects of behavioural change

Given that perfect, universal adherence to the prescriptions of ABC is unlikely, the question that arises is how much an epidemic would be affected by less dramatic but more achievable changes in sexual behaviour. To answer this question, Bracher and Santow (2008) constructed a microsimulation model that simulates an entire population, one individual at a time, and in which each coitus carries with it a risk of pregnancy if the female partner is fecund and of disease transmission if either partner is infected with HIV or a sexually transmitted disease. The model demonstrates the critical importance of behavioural factors in creating and driving HIV epidemics: see box 2, next page.

Two major findings emerged. First, three distinct epidemics were created not by varying input parameters associated with *disease* but by varying parameters associated with *behaviour*. Secondly, *behavioural change* ameliorated the severity of each epidemic. HIV prevalence, among both men and women, fell sharply both when women had half the number of affairs they would otherwise have had, and when men visited bar girls half as often as they would otherwise have done. When both women and men changed their behaviour, the effects on HIV prevalence were even more marked (see figure 1, page 15). This particular application of the model did not test for the effect of different regimens of condom use, but an earlier model showed that the effects could be striking even without universal use, and even with substantial (but realistic) rates of slippage or breakage (Bracher, Santow and Watkins 2004). Moreover, a strategy of condom use when one or other partner was suffering from a symptomatic sexually

transmitted disease (STD) had marked effects, but required the use of considerably fewer condoms than more universal strategies of use with particular categories of partners (e.g. bargirls) irrespective of STD symptoms.

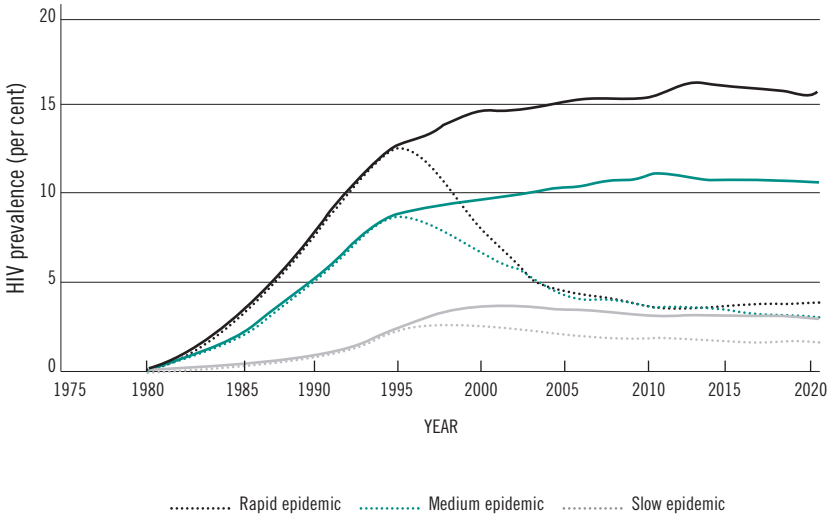
BOX 2

The model allows not only for marriage, divorce, widowhood, remarriage and death, from an AIDS-related cause or some other cause, but for premarital and extramarital affairs and for men to use the services of "bar girls". The model was applied to simulate three distinct epidemics: a "rapid" epidemic that stabilizes at an HIV prevalence among women aged 15-49 of 16 per cent; a "medium" epidemic that stabilizes at eleven per cent; and a "slow" epidemic that stabilizes at four per cent. These distinct epidemics were created not by varying parameters associated with disease *(such as, for example, the infection status of bar girls) but by varying parameters associated with* behaviour*. Thus, the input parameters that create the rapid epidemic differ from those that create the medium one only in that marriage occurs later, and fewer people ultimately marry; as a result, there are more affairs outside marriage simply because less time is spent within marriage. Likewise, the slow epidemic differs from the medium one only in that men are less likely to visit bar girls. The distinctiveness of the three epidemics highlights the importance of behavioural factors in driving the spread of HIV through a population. Moreover, the range of the three epidemics is not dissimilar to that of the epidemics now being observed in the region.*

The model was applied to test what would happen, first, if women with a propensity for an affair—not all women do—had only half the number of affairs, and secondly, if men with a propensity to visit bar girls did so only half as often. The effects were marked: for example, in the medium epidemic, HIV prevalence among women would have reached 10.6 per cent by 2020 with no behavioural change, but reached 7.1 per cent when women had fewer affairs, and 5.0 per cent when men were less likely to visit bar girls. When both women and men changed their behaviour, prevalence reached 3.5 per cent (see figure 1).

