12 The Impact of Marriage Change on the Risks of Exposure to Sexually Transmitted Diseases in Africa

MICHEL CARAEL

Introduction

There are now thousands of references on sexually transmitted diseases (STDs) in Africa and on the relationship between sexuality and health (Barton, 1989). Most works on these topics focus on the clinical aspects of STDs, laboratory techniques for studying them, and the difficulties in diagnosing and treating them. Moreover, many of the studies describe the incidence of STDs among patients who have come to specialized services or family planning clinics: people who are not at all representative of the general population. The data in such studies must be interpreted with great caution in any attempts to generalize more broadly. Another serious drawback to this apparent richness of materials is that most are not concerned with the behavioural or sociocultural underpinnings of STDs, especially those associations between STDs and forms of nuptiality. Even STD studies that do address behaviour seldom touch on nuptiality. Such oversights clearly reflect a lack of knowledge among clinicians and epidemiologists about the topic of nuptiality, though it is obviously important to their work.

Different kinds of unions, with their associated obligations and expectations for partners and their families, affect the range of sexual behaviours that occur before and outside the union: elements that are important for understanding sexual behaviour overall and the prevalence of STDs. Sociological variables used most often in STD studies such as age, sex, income, education, occupation, and marital status appear to be useful for overall characterization of differences in prevalence. But they have proven to be weak correlates of STDs because they are used as substitutes or proxies for more precise risk factors that are rarely incorporated directly: age at the start of sexual activity as an indicator of the duration of exposure, number and type of sexual partners for determined durations, use of condoms, and the timeliness and efficacy of treatment.

The complexities of conjugal partnerships are crucial to our present concerns for understanding STD transmission. Unfortunately, both anthropological and demographic studies often view marital status categorically:
people may be married, divorced, widowed, or single. Few studies have considered other forms of partnership or the importance of concubines, mistresses, ‘deuxièle bureau’ (‘second office’) arrangements, ‘outside wives’, etc. Standard survey procedures often fail to capture the complexity and diversity of unions, particularly in urban settings: a man who has a customary marriage in a rural setting, cohabits in the city with a regular partner, and sometimes stays with more casual partners will be classified simply as ‘married’. The ‘legal’ union classification masks semi-regular or occasional sexual relations which are crucial for the epidemiology of STDs and the human immunodeficiency virus (HIV).

Whereas social correlates of STDs in Africa are rarely examined, socio-cultural perceptions of STDs are even less studied. People with little schooling or low income rarely use what Westerners would regard as sound health methods for prevention or treatment of infections. Development projects are unlikely to seek treatment for their sexual partners. Women are similarly less likely to seek treatment for their sexual partners, with poor health care. Studies sometimes mention, often anecdotally, that STDs are considered to be a source of illness and are accorded little importance (Griffith, 1963; Bennett, 1962). Hence, several months may go by before someone seeks treatment for symptoms considered minor. However, the health, social, and economic consequences of STDs are knowledge about the sources of the diseases and how to prevent them, and whether sexual partners are informed about the need to treat them accordingly are topics that remain largely unexplored.

After describing the epidemic of STDs in Africa and its implications for public health, I examine the association of STDs and nuptiality, emphasizing the importance of sexual relations for the transmission of STDs and HIV infection. The epidemic of HIV and other STDS in Rwanda provides a case study to illustrate the importance of commercial sexual relations and to examine the relationship of the epidemic to nuptiality.

The Epidemiology of STDs and their Sequelae in Africa

The following data shed light on the epidemiology of STDs in Africa. Prevalence levels for these diseases were obtained from among pregnant women who sought prenatal care.

