

Current status of reproductive behaviour in Africa

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The current annual population growth rate of 3.2% in Africa will double the population by the year 2025. The majority of this population is below 15 years of age, and Africa concurrently also has the highest incidence of infertility in the world. Sexual behaviour, which has been poorly studied in Africa, has a direct impact on reproductive health [including fertility, infertility and sexually transmitted diseases (STDs)]. The multiple cultures and religions which characterize the African continent also affect reproductive health. Factors that have a significant effect on reproductive health in Africa include greater prevalence of extramarital/commercial sexual activity, polygamy, lower prevalence of contraceptives, reliance on traditional practices, high incidence of STDs and teenage pregnancies. High risk reproductive behaviours are predominantly displayed by adolescents, and the prevalence of STDs, including HIV (human immunodeficiency virus), is very high in this group. Pregnancy-related complications are the major cause of health-related problems in 15–19 year old girls. Maternal mortality rates in most countries remain high. Literacy rates affect these behaviours. It is apparent that changing the sexual behaviour of adolescents is one way of reversing the adverse trends, such as STD transmission, unwanted pregnancy and poor general reproductive health.

Key words: Africa/fertility/infertility/reproductive behaviour/STDs

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Introduction

Limited research data have been published on sexual behaviour in Africa, and much of this information has been obtained in urban centres (Bertrand *et al.*, 1991; Carael *et al.*, 1991; Bassett *et al.*, 1992; Rutenberg *et al.*, 1994; Borgdorff *et al.*, 1995). Many of these studies have focused on specialized groups such as factory workers and commercial sex workers (CSW). Furthermore, studies of sexual behaviour in this continent have shown a great variability between the different study sites. As reported in other countries (Carael *et al.*, 1991), it is evident that the data generated from completed questionnaires are generally unreliable (Barton, 1991; Huygens *et al.*,

1996). Central to this issue is the dilemma of obtaining accurate information on a domain of sensitive personal experience considered private in African culture (Ankah, 1989; Packard and Epstein, 1991).

The general area of sexual behaviour in Africa gathered momentum in the 1980s when three key conferences were held in Nairobi (Kenya). The first one, the 'Nairobi Women's Conference' (1985), clearly demonstrated that women's health had been grossly neglected in the drive for improved primary care. Efforts were being directed at oral rehydration and child immunization while African women were still dying in their thousands from complications of pregnancy [World Health Organisation (WHO), 1996]. The second conference, on 'Safe Motherland' (1987), outlined the serious consequences of maternal mortality and morbidity. It was reported that up to half a million women were dying each year owing to pregnancy and childbirth related complications. It was accepted that avoidance of early teenage pregnancies and good child spacing would make a major impact on saving the lives of women and children, in addition to improving their general health. The third conference, on 'Better Health for Women and Children through Family Planning' (1987), presented outstanding data on the association between the use of contraceptives and reproductive health of women. It was clear that unwanted pregnancies were responsible for some 25–30% of

maternal deaths in Africa. Even today, it is apparent that up to 99% of all child-bearing maternal deaths take place in developing countries (Fathalla, 1994).

The annual population growth rate for sub-Saharan Africa increased from 2.5% in 1960 to 3.0% in 1983 and the total fertility rate in 1983 was 6.7 children per women (John, 1987). The population estimate for the same region in 1990 was 527 million, with a growth rate of 3.2% (Greenbalgh *et al.*, 1992). By the 1980s a number of African governments (Kenya, South Africa, Swaziland, Zambia and Zimbabwe) had agreed that their population growth rates were too high and they announced strong national policies to address this issue. Sub-Saharan Africa also has the largest incidence of infertility, which is up to 30% in some countries (WHO, 1987). It is accepted that sexual behaviour in this region has a direct bearing on both infertility and fertility, as well as on reproductive health.

Sexual behaviour is associated with sexually transmitted diseases (STDs), including HIV (human immunodeficiency virus). HIV has spread rapidly through most of urban Africa

and is now threatening the rural areas. Its transmission in sub-Saharan Africa continues in spite of the fact that awareness of this disease is high.