Figure 1

HIV prevalence among females aged 15-49 when men reduce their visits to bargirls and women reduce their affairs by 50 per cent from 1995



Source: Bracher and Santow (2008)

Evidence of change in sexual behaviour

Some seminar papers did more to document behaviour that facilitates the spread of the virus (for example Zamberia 2008, on Swaziland, which is suffering a particularly severe epidemic) than to detect any change.

On the other hand, evidence that sexual behaviour is changing in some places is beginning to accumulate. Nevertheless, the pace of change appears to be slow, and the evidence is not universally unequivocal.

In a longitudinal study to explore the role of AIDS awareness on behaviour change to reduce the risk of HIV transmission in new sexual relationships in

Uganda, Wolff, Akurut, Kasamba et al. (2008) found that concerns about HIV risk influence both the process of partner selection and the negotiation of condom use in new partnerships. Condom use has become the norm at the beginning of casual sexual relationships, which are defined as lacking marriage potential. Women are as likely as men to insist on condom use at the start of relationships but men appear to control the decision to stop using condoms. The abandonment of condoms as relationships progress toward more stable unions, such as marriage, challenges efforts at HIV prevention. Although most people still feel at risk of infection from their sexual partners, a demand for childbearing is irreconcilable with continuing consistent condom use.

Using data from two waves of the Malawi Diffusion and Ideational Change Project (MDICP), Obare and Poulin (2008) found reductions between 2004 and 2006 in reports of multiple sexual partnerships, and increases in reported condom use both overall and within marriage. Moreover, the acceptability of condom use within marriage increased over the period, with reductions in the proportions reporting that such use was unacceptable or that they did not know, and increases in the proportions reporting that condom use was acceptable only if a partner was infected. The proportions of both men and women who reported without qualification that condom use was acceptable within marriage remained essentially constant between 2004 and 2006 (about two-fifths): what changed were the proportions who thought that condom use was unacceptable, and the proportions who thought that condom use was acceptable only if one's partner were infected. Among men, for example, the proportion who found condoms unacceptable fell from 32 to 21 per cent, and the proportion who found them acceptable only if a partner was infected rose from 25 to 40 per cent.

Using more rounds of data from this project, and matching on individual records, Fleming (2008) reported that condom use within marriage became increasingly acceptable between 1998, 2001, 2004 and 2006. The greatest change, however, was the increase between 2004 and 2006 in the acceptabil-

ity of condom use within marriage if a partner were HIV positive. Moreover, people who learned in 2004 that they were HIV positive were more likely in 2006 to report approval of condom use within marriage.

Highlighting the fact that voluntary counselling and testing (VCT) is the principal entry point not just for HIV treatment services but for HIV prevention, this increase in the acceptability of condom use within marriage came at a time when VCT was becoming more widely available in Malawi (as elsewhere), and more widely resorted to, even in rural areas. Cremin, Nyamukapa and Sherr (2008) found some increase in the uptake of VCT in rural Manicaland, Zimbabwe, although the level remained low. Importantly, they detected that people who had received VCT reported fewer new sexual partners than those who had not, whether their results were positive or negative.

The emphasis in a number of these studies on attitudes rather than behaviour derives from researchers' uneasiness about the quality of self-reported information on sexual behaviour; it is disheartening to learn, for example, that some self-reports of sexual behaviour have been found to be inconsistent with biomarker data (for example, Plummer, Ross, Wight et al. 2004; Kamali, Quigley, Nakiyingi et al. 2003). Individuals who are aware of the risk factors for HIV/AIDS may be more likely to report that they have changed their behaviour, whether or not they have actually done so; and the saturation of the higher-prevalence southern and east African countries with information and with exhortations to change one's behaviour may have influenced reporting.

Focusing on attitudes rather than self-reported behaviour, however, is unlikely to solve this problem: just as people will know that they are supposed to use condoms, so will they know that they are supposed to approve of their use. Nevertheless, optimists might argue that however contaminated both the behavioural and the attitudinal data, an apparent shift towards the "right" responses at the very least suggests that information is somehow getting through to the people who are in need of it.