For Neisseria gonorrhoeae, the prevalence rates among pregnant women, generally from urban areas, vary from 1 to 15 per cent, with a mean of 5–10 per cent (Schul et al., 1987). For Chlamydia trachomatis other studies have suggested that the prevalence is about 8–10 per cent, but may reach 20–25 per cent in Nairobi, Kenya, and in Libreville, Gabon, where more refined diagnostic techniques are used. The incidence rate of Chlamydia infections, the most common cause of urethritis, could be similar or even higher than that of gonorrhoea (Mehus et al., 1986). Infection from this disease is often asymptomatic among women but is asymptomatic among only about 25 per cent of men. The prevalence rates for T. pallidum, which is responsible for syphilis are on the order of 3–19 per cent (Mehus et al., 1986) but the techniques that have been used to calculate these rates have serious limitations and interpreting them is difficult. Syphilis is responsible for from 1 to 2 per cent of all maternal deaths (Mehus, 1986). The sexually transmitted diseases (STDs), which are responsible for venereal disease, and for 50–70 per cent of total maternal deaths, is an important factor in the health of young women (The Lancet, 1982). The relative frequency of genital ulcers is high due to gonorrhoea, to venereal lymphogranulomas, and to lymphogranulomas. Other STD vectors such as herpes simplex virus, trichomonas vaginalis, and condylomata acuminata are equally widespread, but their prevalence is not well known.

The best-known effects of sexually transmitted diseases are their consequences for primary and secondary fertility among men and women (Rietlaurin, 1974; Cates et al., 1985). It is estimated that secondary infertility among men may be delay in their marriage or more common than primary infertility (WHO, 1990). In cases of sterilization among women, 40–65 per cent can be traced to pelvic inflammatory disease (PID) (Mehus et al., 1986). The annual incidence of PID reaches 3–4 per 1,000 in certain regions of Africa, compared to 1 per 1,000 in other continents (Muir and Belsey, 1980). The difference can be explained by the high prevalence of Chlamydia, gonorrhea, and genital infections at the time of childbirth. Another important consequence of pelvic inflammatory disease is the risk of premature delivery, which is the risk of pregnancies that begin outside the uterus: it has been estimated that 1 out of 25 pregnancies to women with PID were ectopic, compared with 1 out of 147 among members of a control group (Mehus et al., 1986).

With a prevalence of syphilis of about 10 per cent among pregnant women, 5–7 per cent of all pregnancies end either by spontaneous abortion/miscarriage in the first months, or with perinatal or infant mortality (Schulz et al., 1987; Rattan et al., 1982). Gonococcal ophthalmitis in the newborn is 50 times higher in Africa than in industrialized countries (Galea et al., 1984).

In sum, the presence of undetected and untreated STDs among pregnant women can lead to miscarriage or false pregnancy, premature onset of labour, placental infection of the fetus, premature birth, infection of the newborn at the time of childbirth, or increased risk of maternal mortality.

In Africa, STDs are classified as the sixth most important public health problem. The epidemiology of STDs in Africa, however, differs considerably from that in other regions of the world in several respects:

- the number of STD cases is generally higher in Africa. Moreover, it is more prevalent among men than among women. While this difference could imply a difference in sexual behaviour, it could stem from the fact that the symptoms are more readily recognized in men, and thus reported.
- The complications of STDs and their consequences are more common in Africa, particularly because of the lack of material and personnel resources needed to diagnose them. Adequate treatments, moreover, are often expensive and are inaccessible to most people.
- Simultaneous infections are more common, particularly among women among whom STD symptoms are generally less evident. Moreover, those
bacterial strains of gonorrhoea that are resistant to the classic treatments—20-50 per cent of gonorrhoea infections—are more common in Africa than elsewhere. The widespread practice of self-medication with antibiotics often indirectly produces complications and secondary infections because people usually stop treating themselves as soon as the symptoms diminish or disappear, although the infection is not yet cured.

- Finally, the role of prostitutes and their clients in the diffusion of STDs is much more important in Africa than in Western countries; we will return to this point later.

**Urban v. Rural Risks of STDs**

The rates of incidence (that is, the frequency of new cases during a given time period) of STDs are generally much higher in the city than in rural areas, but because rural areas lack laboratories and qualified health personnel, it is sometimes difficult to determine the importance of these diseases there (Araya et al., 1977). Sexually transmitted diseases in rural settings are less common and less easily treated in the city. Their prevalence (number of cases in a defined population at a specific point in time) can thus be higher there even though the incidence may be low. In the city the situation is often the inverse—a low prevalence accompanied by a higher incidence—because there is more contagion, but diseases are treated more readily. In Cameroon, for example, the prevalence rate of gonorrhoea among women in their fertile years was estimated at 14 per cent in Yaounde and at 22 per cent in rural areas (Nassah et al., 1980). When the interchange between city and countryside is extensive, or when circular migrations often take people far from their home communities, the rural setting can itself constitute a vast reservoir of STDs (Araya et al., 1980).

