The spread and effect of HIV-1 infection in sub-Saharan Africa

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AIDS is the continent most severely affected by the global HIV-1 epidemic, with eastern and southern Africa in general more severely affected than west and central Africa. Differences in the spread of the epidemic can be accounted for by a combination of personal and social behaviour and biological factors that affect the probability of HIV-1 transmission per sex act. Sexual behaviour patterns are determined by cultural and socioeconomic contexts. In sub-Saharan Africa, some traditions and socioeconomic developments have contributed to the extensive spread of HIV-1 infection, including the subordinate position of women, improved transportation and decline of social services, rapid urbanisation and modernisation, and wars and conflicts. Populations in many parts of Africa are becoming trapped in a vicious circle as the HIV-1 epidemic leads to high mortality rates in young and economically productive age groups, and thus leads to further impoverishment. Interventions to control HIV-1 should not only target individuals, but also aim at changing the aspects of cultural and socioeconomic context that threaten the vulnerability to HIV-1 of people and communities.

Epidemiological perspective

The first cases of AIDS seem to have appeared in Uganda and Tanzania shortly after the liberation war in Uganda in 1979.79 The AIDS epidemic in the Democratic Republic of Congo began around the same time, although HIV-1 infection was present in the population long before then.82 Additional evidence that the population of central Africa (figure 1) were the first to have been contaminated with the new virus comes from studies on the virus itself. The HIV-1 epidemic in Cameroon, Gabon, and the Democratic Republic of Congo were characterised by many circulating HIV-1 viruses—more than in any other population in the world—which suggests that the virus has been present for a long time in these countries. Moreover, evidence exists for the spontaneous transmission of immune mediators of virus persistence in HIV-1 in Cameroon that gave rise to HIV-1 group North in people.90

In the mid-1980s, the HIV-1 epidemic seemed worst in the Democratic Republic of Congo and Uganda, and, to a lesser extent, in neighbouring countries to the south and sub-Saharan Africa. The Democratic Republic of Congo, Cameroon, and Gabon, HIV-1 prevalence has remained fairly stable for many years, and only recently has a worrying increase in prevalence in Cameroon suggested that the epidemic is entering a new phase. In 1991, HIV-1 prevalence in adults in Cameroon was estimated at 7.7%.

Search strategy and selection criteria

For the section on epidemiology, all relevant references from her PhD thesis on factors determining the spread of HIV-1 in sub-Saharan Africa (University of Amsterdam, 2001) and the scientific literature on this topic were included in the review. For the section on socioeconomic and cultural context and the effect of the HIV epidemic, KAB and GMCA consulted individual organisations and HIV/AIDS in developing countries (UNDP, UNFPA, UNICEF, World Bank) and papers essential for the Africa Development Forum (2000).
in 2004, a prevalence of 11% was noted in a nationwide survey of pregnant women. This relatively low and recent increase comes with the situation in many parts of sub-Saharan Africa and most of southern Africa where the HIV-1 epidemic has run an explosive course since the early 1980s (table, figure 2). In many large cities in these regions (HIV-1 prevalence) in pregnant women has exceeded or still exceeds 50%.

In Uganda, the prevalence of HIV-1 infection has fallen since the early 1990s, which has been attributed to changes in sexual behavior. More recently, a similar, slowing trend in HIV-1 prevalence has been noted in Zambia. However, in other parts of southern Africa the epidemic continues to spread unabated (figure 3). The worst affected countries so far are Botswana, where an estimated one in three adults are infected. In west Africa, with the exception of Côte d'Ivoire, Burkina Faso, Nigeria, and Togo, HIV-1 prevalence in pregnant women has so far remained under 5%.

Heterogeneity: The considerable variation in HIV-1 prevalence between different regions in sub-Saharan Africa cannot always be accounted for by differences in the stage of introduction of the virus. The scale of spread of HIV-1, however, would seem to indicate that the spread of HIV infection has been more rapid in certain and sub-Saharan Africa than in western and central Africa (table and figure 2). In a population-based study, differences in sexual behavior patterns alone could not account for differences between areas in HIV-1 prevalence. The study compared women in two communities in Benin and Younde in Cameroon with a fairly low prevalence of HIV-1.

Figure 1: Map of regions of Africa

The data presented in the table suggests that the sub-Saharan African countries have a higher prevalence of HIV-1 infection than the rest of the world. The table also shows that the prevalence of HIV-1 infection has increased significantly in recent years. The prevalence rate in pregnant women in sub-Saharan Africa has also shown a significant increase. The table indicates that the prevalence of HIV-1 infection is higher in urban areas compared to rural areas. The prevalence rate is also higher in males compared to females. The prevalence rate is also higher in older age groups compared to younger age groups. The prevalence rate is also higher in areas with a higher literacy rate.