THINKING ABOUT INTERVENTIONS

Identifying target populations

Interventions to reduce the spread of HIV are designed with particular target populations in mind. The question, then, is which populations should intervention programmes be targeting.

Since the earliest days of research on the behavioural determinants of the spread of HIV, and the creation of AIDS epidemics, researchers have made general predictions about the sorts of people who would be more likely than others to transmit or acquire the virus. Such predictions were made without knowledge of people's actual HIV status: indeed, in sub-Saharan Africa testing began rather late in comparison with the course of the pandemic, and tended to be restricted to such special (captive) populations as pregnant women attending for antenatal care and army recruits. Only recently, largely under the auspices of the Demographic and Health Survey (DHS) programme, has testing been extended to representative samples of entire populations. Instead, researchers designated groups of people as "high risk" if they were believed to have numerous sexual partners. One marker of such behaviour was whether sexual encounters were characterized by a commercial element for the men obtaining the sex or the women providing it, and whether outright prostitution was involved or some sort of more subtle relationship with an exploitative element. Thus, for example, long-distance truck drivers were identified in the early 1990s as a vector of disease transmission: they travelled great distances away from their homes; they had money and goods with which to buy sex or barter for it; and young women congregated at truck stops to obtain rewards for their sexual services (Orubuloye, Caldwell and Caldwell 1993).

Likewise, migrant workers were identified as another "key population" (for example Lurie, Williams, Zuma et al. 2003) just as sixty years ago Sidney Kark identified them as vectors of syphilis (see box 1).

Yet in accounting for the spread of syphilis through the black South African population, Kark did not terminate his account with a discussion of the behaviour and disease status of migrant labourers at the mines but tracked what happened once they returned home to wives, to future wives, and to girlfriends. In so doing, he documented a syphilis epidemic that was affecting not "key populations", or "target populations", but the general population.

This is what has happened also in the case of HIV, especially in east and southern Africa. From being *focused* epidemics, with high proportions of infected individuals among certain comparatively small but "high-risk" groups, epidemics have become *generalized*, with the virus having moved into the general population to infect individuals whose sexual behaviour is not especially distinct from that of many of their neighbours. The implications for interventions are profound.

Young people

Given that epidemics are now generalized in sub-Saharan Africa, an obvious target population consists of young people, and in particular those who are on the threshold of their adult lives. The goal is not so much to change their behaviour—many, after all, will not yet be sexually active—as to enable and assist them to avoid adopting the behaviour that has proved so dangerous to older generations.

An innovative programme along these lines, known as *Mema kwa Vijana*—Good things for young people—has been conducted for the last decade in rural Mwanza, Tanzania. Ross, Changalucha, Plummer et al. (2008) find that the intervention has had favourable effects on knowledge and reported attitudes,

on reported symptoms of sexually transmitted diseases, and on some behavioural items such as initiating condom use and condom use at last intercourse. Disappointingly, however, these favourable responses to the intervention do not translate into a consistent effect on biological outcomes. This may be a result of reporting biases and statistical problems associated with sample size, but the authors suggest in addition that further targeting of parents or other adults may be necessary.

This latter is an issue that Remes (2008) confronts specifically in his analysis of the achievements and shortcoming of the intervention. If adult community members find it convenient to hide behind the atmosphere of secrecy that cloaks young people's sexual behaviour they need neither to recognize that young people are sexually active nor intervene to increase the safety of adolescent sexual behaviour by, for example, promoting the use of condoms. Accordingly, Remes identifies a need to direct efforts not just at young people as individuals but at the community as a whole. He calls, in effect, for nothing less than cultural change.

An intervention that seeks explicitly to change cultural notions that place young people at risk of contracting HIV is being conducted in Uganda. The so-called Be A Man campaign, run primarily by a local programme called Young Empowered And Healthy (YEAH), seeks to erode if not eradicate prevalent notions that the exercise of masculinity implies unequal power in sexual relationships, unfaithfulness, domestic violence, not seeking reproductive health services, and possibly alcohol abuse. Musoke, Kiwanuka, Gamurorwa et al. (2008) do not claim that the programme can unequivocally be declared a success: indeed, with refreshing candour they report: *After the campaign on what it means to "Be a Man", people recognize the ideal man in the community, but they agree they are not yet there. Though not yet there, these people have already moved past the pre-contemplation stage. The majority are at the contemplation stage of the behavioural change continuum* (p. 21).