Like those of migration, the mechanisms of infection may be circulating and complex: young adults—men, and less commonly, women—migrate to the city to look for jobs through which they can amass money for bridewealth or other marriage expenses, then return to their rural homes to marry. In these cases, STDs are contracted in the city through casual sexual relations or relations with prostitutes and are introduced into the rural populations. In other cases, the circulation involves only rural locales: young Fula men of northern Cameroon, for example, who travel about in order to solidify a social network, often have sexual partners among divorced or married women: but these partners come from within their own groups rather than from prostitutes in the cities (David and Voas, 1978).

**STDs and Nuptiality**

Patterns of STD transmission have been linked to marriage patterns. For example, multiple marriages have been linked to greater risk than marriages with one partner, whether simultaneously or in sequence. A recent study in Cameroon, Kenya, and the Sudan showed that women married more than once and women in polygamous unions were more frequently sterile than monogamous women in their first unions (Larsen, 1989). In some instances, these differences in conjugal and STD patterns may be linked to ethnic affiliation. A rural study in Uganda (Araya et al., 1980) compared the adults in the Teso region where gonorrhoea was widespread and fertility was low with the Ankole region where gonorrhoea was rare and fertility was high. Teso women were more likely to have had more than one marriage than the women from Ankole (33 versus 10 per cent). But it is not clear whether marriage was the cause or the effect. The greater number of marriages among Teso women could have stemmed from a greater proportion of sterile women (20 per cent of Teso women versus 2 per cent of Ankole women), with sterility rapidly leading to remarriage.

While there has been some attention to ethnic patterns of STD transmission, urban correlates have drawn the most attention. In the study in Cameroon, Kenya, and the Sudan, the education of the woman and her husband and the husband’s profession were not significantly associated with the level of sterility, in contrast to place of residence; levels were higher in the city than in rural settings, especially in the capitals. According to Larsen (1989), the higher prevalence of venereal diseases in the cities probably reflects more prostitution.

But quite apart from prostitution per se, the duration of urban residence appears to be an important correlate of STDs. A study in Kenya examined the socio-demographic predictors of contracting gonorrhoea by comparing men who cohabitated regularly (had contacts with their partners at least once a week) to those who were married (Verhaegen and Gemert, 1972). Among 444 male patients in an urban setting who came to a clinic for treatment of gonorrhoea, a multivariate analysis that controlled for age indicated that one of the most important correlates of gonorrhoea was a long period of residence in the city and the lack of cohabitation with a wife or regular partner. The clinic population was extremely young: 80 per cent were under 30 years of age. Marital status was not significant (40 per cent in both groups were married, but cohabitation did appear to lower the risk of contracting gonorrhoea. Only 9 per cent of those with gonorrhoea lived regularly with their wives, compared to 19 per cent of those without gonorrhoea.

The urban environment has been described as a place where behaviour is more individualistic, customary rules governing marriage are disappearing, and acculturation is intensifying especially because of schooling and the diffusion of Western models of behaviour. Yet stereotypical dichotomies of ‘urbanization, individualism, and modernity’ versus ‘village, community, and tradition’ obscure the fact that, far from losing their ethnic or cultural identities, urban residents often adapt to the demands or constraints of the new environment. Cultural practices can continue to define sexual and marital options (Parkin, 1966; and other chapters in this volume). Sexual freedom in
the cities is thus not necessarily brought about by the abandonment of custom, but may represent the adaptation of customary rules to a new environment. For example, respect for a long-lasting period of post-partum sexual abstinence between spouses, which is supported in rural settings by polygamy, may induce urban husbands to contract sexual relations outside marriage with 'free' (unmarried) women. One study found that the longer the duration of the post-partum abstinence in Ibadan, Nigeria, the more common were STDs (Caldwell and Caldwell, 1983).