The African continent is made up of 52 countries and many of these are characterized by multiple cultures and religions which also influence reproductive behaviour. For example, there are 73 ethnic tribes in Zambia (Feldman *et al.*, 1997). Female circumcision, also termed female genital mutilation (FGM; Toubia, 1994), is an important consequence of cultural practices in 26 African countries. Migration in Africa has altered the population structure in many places and the most obvious effect is the shift in the age-specific sex ratio (Larson, 1989). Populations in West Africa are highly mobile and this also influences their sexual behaviour. The widespread social disruption brought about by civil unrest in many countries likewise has the same result.

This review attempts to present a current status of sexual behaviour in Africa in the context of reproduction, sexually transmitted diseases, HIV and traditional practices.

Table 1. Population of selected African countries. Adapted from Datasheet (1997) from Population Reference Bureau, Washington, USA

Country	Population in 1997 ($\times 10^6$)	Annual increase (%)	Projected population in 2025 ($\times 10^6$)
Algeria	29.8	2.4	47.7
Egypt	64.8	2.1	97.6
Senegal	8.8	2.7	16.9
Morocco	28.2	2	39.9
Tunisia	9.3	1.9	13.5
Burkina Faso	10.9	3	18
Angola	11.6	3.2	25.5
Botswana	1.5	2.6	1.6
Cameroon	13.9	2.8	28.5
Chad	7	2.5	13.2
Cote d'Ivoire	15	2.6	26.5
Democratic Congo Republic	47.9	3.4	104.3
Ethiopia	58.7	2.8	112
Ghana	18.1	2.9	28.2
Guinea	7.5	2.4	13.1
Kenya	28.8	2.6	36
Mali	9.9	3	23.7
Mozambique	18.4	2.7	33.8
Niger	9.8	3.4	22.4
Nigeria	107.1	3	231.6
Rwanda	7.7	1.9	11.7
Sudan	27.9	2.1	46.9
Tanzania	29.5	3	42.6
Tunisia	9.3	1.9	13.5
Uganda	20.6	2.9	33.5
Zambia	9.4	2.1	14.1
Zimbabwe	11.4	2.7	17.3
South Africa	42.5	1.5	45.5
Madagascar	14.1	3.3	29.3
Mean	23.9	2.6	40.9

Reproduction

The population structure of many African countries is very different from the rest of the world. Almost 50% of the population is under the age of 15 years (Table I). Almost all countries on the continent are experiencing considerable population increases, with South Africa recording the lowest annual increase and the Democratic Republic of Congo the highest. The mean increase is 2.6% and it is anticipated that the population will have doubled by 2025. The majority of the African population is aged between 15 and 49 years, and these are also the years of maximal sexual activity. Another important characteristic of the African continent is that the population is concentrated in urban areas. An elegant study done in South Africa (Pick and Obermayer, 1996) demonstrated that 63% (20.7 million) of the population lived in urban areas in 1985. The growth of the urban population is occurring at a faster rate than the overall national growth and it is anticipated that this population will have more than doubled (43.7 million) by 2010.

Migration and mobility have had a profound effect on the population structures in many African countries. In many instances, this has resulted in a shift in the age-specific sex ratio (Larson, 1989). Many African cities have a high male:female ratio, with some areas such as the South African gold mines being extremes in this respect. Migration of men out of rural villages to cities and industrial sites (e.g. mines) has had a profound and deleterious effect on the stability of the rural household. For instance, in Zambia (Gaisie *et al.*, 1993), this has resulted in about half (47%) of the population being under 15 years of age. The male population in West Africa is highly mobile and sometimes whole generations have launched their careers in a different country (Decosas *et al.*, 1995). A good example is the Ivory Coast, where one quarter (increasing to 40% in the capital) of the population is from neighbouring countries. Truck drivers in almost all countries are a highly mobile male group, and in Kenya it has been shown that a trip outside Kenya lasts an average of 4 weeks (Bwayo *et al.*, 1994). Female migration occurs on a much smaller scale. Early age at first marriage, high divorce rates and the traditional lack of ownership of land and property by divorced women, as well as war and famine conditions, have been the main factors for the migration of young females to towns (Baardson, 1991).