Couples

Couples comprise another target group although they have been identified as such not by commonsense, like the young people mentioned above, but by quantitative research. A particularly compelling presentation is de Walque's (2007) DHS-based study of couples in five African countries each of which is affected by AIDS, although to differing extents. De Walque linked husbands and wives and drew on both their interview data and the results of their HIV tests.

The most startling finding is that in each country, at least two-thirds of infected couples—couples in which at least one was infected—were sero-*discordant*, that is, only one of the two was HIV positive. Accordingly, at most one-third of infected couples were sero-*concordant*, with both people infected (de Walque 2007). These are the proportions for Kenya, where 11.0 per cent of couples overall were found to be affected by HIV. In Tanzania, with 10.5 per cent of couples affected, only one-quarter of infected couples were sero-concordant. Thus in three-quarters of infected couples, only one spouse was HIV positive.

Put another way, this means that when HIV infection is present in a couple, it is much more likely that only one partner is infected than that both are.

As de Walque (2007: 505) concludes, this finding suggests an additional target population for HIV prevention—not just the "women and girls, youth, men who have sex with men, injecting and other drug users, sex workers, people living in poverty, prisoners, migrant laborers" and so on—namely, the HIV-negative cohabiting partners of people who are HIV-positive.

Moreover, *in 30 to 40 per cent of infected couples, only the woman is infected*. De Walque (2007: 505) observes that "[t]his is at odds with the common assumption ... that unfaithful males are the main link between high-risk groups and the general population". Such men will have been of great significance in the early stages of each epidemic, but are clearly less important once epidemics have become generalized.

An essential step in implementing an intervention targeted at couples would be to encourage and enable them to undergo voluntary counselling and testing, but it is naive to imply that this would be a simple matter. *Individual VCT* is comparatively recent in countries of the region, and numerous problems have been documented concerning confidentiality, partner-based violence, and poor counselling (for example, Yeatman 2007; Brockway 2007) not to mention ethical concerns concerning failure to disclose to a partner (Dixon-Mueller 2007). *Couple VCT*, which has only recently begun to be discussed, is undeniably more complex, as is pointed out by Desgrées-du-Loû and Orne-Gliemann (2008).

General knowledge and specific information

For people to be motivated to take effective steps to prevent the transmission and acquisition of HIV they need two sorts of information: *general knowledge* about how the virus manifests itself and how it spreads; and *specific information* about their own status and that of their sexual partner or partners.

Information about the high prevalence of sero-discordance—that when infection is present in a couple it is much more likely than not that only one partner is infected—is beginning to accumulate (Lingappa, Lambdin, Bukusi et al. 2008); and such information does find its way into regional newspapers (Ochieng 2008). One wonders, however, about the circulation of such newspapers, and their readership.

Nevertheless, ordinary Africans now have considerable general knowledge about HIV and AIDS. As already mentioned, survey data reveal a shift to the "correct" answers to questions about both behaviour and attitudes: people either are having fewer sexual partners or know that they should; people are either using condoms more, or know that they should. Moreover, various intervention studies with teaching components claim at least partial success in improving people's knowledge. These interventions assume, however, that the

information they provide is what people need to motivate them to try to safeguard themselves and their partners from infection.

A different approach is to investigate what people already know and believe about HIV in order to identify gaps in knowledge and potentially harmful misconceptions. In a long-running project in rural Malawi, a number of villagers who work as regular interviewers when the project is in the field have for years been keeping journals in which they record conversations that they have participated in or overheard about a number of topics, including HIV. They are not to initiate conversations, nor direct them, but merely to write down later, in privacy, what they have heard.

Analysis of these journals by Santow, Bracher and Watkins (2008) reveals that people talk about AIDS and have a great deal of correct information about the virus and its effects. People know that the virus is sexually transmitted but that AIDS can appear in the guise of malaria or tuberculosis. They demonstrate their knowledge of the behavioural determinants of HIV infection by expressing suspicion of people with numerous sexual partners, or people whose spouses or partners, current or previous, have developed symptoms or died. On the basis of symptoms and behaviour, or even just of behaviour alone, they form "verbal diagnoses" of people whom they believe are or will become AIDS-infected. People chat also about voluntary counselling and testing, and about antiretrovirals.

The problem is that such inference is accurate only in the aggregate. It can be wildly misleading at the level of the individual because the probability of HIV transmission is actually very low, and certainly much lower than that of the STDs—gonorrhoea, syphilis, genital herpes and so on—with which people are all too familiar.