The data also suggests that the prevalence of HIV-1 infection is higher in areas with a higher prevalence of sexually transmitted infections (STIs). The prevalence rate is also higher in areas with a higher prevalence of sexual behavior changes and sexual mixing patterns between different sexual activity classes, different age groups, or both, and biological factors that affect the prevalence of HIV-1 transmission per sex act.

The study also drew attention to the high prevalence of HIV-1 and other sexually transmitted infections in young people, especially young women, in many parts of sub-Saharan Africa. For instance in Cameroon, 25% of women aged 15-19 years were infected with HIV-1, compared with 5% of young men of the same age. Female adolescents in Tansania, Zambia, Zimbabwe, and South Africa have much higher rates of HIV-1 infection than male adolescents. Possible explanations for this discrepancy include the higher biological vulnerability of young women to HIV-1 and other sexually transmitted infections than young men, and sexual behaviors between young women and older men— who are more likely to have been exposed to HIV-1.

Indeed, sex with older men is a risk factor for HIV-1 infection in young women in Malawi. Further work is needed on the sexual behavior of young people and the biological factors that make young people more vulnerable to HIV-1 infection, such as cervical cancer and HIV-2.
The prevalence of HIV-1 in sub-Saharan Africa has continued to increase over the past decade, especially among young women. This is reflected in the data from Figure 2, which shows a higher prevalence of HIV-1 among pregnant women in East Africa compared to other regions.

The socio-economic and cultural context of HIV-1 infection in Africa is complex and multifaceted. Factors such as poverty, limited access to healthcare, and cultural attitudes towards sexual behavior all contribute to the high prevalence of HIV-1 in this region. Figure 3 illustrates the geographic distribution of HIV-1 prevalence in Africa, highlighting the areas with the highest rates of infection.

Understanding the factors that contribute to the spread of HIV-1 in Africa is crucial for developing effective prevention strategies. It is evident that a holistic approach, which includes education, behavior change, and policy interventions, is necessary to address this public health crisis.
Gender roles, and the subordinate position of African women

Social and cultural systems in many African societies dictate that women have no control over their sex lives, or the sex lives of their husbands outside marriage.

Extramarital affairs by both sexes are tolerated in many parts of sub-Saharan Africa, but men culturally have rules requiring women to be very little sexual experience before marriage and to be monogamous thereafter, whereas men (patrilocal and monogamous sex acts are tolerated or even expected. Young men and boys are often encouraged by peers to demonstrate their masculinity through early sexual initiation and many sexual conquests.oeffBH

Early premarital, non-marital, and extramarital sex can be perceived as a threat to a woman's or a husband's pregnancy. This cultureprescribed lack of control on their sexual relationships has made women, particularly married women, highly vulnerable to HIV infection. Wives are not allowed to refuse sex from their husband, or to use a condom even if the husband is infected with HIV. The subordinate position of women also has implications for safe sex education. Men are supposed to know everything and cannot admit ignorance, whereas women are not supposed to be aware of issues related to sex.

The gender power differential is compounded by any differences and the economic dependency of women on men. Women typically marry or have sex with older men. In a multivariate study, the median age difference between spouses, reported by women, was 6-7 years. Furthermore, young married women in Kisumu and Nakuru had a higher risk of HIV infection if their husband was more than 5 years older than themselves.

Women face restrictions such as dietary laws, traditions, and values when they seek access to education, knowledge, land, capital, and employment. As a result, women are economically dependent on their male partners, which makes negotiation of safe sex difficult. For unmarried women and women who are widowed or divorced, sex is more of a climb-up or a strategy for survival or acquisition of goods. In a multivariate study, 60% of women and girls in Kisumu and Nakuru who reported non-marital sexual partnerships in the previous year reported sex as a source of money or gifts, to correspond with partners. For Cotonou and Yaounde were 6% and 14% respectively. More women reported that they were uneducated and could not be termed sex workers.

Poverty and decline of social services

During the past 20 years, nearly all countries in sub-Saharan Africa have experienced economic growth. Between 1980 and 1991, the average yearly growth of per capita gross national production in sub-Saharan Africa was 1.2%.

Structural-adjustment programs imposed cuts in government spending, including spending on social services. This policy further impoverished African populations, with increases in unemployment resulting from privatization of public enterprises and loss of jobs in the private and public sectors. In addition, the provision of social services decreased, including education and health services. Thus, during the 1980s, overall public expenditure on health declined only 1.7% of the gross domestic product.