Unsafe sexual behaviours are displayed predominantly by the mobile groups (such as truck drivers) and migrant workers. This migration and mobility has also promoted prostitution and commercial sex (Piot *et al.*, 1994). It has been established that the population dynamics in West Africa have directly promoted commercial sex. For example a prostitute services up to 12 workers over a two-night period in a plantation in Cote d'Ivoire (Kale, 1994). In Ghana two-thirds of females are migrants and almost all are prostitutes (Kale, 1994). A study carried out in Kenya along a major trade route

showed that the majority of the female population was made up of CSW (Bwayo *et al.*, 1994). Increasing poverty coupled with deteriorating living conditions, war and famine are the major causes forcing an increasing number of adolescents into the sex industry for survival (Duncan *et al.*, 1997). It has also been suggested that the major causes of prostitution in Africa are poverty, lack of education and rural-urban migration (Kloos and Zein, 1997). The increase in the male to female ratio also leads to the development of commercial sex (Duncan *et al.*, 1997). This is common in most of the sub-Saharan countries (Blecher *et al.*, 1995; Carael *et al.*, 1995; Nozuka *et al.*, 1997). It is worrying to note that women are turning into prostitutes at increasingly early ages. In a study done in Ethiopia on 177 prostitutes, it was shown that they took up this profession at a mean age of 14.7 years (Kloos and Zein, 1997).

When compared to other developing countries, a greater proportion of African populations reported extramarital and commercial sex (De Cock, 1996). Up to 25% of men in 12 countries reported contact with CSW over the previous year (Carael *et al.*, 1995), and in this regard men were three times more likely to report sex with a non-regular partner when compared to women. The latter finding is supported by recent reports in Kenya (Jackson *et al.*, 1997; Munguli *et al.*, 1997), where 15% of the women and 50% of the men studied had had casual sex with a non-partner. Similar findings have been reported in Uganda (Assiimure-Okiror *et al.*, 1997) and South Africa (Blecher *et al.*, 1995). This practice reaches extreme levels at stops along trade routes, mines and West African plantations. It has also been reported that women tend to reduce their numbers of sex partners as they age but this is not true for men (Carael *et al.*, 1995).

Polygamous marriage is also common in many African countries and regional religions (e.g. Islam) may influence this. In Tanzania 9% of men and 20% of women are in polygamous marriages (Munguli *et al.*, 1997), and this is more common in men aged >35 years. It has been reported that 40–80% of currently monogamous men in francophone African countries desire another wife (Ezeh, 1997). In some regions of Kenya up to 20% of all currently married women have co-wives. It is believed that polygyny fosters high reproductive performance (Karanja, 1994). Women living in areas of high polygamy in Kenya enter marriage 2 years earlier, start sexual activity 1.5 years earlier and have their first birth a year earlier than women in non-polygamous areas. In high polygamy marital dissolution and remarriage are very common (36% men, 33% women) and 28% of men reported ≥ 20 lifetime partners (Ezeh, 1997).

Several reports from different parts of the world indicate that sexual maturation and initiation of sexual activity are currently occurring at a much younger age than in past generations. As indicated previously, data on sexual behaviour in Africa are scarce but it is apparent from the published information that sexual activity is beginning at an increasingly younger age in the different countries. Younger birth cohorts