Disturbingly, despite the considerable amount of accurate knowledge that they identified, Santow, Bracher and Watkins (2008) discovered several widely held but erroneous beliefs. People believe that HIV is highly infectious.

Correspondingly, people believe that if one partner is infected then so must be the other: see box 3. We have seen, however, that in actual fact if one partner is infected then the other is more likely than not to be uninfected (de Walque 2007).

BOX 3

The following verbatim extracts are taken from the journals analysed by Santow, Bracher and Watkins (2008). Names of both conversationalists and journal-keepers have been changed.

– *She said, "Yes, indeed, people say that lying together is dying together. If he has HIV/AIDS, I have HIV/AIDS, but I know that we don't have it ... he told me one day that he doesn't have HIV/AIDS. He went for a blood test and found that he doesn't have it."* (Simon 19 March 2002)

– *Paul answered, "If my wife has the disease then it means I have it as well. And... the marriage can end because I will know that one among us has brought the disease into the family and I will be suspecting her always even though maybe she is not the one but myself."*

– *The others said that for them, the marriage could continue because they would know that they had AIDS, because of the movements we men do we would know that it's the man who brought the disease into the family.* (Simon 6 May 2002)

– *Miss Kananji said that she does not believe that her husband died of AIDS. During the time that he was ill, many people said that he had AIDS since he had several sexual partners. ... When his illness became serious, she took him to the hospital ... and the results were that he was HIV positive.*

– *... It is now almost seven years since Mr Masikini died but Miss Kananji does not show any signs that she has HIV. She said that if her husband was HIV positive she should be HIV positive as well because they slept together, having sex without ever using a condom.* (Alice 24 November 2004)

The belief that mutual infection is inevitable is not confined to Malawi but appears to be widespread throughout the continent (for example see also Desgrées-du-Loû and Orne-Gliemann 2008). Whatever the factors contributing to this misconception, it must surely militate against the effectiveness of interventions that target couples. In particular, it will hamper efforts to promote voluntary counselling and testing both of individuals and of couples. If the HIV status of an individual is known or inferred, then it will be assumed that that individual's partner—or partners for that matter—will be the same. So what would be the point of being tested?

The tragedy for AIDS prevention is that for people, and couples, to act against HIV acquisition or transmission, they need to know their HIV status. There are undoubtedly millions of people in the region who behave on the assumption that they and their partners are both HIV-positive—perhaps one partner is known to be HIV-positive, or perhaps one or both partners has had premarital or extramarital affairs—but who would discover from testing that only one is infected, or neither. Such people are not exhibiting "fatalism" (for example Caldwell 2000). Rather, given their general knowledge and specific information, they display stoicism and a degree of courage.

Yet it does not have to be this way. Voluntary counselling and testing is being promoted in all countries of the region, and for HIV-positive people who meet the criteria there is antiretroviral therapy. Testing and therapy are available even in Malawi, which is the poorest country in the region. Preventing HIV transmission within marriage, which in mature epidemics is the most common form of transmission (see for example Lingappa, Lambdin, Bukusi et al. 2008), would do much to alleviate the region's AIDS epidemics.

IMPLICATIONS FOR HIV PREVENTION

• Models show that *any intervention that leads to behavioural change is worthwhile*, however far this behavioural change falls short of the strict recommendations of ABC. This finding should give heart to programmes that are detecting only limited change, and should encourage the establishment of new programmes based on the experiences of old ones and on the findings of other research.

• It is critically important that *voluntary counselling and testing be supported, promoted, and expanded*. The discovery of their HIV status gives people the opportunity and the motivation to reassess their behaviour. In encouraging people to be tested the point should be made that most people, even in the worst epidemics, will test negative. These days, too, the knowledge that antiretrovirals are available once AIDS symptoms appear, should dispel at least some of people's anxiety about learning their status.

• Efforts to promote *voluntary counselling and testing of couples should be greatly strengthened* where they exist, and established where they do not. Compliance may be improved if such VCT testing is home-based, that is, provided door-to-door. Most couples, even in the severest epidemic, will be uninfected. When infection is present in the couple, however, it is more likely than not that only one partner will be HIV-positive, yet unless people's belief in the inevitability of mutual infection is weakened, they may see no point in couple testing.