Although part of the rise in STDs can result from adaptations to new environments, the notion of a 'crisis', of disaster or social disintegration, can be applied to critical events that sharply intensify the spread of STDs. Wars, migration flows, and economic crises—events that rupture social structures and cause breaches of norms—are often associated with an increase in sexually transmitted diseases (Hart, 1974). The vast sexual market in certain African cities, therefore, may be less a response that is culturally determined by traditions among particular groups than the result of ruptures brought about by a series of society-wide misfortunes and subsequent efforts by individuals to cope. More generally, widespread underemployment, the build-up of rural poverty resulting in an increase of migrants to cities, and the dearth of opportunities that women face when divorced or abandoned when pregnan by occasional partners (Robertson and Berger, 1986) can also be viewed as crisis situations leading to the spread of STDs.

Lesotho illustrates an extreme situation where massive male emigration to South Africa led to the absence of a large proportion of the adult male population; this long-term imbalance has as corollaries a late marriage, the decline of polygamy, an increase in marital dissolution, and frequent sexual relations outside marriage (Timaeus and Graham, 1989). At the time of a national survey based on a representative sample of 1,582 persons (Lesotho, 1989), 45 per cent of the men and 17 per cent of the women were sexually active reported casual and commercial sexual relations during the preceding 12 months. The incidence of clinical symptoms of STDs in the 12 preceding months—vaginal/urtrchal discharge and pain for several days; as indicators of gonorrhoea—was around 25 per cent. So common, apparently, are sexual exchanges among married adults because of the male partner's absence, that married people or people who had been married said that they had been treated in the last 12 months for these symptoms more often than single people who were sexually active (20 per cent and 14 per cent, respectively).

**STDs and Prostitution**

For the epidemiology of STDs in Africa, it is the prostitutes—persons exchanging sexual relations for an immediate payment in monetary form—their clients, and the secondary contacts of their clients who run the greatest risks of infection in the absence of condom use. Little (1973) had proposed as a definition of prostitute, 'a person whose means of subsistence during a period of time depends principally on the sale of sexual services and whose relationship with a client does not go beyond that of the sexual act'. This definition of the prostitute-client relationship is not entirely satisfactory; it covers only one limited aspect of an often complex, ongoing relationship, although an important component is always the financial aspect.

The definitions of prostitution that we commonly employ obscure numerous problems in the African context. Under this rubric are grouped specific practices which do not necessarily bear the same meaning from one culture to another. And the concepts of sexuality, sexual relations, and sexual partners are themselves relative and culturally specific, as are the exchange networks, the relationships between clients and prostitutes, and the place that they occupy in the sum total of sexual exchange. The data which follow often suffer from a lack of clarity of the concepts used but they reflect, none the less, a specific aspect of the epidemiology of STDs.

Sexual relations with prostitutes are cited as a probable source of infection by 50–90 per cent of male STD patients; 50 per cent in Khartoum (Taha et al., 1979), 62 per cent in Ethiopia (Plorde, 1981), 84 per cent of the students in the University of Kampala (Arya and Bennet, 1974), 90 per cent of the patients in Butare (Mchus et al., 1974). Of male patients with gonococcal gonorrhoea in Nairobi, 90 per cent declared that they had acquired their infections at the time of sexual contact with prostitutes (Plummer, 1988). By comparison, less than 30 per cent of male patients in Europe and in the United States cited prostitutes as the probable source of their infections (Turner and Morton, 1976; Potter et al., 1980).

These disparate data suggest that in Africa, relationships with prostitutes play a central role in the spread of STDs in urban areas; 50–50 per cent of prostitutes are infected with a sexually transmitted disease at any given time, with clients infecting other prostitutes and other sexual partners. Thus 50 per cent of women seeking treatment for an STD in a health centre in Nairobi said that they had been infected by their husbands (Plummer, 1988).

Prostitutes often represent an extremely mobile group; in Mombasa, Kenya, they came from forty different ethnic groups and seven countries of West Africa; 40 per cent of them had lived in the city for less than one year (Verheeghe and Gernert, 1972). Several studies have indicated that prostitutes and their clients play a considerable role in the propagation of STDs and the spread of *N. gonorrhoeae* bacteria that are resistant to penicillin (D Costa et al., 1985; Kreiss et al., 1988). In Nairobi a study among three groups of prostitutes (Kreiss et al., 1986) of high, medium, and low socio-economic status showed that their numbers of clients per day were respectively 0.3, 5.0 and 5.6. The prevalence of gonorrhoea among them was respectively 16 per cent, 28 per cent, and 46 per cent. Of the prostitutes studied, 70 per cent had at least one sexually transmitted disease. The mean time for reinfection by *N. gonorrhoeae* was 12 days.
HIV/AIDS and Sexually Transmitted Diseases