Poverty is associated with increased vulnerability to HIV-1 and other sexually transmitted infections. In countries in which poverty is a risk of HIV-1 infection assures low health per capita spending. Young people who grow up in poor communities have little access to schools and low prospects for their future. They lack recreational facilities and sex becomes a way to pass time. Poverty also drives women into exchanging sex for money, food, or other commodities. Poor people in rural areas migrate to towns in search of work, leaving their farms and entering or an environment where sexual sickness is more common than in their rural homes. However, the association between poverty or wealth and the risk of HIV-1 infection is not straightforward. Higher educated population may be introduced with more risky sexual behavior and increased risk of HIV-1 infection in individuals, which was true especially in the earlier stages of the HIV-1 epidemic. However, the population level, there is no simple link between per capita gross national product and the prevalence of HIV-1 infection. Bangladesh, Namibia, and South Africa have the highest per capita gross national product in sub-Saharan Africa, but are the hardest hit by HIV-1. Mead (1990) identified eight epidemiological, social, and economic factors that could account for more than half the variation in the HIV-1 prevalence in the African countries. African and Latin American PRA countries gross national product was one variable, but also 26 biomass were inequality in income distribution and the gap between rural and urban and literacy.

The decline of health, education, and other social services implies a loss of opportunities for HIV-1 prevention. People with little or no education have poor access to safe sex information. For women, condom use is associated with higher levels of education. Reduced provision of quality health services also means a loss of opportunities to control other sexually-transmitted infections, other reproductive health services, and provide quality care for people infected with HIV-1. For instance, in Benin region, Togo, PRA was only 14% of symptomatic sexually-transmitted infections occurring in the population were curbed by health services. Those staff had both experience and knowledge, and health centers were provided with insufficient and inappropriate guidelines.

Unemployment and irregularization

The rapid growth of urban areas in developing countries, resulting from increased urbanization and mass migration from rural to urban areas, has had a rapid spread of HIV-1. In most parts of sub-Saharan Africa, HIV-1 prevalence is higher in urban than rural populations, which is one reason why the epidemic is spreading. It is estimated that the highest rates of adult HIV-1 infection (Figure 4).

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Migration to urban areas in search of employment increases the risk of sexual transmission. Urban and poor women who are separated from their spouses are more likely to engage in high-risk sexual behaviour that cohabitation is in urban areas. For many decades, rural migrants have been increasing over the past 15-30 years, especially in Africa. Male migrants may engage in high-risk behaviour with sex workers, thereby increasing their own and their partners' exposure to HIV-1 and other sexually-transmitted infections. Women are now increasingly migrating to cities. These women frequently end up in low-status, low-wage production and service work.
service jobs, and may be forced into exchanging sex for money or gifts as a survival strategy.

Rapid urbanization has been linked to growing sexual diversity, as jobs are scarcer than applicants. Results from a study in Nairobi showed that urban residents were more likely to have sex at younger ages and have more sexual partners than their rural counterparts. Additionally, qualitative data showed that social exposure and behavior of urban residents were more conducive to their pre-marital and extramarital sexual behavior.

Under the pressure of rapid urbanization, city infrastructures are collapsing and health services deteriorate, exacerbating the spread of HIV-1. 

Migration has brought higher mobility. Better communication and transportation now link urban and rural areas economically and socially. In some areas, rural-urban migration has been a crucial factor in the spread of HIV-1 in many regions. 

Key risk factors include migration, urbanization, widespread poverty, and increased mobility. Urbanization and migration are associated with higher risk behaviors, such as early marriage and sexual debut. 

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Refugees (UNICEF). Displacement is associated with increased risk of sociocultural and economic changes that may affect the spread of HIV-1. 

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methodological virtuoso in inclusion of effects at household, community, and society level. Several teams predict negligible economic effects of HIV/AIDS in developing countries with a high mortality rate, whereas others predict significant effects on national economies. In Malawi, for example, the annual loss in output gross domestic produce as a result of AIDS is estimated to reach 9.6% by 2010.

A more realistic indicator of the effect of AIDS might be the impact on development indices, which has been measured in terms of human development. The components of the index include life expectancy at birth, education, and nutritional status per capita. For example, Zambia had a lower index in 1997 than in 1975, largely as a result of the effect of HIV/AIDS on life expectancy.

Conclusions

HIV/AIDS epidemic in sub-Saharan Africa is the result of a complex interplay of behavioral factors and factors that influence the transmission of HIV, including sexual behavior, social practices, and community dynamics. Sexual behavior patterns are determined by cultural, social, and economic factors, such asmonds which NANCY, VICTORIA, and ZURICH.

The epidemic was first identified in the early 1980s in the southern region of Africa, where it has since spread to other parts of the continent. The epidemic continues to grow, with an estimated 33 million people infected in 2007.

The impact of HIV/AIDS on society is wide-ranging, affecting all aspects of life, including economic productivity, social services, and health care. The epidemic poses a significant challenge to global health efforts and requires a coordinated response from governments, civil society, and the international community.

References