• This means that the *dissemination of accurate information about HIV transmissibility and about the likelihood of mutual infection* is of vital importance. This will not be a simple task but misinformation is dangerous. If people

believe that HIV is highly transmissible yet test negative, they may believe that all their partners are negative. If people believe that mutual infection is inevitable it will remain difficult to promote couple testing.

People who believe in the efficacy of exhortations to virtue and in the power of fear to dictate sexual behaviour will find controversial the recommendation that accurate information be publicized. For example, they might argue that if people accept that couple sero-discordance is possible they may believe that the uninfected partner is immune. They might argue, also, that people who accept that HIV is not particularly transmissible may take risks—"just this once"—that they would not have taken otherwise. The counter-argument, of course, is that people are already unknowingly taking considerable risks despite their belief that HIV is highly transmissible. What is needed, therefore, is that people know not just the basic characteristics of HIV—what one might call *general knowledge*—but that they know their own status—what one might call *specific information*.

• With HIV so generalized throughout communities *it is entire communities that should be mobilized to withstand its spread.* The time is long gone when it would be most productive to target small, unrepresentative groups in the population who are believed to be major vectors of viral transmission. Efforts to protect young people should be directed not merely at them but at their communities. Likewise, entire communities, many members of which live as couples, need to be made aware of the importance of preventing HIV transmission between husband and wife.

• *More attention should be paid to the promotion of the use of condoms to protect against sexually transmitted diseases*, not just to protect against HIV. Individuals who are HIV-negative may believe that condom use is unnecessary in their particular case, yet once they acquire an STD they will be at greater risk of acquiring HIV as well. Moreover, having acquired HIV they will be at greater risk of transmitting it.

• *Greater efforts should be directed toward reconciling consistent condom use with the desire for a child.* Guidelines for condom use need to be established that take into account the desire for a pregnancy. Once pregnancy has been achieved, condom use should be advocated throughout the pregnancy, and afterwards to protect lactation. HIV testing should be encouraged both before pregnancy and afterwards.

LIST OF PRESENTED PAPERS

List of papers presented at the Seminar on Potential and Actual Contributions of Behavioural Change to Curbing the Spread of HIV, organized by the IUSSP Scientific Panel on Sexual Behaviour and HIV/AIDS and the Population Council, Nairobi, Kenya, held in Entebbe, Uganda, 18-20 February 2008.

- Agostino M. Zamberia. "Sexual activity and condom use among people living with HIV and AIDS in Swaziland"

- Akinyemi, Joshua, O.A. Awolude, I.F. Adewole, P. Kanki. "Condom use among anti-retroviral therapy patients in Nigeria"

- Bracher, Michael, Gigi Santow. "Modelling the effects of behavioural responses to AIDS epidemics"

- Cremin, Ide, Constance Nyamukapa, Lorraine Sherr, Timothy Hallett, Godwin Chawira, Simon Cauchemez, Ben Lopman, Geoffrey P. Garnett, Simon Gregson. "Patterns of self-reported behavior change following voluntary counseling and testing in a longitudinal study from Manicaland, Zimbabwe"

- Fleming, Peter. "Acceptability of condoms in marriage after learning HIV test results among married men and women in rural Malawi"

- Musoke, Isaac, Vincent Kiwanuka, Anne Gamurorwa, Cheryl Lettenmaier, Irene Kulabako, Augustus Nuwagaba, Rajiv Rimal, and Jane Brown. "Changing male gender norms that increase risk of HIV in Uganda: the Be a Man Campaign"

- Obare, Francis, Michelle Poulain. "Evidence of change in sexual behavior and attitudes regarding condom use in the era of HIV/AIDS in rural Malawi"

• Remes, Pieter, "Promoting condom acceptability among adolescents by challenging community norms on adolescent sexuality in Mwanza region"

• Ross, D.A., J. Changalucha, M.L. Plummer, A.I.N. Obasi, J. Todd, J.M. Makokha, Helen A. Weiss, D. Wight, A. Doyle, H. Grosskurth, A. Gavyole, D.C. Mabey, R.J. Hayes. "Mema Kwa Vijana, a randomized controlled trial of an adolescent sexual and reproductive health intervention programme in rural Mwanza, Tanzania"

• Santow, Gigi, Michael Bracher and Susan Watkins. "Implications for behavioural change in rural Malawi of popular understandings of the epidemiology of AIDS"