Because of its transmission through sexual means, the long period of incubation before symptoms appear, and its incurability, HIV infection has drawn epidemiological publicity to prostitutes and their clients. It has quickly become clear that the STDs that prostitutes and their clients carry have probably facilitated the transmission of HIV (van de Perre et al., 1988; Caraël et al., 1985; Kreiss et al., 1988). Seropositivity for HIV has been associated in Africa with genital ulcers, T. pallidum, and C. trachomatis (Kreiss et al., 1986; Greenblatt et al., 1988; and Simonsen et al., 1988). A prospective study among 422 clients of prostitutes has shown that men with genital ulcers more frequently seroconverted to HIV than clients with urethritis (Cameron et al., 1989). This seroconversion was independently associated with the numbers of contacts with prostitutes, with genital ulcers, and with lack of circumcision. Although men ordinarily are more effective transmitters of HIV to women than vice versa, these data confirm a high rate of HIV transmission from women to men with active STDs. Genital ulcers clearly contribute to the infectiousness of HIV in a seropositive person of either sex and/or the susceptibility of the person who is not already infected with it.

The Case of Rwanda: HIV and Nuptiality

The HIV epidemic in Rwanda is probably older than in other regions. A retrospective study showed that already in 1982, 12 per cent of blood donors from Kigali were infected with HIV (Songa), 1986). In 1984, 18 per cent were infected (van de Perre et al., 1987). In 1987 a national study (Rwandan HIV Seroprevalence Study Group, 1989) established that HIV seroprevalence was 18 per cent in urban areas for the general population and 30 per cent among people aged 26–40. In rural settings, the prevalence was 1 per cent for the general population and 3 per cent among people aged 26–40. In Burundi in 1989, a national survey (Burundi, 1990) established HIV seroprevalence in the population aged 25–44 to be 19 per cent in urban areas, 18 per cent in semi-urban areas, and 1 per cent in rural areas. The risk factors for men were contacts with prostitutes, a history of STDs, and, for rural men, visits to the city during the 5 preceding years (van de Perre et al., 1987). In the national HIV seroprevalence survey in Rwanda, women in urban areas were significantly more infected than men at all ages (20.7 per cent vs. 15.5 per cent; p < .05). In Burundi, women both in urban and rural areas were significantly more infected than men. This difference in the rates of infection by sex could be due to an HIV transmission rate that is higher from men to women and the fact that infected men have greater numbers of partners than infected women. Other possible factors include differences in exposures as a result of the age difference in infection rates (older men having sex with younger women) and similarly differences in age and gender-specific prevalence of STD. The national survey in Rwanda also revealed that divorced, separated, or widowed people, and people living in informal unions were more likely to be infected by HIV than those living within marriage (Table 12.1).

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>6.3</td>
<td>25.4</td>
</tr>
<tr>
<td>Married</td>
<td>8.4</td>
<td>13.0</td>
</tr>
<tr>
<td>Common law union</td>
<td>3.3</td>
<td>27.4</td>
</tr>
<tr>
<td>Widowed, divorced, separated</td>
<td>4.5</td>
<td>29.5</td>
</tr>
<tr>
<td>All</td>
<td>2.0</td>
<td>21.8</td>
</tr>
<tr>
<td>No. of cases</td>
<td>441</td>
<td>1,529</td>
</tr>
</tbody>
</table>

A cohort study in Kigali in 1988, based on a representative study of 1,469 sexually active women aged 17–45 (Lindan et al., 1991), showed an even clearer difference in terms of marital status and HIV infection. While only 22 per cent of married women were seropositive, 54 per cent of widows, divorcees, and separated women were seropositive, as were 48 per cent of single people, and 35 per cent of women living in informal marriages. Similar results were shown in Sassandra, Côte d'Ivoire, where women in free unions showed a relative risk of seropositivity of 7.1 compared to married women (Rey and Guillaume, 1990).

In Burundi as in Rwanda, civil, religious, and customary marriage have been declining for more than a decade although we cannot clearly measure the change because we lack precise data that separate marriages from free unions; the latter, for instance, were included in the category of
non-legitimate unions, as were polygamous unions. Civil or customary marriage implies the payment of the bridewealth that links the families of the bride and groom and gives the patrilineage certain rights over the children. In former times, a couple who were married under customary procedures settled in a separate dwelling near the husband's parents with a parcel of land. Bridewealth allowed the family to establish an equilibrium in the marriage exchange; the wealth received for girls permitted young men to marry. The diminution of agricultural lands in Rwanda, the increase in population density, and the general poverty have considerably transformed the marriage system and have led to informal unions (Wils et al., 1987).

Free unions or 'common law' marriages with regular or irregular cohabitation, without payment of the bridewealth, have become widely accepted; yet they have a low status in Rwandan society, and they exert fewer constraints on sexual behaviour than do formal legal marriages. Many free unions are transformed into formal marriages with the passage of time, the birth of children, and the accumulation of a bit of financial capital, but others end in dissolution. In Rwanda in 1984, free unions represented 41 per cent of first unions, civil marriages 44 per cent, and customary marriages 15 per cent (ONapo, 1985).

Lindan et al. (1991) found that women in free unions were generally more infected than married women, after age was controlled (Table 12.2). Furthermore, for a cohabitation lasting less than six years, women whose husbands/partners had higher monetary incomes were at greater risk of HIV seropositivity, compared to women with very low incomes whatever the nature of the union. Informal unions were, on average, shorter in duration than legal marriages and they were more often associated with lower income (56 v. 29 per cent; p < .001). Table 12.3 shows two additional factors that were associated with higher HIV seropositivity: more than one lifetime sexual partner and a relationship that is currently non-monogamous. Women in informal marriages declared that their unions were non-monogamous more often than married women (38 per cent v. 24 per cent; p < .001). They were also more likely to report more than one regular union in their lives. Both of these factors are associated with higher HIV seropositivity.

Informal unions reflect several marriage strategies. For a couple that is experiencing financial difficulty, informal unions represent a period of temporary cohabitation or a definitive union. For men with high incomes, on the other hand, they constitute temporary liaisons. These men either 'accumulate' women by issuing multiple marriage promises and by continuing to seek other partners for a marriage that is socially more advantageous, or practise a discrete form of polygyny in a society that is predominantly Christian, without taking on the obligations that are traditionally attached to polygynous marriage. For women, free unions, though far from ideal, are preferable to divorce or separation; marriage options for women are reduced after the first union, and are often responses to economic necessity. What resources women obtain from these unions allow them to become less dependent on their parents. The evolution towards a greater range of forms of marriage that result from different economic constraints has been described in other contexts (Cherlin and Chamratrithong, 1988; Comaroff and Roberts, 1977). The increase in informal unions seems to be associated with a general rise in the age at first marriage/union. Between 1976 and 1983, the mean age of entry into union for women went from 18.6 to 22.0 years (ONapo, 1985).

Data from the national NACP survey confirm this trend (Rwanda, PNLS/OMS 1988). Figures 12.1-12.4 show the proportion of men and women aged 15-30 by three mutually exclusive categories: no sexual experience; currently sexually active (before a regular union), and in union or having already been in a regular union. The median age at first sexual relations for women was 19-20 in rural areas and 18-19 in the city, the figures for men were 20-1 and
17–18 respectively. The median age at first marriage was 21–2 years for women in rural settings and 22–3 for women in urban areas. These figures were 23–4 and 26–7 for men, respectively.

The proportion of women and men who were sexually active and had not yet had a first union was 10.3 and 16.8 per cent in rural areas, and 15.7 and 31.6 per cent in urban areas. Men in urban areas may put off marrying because of higher levels of schooling, a lack of financial resources, and greater access to sexual partners outside marriage.

The apparent increase in age at entry into the first union for women accompanied a surprising decline in the mean age at first pregnancy (from 21.3 to 19.5 years) between 1978 and 1988. In addition, pregnancies to single women represented about 10 per cent of all births in the prefecture of Butare in 1988 (ONAP, 1989), a fact which supports the thesis that age at which sexual activity begins has been independent of the increase in the age at entry into the first union.