• Swain, Suvakanta N., S.K. Singh, P. Nalawade. "Touching, treating and translating: experiencing behavioural change towards HIV infection through community-in-one approach among male power loom workers in Maharashtra, India"

• Tenkorang, Eric, Fernando Rajulton. "Perceived risks of HIV/AIDS and first sexual intercourse among youth in Cape Town, South Africa"

• Wolff, Brent, Dorothy Akurut, Ivan Kasamba, Grace Tumwekwase, Heiner Grosskurth. "Should we use them without end? Negotiation of condom starting and stopping in new sexual relationships in rural Uganda"

ADDITIONAL REFERENCES

• Bracher, Michael, Gigi Santow and Susan Cotts Watkins. 2004. Assessing the potential of condom use to prevent the spread of HIV: A microsimulation study. *Studies in Family Planning* 35(1): 48-64.

• Brockway, George. 2007. Routine testing for HIV/AIDS in sub-Saharan Africa: A philosopher's perspective. *Studies in Family Planning 38*(4): 279-283.

• Caldwell, John C. 2000. Rethinking the African AIDS epidemic. *Population and Development Review* 26(1): 117-135.

• Chimbiri, Agnes. 2007. The condom is an "intruder" in marriage: Evidence from rural Malawi. *Social Science and Medicine* 64(5): 1102-1115.

• Cleland, J., J.T. Boerma, M. Caräel and S.S. Weir (eds). 2004. Measurement of sexual behaviour. *Sexually Transmitted Infections* 80 (supp 2).

• Desgrées-du-Loû, Annabel and Joanna Orne-Gliemann. 2008. Couple-centred testing and counselling for HIV serodiscordant heterosexual couples in sub-Saharan Africa. *Reproductive Health Matters* 16(32): 151-161.

• De Walque, Damien. 2007. Sero-discordant couples in five African countries: Implications for prevention strategies. *Population and Development Review* 33(3): 501-523.

• Dixon-Mueller, Ruth. 2007. The sexual ethics of HIV testing and the rights and responsibilities of partners. *Studies in Family Planning* 38(4): 284-296.

• Galvin, Shannon R. and Myron S. Cohen. 2004. The role of sexually transmitted diseases in HIV transmission. *Nature Reviews. Microbiology* 2: 33-42.

• Kamali, A., M. Quigley, J. Nakiyingi et al. 2003. Syndromic management of sexually-transmitted infections and behaviour change interventions on transmission of HIV-1 in rural Uganada: A community randomised trial. *The Lancet* 361: 645-652

• Kark, Sidney L. 2003 [1949]. The social pathology of syphilis in Africans. *International Journal of Epidemiology* 32: 181-186.

• Kirby, Douglas B. 2008. The impact of abstinence and comprehensive sex and STD/HIV education programs on adolescent sexual behavior. *Sexuality Research and Social Policy* 5(3): 18-27.

• Lingappa, Jairam R., Barrot Lambdin, Elizabeth Ann Bukusi et al. 2008. Regional differences in prevalence of HIV-1 discordance and enrollment of HIV-1 discordant couples into an HIV-1 prevention trial. *PLoS ONE* 3(1): e1411.

• Lurie M., B. Williams, K. Zuma et al. 2003. The impact of migration on HIV-1 transmission: a study of migrant and non-migrant men, and their partners. *Sexually Transmitted Diseases* 40(2):149-156.

• Nnko, S., J.T. Boerma, M. Urassa et al. 2004. Secretive females or swaggering males? An assessment of the quality of sexual partnership reporting in rural Tanzania. *Social Science and Medicine* 59: 299-310

• Ochieng, Zachary. 2008. Challenge of discordant couples. *The East African Magazine*. February 18-24, 2008.

• Orubuloye, I.O., P. Caldwell and J.C. Caldwell. 1993. The role of high-risk occupations in the spread of AIDS: Truck drivers and itinerant market women in Nigeria. *International Family Planning Perspectives* 19(1): 43-48, 71.

• Plummer, M.L., D.A. Ross, D. Wight et al. 2004. "A bit more truthful": The validity of adolescent sexual behaviour data collected in rural northern Tanzania using five methods. *Sexually Transmitted Infections 80* (supp 2); 49-56

• Reniers, Georges. 2008. Marital strategies for regulating exposure to HIV. *Demography* 45(2): 417-438.