In urban areas, the high proportion of single men who are sexually active—both immigrants and residents—has important consequences in terms of sexual behaviour and sexually transmitted diseases. Two groups in particular, blood donors and military personnel from Kigali, declared that they had had between nine and eleven different sexual partners during the previous year, the majority being unmarried (Caraël and Piot, 1989). A multivariate analysis indicated that the men most likely to use prostitutes were single and slightly older (25–9 years v. 20–4 years). Having a money income that was higher than average was also associated with more contact with prostitutes. These data suggest that for men who can afford these services, going to prostitutes represents an important element in men's sexual transactions.

The role of prostitutes and their clients in the dynamics of an epidemic of
sexually transmitted diseases was illustrated by a retrospective analysis of the medical records of annual cohorts of the military contingent from Kigali between 1981 and 1986 (Carnaë and Piot, 1989). In 1981, 20 per cent of the recruits had been treated for an STD after two years of service; this proportion increased to 60 per cent in 1986. The soldiers who enlisted after 1981 acquired similar rates of infection more quickly. Thus 60 per cent of the 1984 recruits had been treated for an STD after only two years of service and the per capita incidence of STDs increased as well. Since there is no evidence that sexual behaviours in this particular group changed in the space of five years, it was very clear that STD infection rates among the group of prostitutes near the military camp had risen because of increased infection among the soldiers.

A study in Butare, Rwanda (van de Peer et al., 1985, 1987) analyzed risks of HIV infection among prostitutes and their clients. The prostitutes were aged 24 on average; they had a mean of two children and 82 per cent among them were single. They had practiced their profession for an average of four years. They declared a monthly median of 44 partners, and only 5 per cent regularly used condoms. The results showed a positive serology for syphilis among 58 per cent of the prostitutes and 40 per cent of the clients (6 and 4 per cent, respectively, among the women and men of a control group); an immunofluorescence test indicated a positive reaction to c. trachomatis among 94 per cent of prostitutes and among 25 per cent of clients. In this context, an outbreak of HIV became an immediate epidemic; 88 per cent of prostitutes and 28 per cent of clients were seropositive. Among clients, the likelihood of being seropositive increased significantly with the number of contacts with the prostitutes. The median number of prostitutes that these clients saw each year was 31, compared to 3 sexual partners per year among members of the control group.

A study among 124 couples (Carnaë et al., 1988) of whom one or both partners were infected by HIV (Table 12.4) showed that in nearly half the cases, one of the two partners had already been infected at least one union previously. Compared to 150 seronegative couples, the male partners of infected couples were more likely to have (1) experienced long periods of sexual activity before entering their first union (7.2 v. 4.6 years); (2) had contact with prostitutes (81.5 per cent v. 27.3); (3) a higher frequency of contacts (2.1 v. 1.5 per month); and (4) a history of STDs in the two preceding years (64.5 v. 15.3 per cent). Furthermore, they were more likely to have traveled frequently to the interior of Rwanda (25 v. 6 per cent with more than one week in the interior per month), events that may have created opportunities for contact with casual sexual partners.

The women in the infected couples were more often in free unions (65 v. 48 per cent). But the seropositive women, like seropositive men, were more likely to have experienced more than one regular union (31.4 versus 5.3 per cent). Compared to women in seronegative couples, these women were more often in polygamous unions (20 v. 3 per cent). Polygamy apparently intensified two risk factors: the man's accumulation of several sexual partners and the women's likelihood of having been in other unions. But although the women in the infected couples were more likely to report episodes of STDs (47.6 versus 11.3 per cent), the study concluded that the risk factors for HIV infection in the unions were principally those related to male sexual behaviour.

**Table 12.4. HIV seropositive and seronegative couples, by sociodemographic variables and risk behaviour: Kigali, Rwanda, 1986**

<table>
<thead>
<tr>
<th></th>
<th>Sero + couples</th>
<th>Sero - couples</th>
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<tbody>
<tr>
<td></td>
<td>N = 124</td>
<td>N = 150</td>
</tr>
<tr>
<td>Age, median, years</td>
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<td></td>
</tr>
<tr>
<td>Men</td>
<td>32.2</td>
<td>31.9</td>
</tr>
<tr>
<td>Women</td>
<td>26.2</td>
<td>26.3</td>
</tr>
<tr>
<td>Age at first intercourse, median, years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>18.7</td>
<td>19.7</td>
</tr>
<tr>
<td>Women</td>
<td>19.4</td>
<td>19.0</td>
</tr>
<tr>
<td>Duration of premarital sexual activity, median, years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>7.2</td>
<td>4.6*</td>
</tr>
<tr>
<td>Women</td>
<td>0.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Union's duration, median, years</td>
<td>5.6</td>
<td>5.3</td>
</tr>
<tr>
<td>Monogamous union, %</td>
<td>79.8</td>
<td>96.7*</td>
</tr>
<tr>
<td>First union, %</td>
<td>73.4</td>
<td>82.0</td>
</tr>
<tr>
<td>Men</td>
<td>68.6</td>
<td>94.7*</td>
</tr>
<tr>
<td>Women</td>
<td>2.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Parity, median, n</td>
<td>64.5</td>
<td>15.3*</td>
</tr>
<tr>
<td>History of STDs in last 2 yrs, %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>47.6</td>
<td>11.3*</td>
</tr>
<tr>
<td>Women</td>
<td>77.9</td>
<td>27.3*</td>
</tr>
</tbody>
</table>

* p < 0.01;  
+ p < 0.001

Source: adapted from Carané et al., 1989.

**Discussion**

Based on these observations made in urban areas of Rwanda and other cities of Central and East Africa, we can suggest the following generalization (Carané,
1987), the greater the imbalance in sexual freedom between men and women, the more rapid the progress of the HIV epidemic. When men are not constrained yet the virginity of young girls and the faithfulness of married women remain norms, single men with little access to women through marriage commonly seek the services of prostitutes. Once they are married, moreover, a large percentage may continue to frequent prostitutes.

The rapid spread of HIV infection among prostitutes is intensified by their numerous sexual partners—between 500 and 1,500 clients per year—and by the high prevalence of STDs. This high prevalence in turn increases the rates at which prostitutes infect a variety of clients of different ages and social networks and results eventually in the contamination of the clients' regular female partners. These particular characteristics of its transmission may help explain why HIV infection spreads at an exponential pace, as it has in Kigali, Lusaka, and Nairobi (Carael and Piot, 1989).

These situations of rapid evolution of HIV infection should be compared with other cultural contexts where, paradoxically, sexual liberty for both sexes actually limits the spread of HIV infection. Here men turn to commercial sexual relations less often, meaning that there is little concentration of numerous sexual partners around a small number of women. The fluidity of sexual relations and the diversity of possible unions—due to divorce, mistresses, etc.—slows the development of both the HIV and other STD epidemics and confines them to limited networks. The HIV epidemic in Kinshasa, Kinshasa, which has stabilized at the level of 5–6 per cent of the adult population for the past five years, corresponds to this latter model.

The important point to stress is that urban situations themselves do not necessarily intensify transmission of STDs. Rather, inequalities in male and female sexual behaviour—particularly the double standard in urban areas where men may accumulate sexual partners as a sign of status or most notably as a transgression of traditional control on their sexuality in rural areas, while women are expected to be faithful to one partner—appear to comprise a social structure that is particularly susceptible to the AIDS epidemic. In fact, urban societies which allow women to adopt a variety of marital strategies and which facilitate, through the flexibility of forms of unions, their reentry into regular unions, whether monogamous or polygamous, may even keep the spread of HIV from becoming an epidemic.

Whereas this study has examined the effects of forms of union on STD and HIV epidemics, the possible effect of HIV worries on conjugal behaviour is relevant as well. No specific study so far has attempted to evaluate this question. None the less, a shift toward monogamous unions and a greater stability of unions as a response to the threat of the epidemic seems unlikely in urban contexts of economic decline where conjugal strategies become elements of survival for individuals. The change that seems more likely—and, indeed, has appeared already in several surveys on sexual behaviour—is the shift towards more protective behaviour (the use of condoms) within relations that are strictly casual (Caird et al., 1992). This could reduce the incidence of HIV and STDs without eliminating them altogether. Should that happen, infection by HIV would become another item on the list of endemic tropical diseases.

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