• Timæus, Ian M. and Momodou Jasseh. 2004. Adult mortality in sub-Saharan Africa: Evidence from Demographic and Health Surveys. *Demography* 41: 757-772.

• Yeatman, Sara. 2007. Ethical and public health considerations in HIV couseling and testing: Policy Implications. *Studies in Family Planning* 38(4): 271-278.

List of previous issues of the Policy & Research Papers series

22 *Aging in Developing Countries: Building Bridges for Integrated Research Agendas.* Roberto Ham-Chande, Alberto Palloni and Rebeca Wong, 2009

21 *Meeting Data Needs in Developing Countries: Questions of Quality, Quantity and Capacity.* Vijay Verma and Cristina Perez, 2009

20 *Sexual and Reproductive Transitions of Adolescents in Developing Countries.* Ruth Dixon-Mueller, 2007

19 *Population Ageing in Industrialized Countries: Challenges and Issues.* Gustavo De Santis, 2001

18 *Women in the Labour Market in Changing Economies: Demographic Issues.* Ruth Dixon-Mueller, 2000

17 *Men, Family Formation and Reproduction.* Silvia Necchi, 1999

16 *Gender Inequalities and Reproductive Health: Changing Priorities in an Era of Social Transformation and Globalisation.* Ruth Dixon-Mueller, 1999

15 *Abortion, Women's Health and Fertility.* David Anderson, 1998

14 *Data and Decision-making - Demography's Contribution to Understanding AIDS in Africa.* Elizabeth Pisani, 1998

13 *Female, Empowerment and Demographic Processes: Moving Beyond Cairo.* Ruth Dixon-Mueller, 1998

12 *Men, Reproduction and Fatherhood.* David Anderson, 1998

11 *The Russian Mortality Crisis: Causes, Policy Responses and Lessons.* David Anderson, 1997

10 *Population and Environment in Arid Regions.* Allan Findlay, 1996

9 *Women, Poverty and Demographic Change.* Julieta Quilodran, 1996

8 *Population and Environment in Industrialised Regions.* Catherine Marquette, 1996

7 *The 1994 International Conference on Population and Development (ICPD). Context and Characteristics.* Walter Mertens, 1995

6 *Evaluation of the Impact of Health Interventions.* Hoda Rashad, 1994

5 *Women's Roles and Demographic Change in Sub-Saharan Africa.* C. Oppong & R. Wéry, 1994

4 *Toward a More Effective Policy Response to AIDS.* David Anderson, 1994

3 *Health and Mortality Trends among Elderly Populations: Determinants and Implications.* Walter Mertens, 1994

2 *Population and Deforestation in Humid Tropics.* Walter Mertens, 1994

1 *Contributions of the IUSSP to the International Conference on Population and Development.* Walter Mertens, 1994

All issues of the Policy & Research Papers series can be downloaded for free on the IUSSP website (www.iussp.org).

Design: Solange Münzer. Printer: Panoply, juillet 2009. Printed on recycled paper
Cover page photo : Michael Bracher (Malawi 2005)

Contributions of Behavioural Change to Curbing the Spread of HIV

This Policy and Research Paper is based on papers and associated discussion at the seminar on Potential and Actual Contributions of Behavioural Change to Curbing the Spread of HIV, which was organized by the IUSSP Scientific Panel on Sexual Behaviour and HIV/AIDS and the Population Council, Nairobi, Kenya, and held in Entebbe, Uganda, 18-20 February, 2008. The seminar was supported by the Wellcome Trust, the Population Council, Nairobi, Kenya, and the United Nations Population Fund (UNFPA).

About the author

Gigi Santow chairs the IUSSP Scientific Panel on Sexual Behaviour and HIV/AIDS and previously chaired the Scientific Committee on Reproductive Health. She is an editor of *Population Studies* and was a founding co-editor of *Health Transition Review*. She has published in the areas of fertility, contraception, reproductive health, family demography, mortality and HIV/AIDS. Formerly Professor of Demography at Stockholm University, she now lives in Sydney and works as an independent consultant.

IUSSP ■ International Union for the Scientific Study of Population

3-5 rue Nicolas, 75980 Paris cedex 20, France

Tel. +33 (0)1 56 06 21 73 • Fax +33 (0)1 56 06 22 04 • iussp@iussp.org • www.iussp.org