with first coitus occurring at a younger age (Carael *et al.*, 1991) have been reported in several countries. A perusal of the published literature demonstrates that sexual activity is very common among adolescents and is initiated in the early teens. In rural Tanzania sexual activity was common, with 50% of women and 46% of men reporting first coitus before 16 years (Munguli *et al.*, 1997), and in northwest Tanzania the age at first coitus was 12 years for boys and 13.5 years for girls (Mohamed and Masona, 1991). The preferred age of marriage for girls in some Ethiopian cultures is 12–15 years (Duncan *et al.*, 1997). A survey of sexual behaviour of high school students in the capital Addis Ababa found that 38% of students (69% males, 31% females) were sexually active before the age of 15 years. In a study of 2500 adolescents in South Africa it was shown that 73.3% of girls and 57.6% of boys had already experienced coitus by the age of 18 years (Bugu *et al.*, 1996). In the same country it has been reported that girls and boys experiment with sex at the ages of 11 and 13.5 years respectively (Green *et al.*, 1995). Similar data have been reported in Kenya (Nozuko *et al.*, 1997), Zimbabwe (Mbizuo *et al.*, 1995), Nigeria (Nicholas *et al.*, 1986) and Uganda (Nozuko *et al.*, 1997).

Data on the actual components of sexual activity are scarce. It has been shown that regardless of how strict the parents are, teenage adolescents still participate in sexual activities. These take place in a number of venues, including bedrooms (both boys and girls) when parents are away, school toilets and fields, or during evening visits to the church (Balmer *et al.*, 1997). A recent study (Feldman *et al.*, 1997) reported that 78% of the boys fondled their partner's breast during sex. The sexual intercourse was mostly vaginal with only 10% reporting anal intercourse. Only 25% of adolescents engaged in fellatio and 48% (29/60) performed oral sex on male partners. Several studies indicate that performance of non-penetrative sex is a rare event (Feldman *et al.*, 1997; Nozuko *et al.*, 1997). The incidence of anal intercourse is generally low, and even in areas of intense commercial sex activity only 14% of the subjects participate in this activity (Nozuko *et al.*, 1997). In African populations, in general, homosexuality is rare (Blecher *et al.*, 1995) and a vast majority of adolescents (97%) feel that this is morally wrong (Likwa, 1989). Even though it is difficult to gain knowledge on the practice of masturbation, it does occur and is more common in boys (Blecher *et al.*, 1995; Feldman *et al.*, 1997). The reasons given for masturbatory activities were sexual frustration (non-availability of a female partner) by boys and substitution of a safer sexual practice for a risky one by girls (Balmer *et al.*, 1997).

Drugs affecting sexual behaviour are commonly used in sub-Saharan Africa (see Balmer *et al.*, 1997; Nozuko *et al.*, 1997). Soft drugs used included cannabis, khat and diazepam; hard drugs used were cocaine and heroin. Alcohol was a common accompaniment to sexual activity. Younger adolescents, in their early teens, tended to sniff glue or paraffin. These were used prior to initiation of coitus.

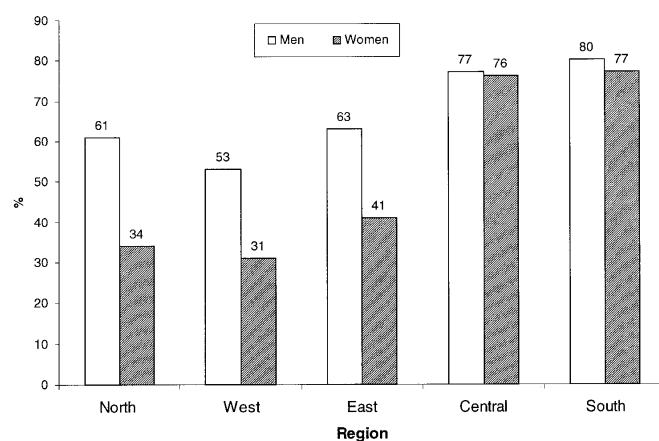


Figure 1. Literacy rate (%) of adults >15 years of age in Africa. From World's Women Data Sheet, Population Reference Bureau (1995).

Occurrences of sexual harassment, molestation (even in children) and rape are common in Africa, as testified by the various national news and electronic media. In one recent study (Balmer *et al.*, 1997), it was shown that experience of rape in adolescents varied with age and its occurrence increased with progressing age. Twelve year old girls were waylaid and 16 year old girls who rejected sexual advances were raped. The average age at which this phenomenon occurs in the western world is 20 years. The reasons given by men for the rapes included lack of knowledge on how to approach girls, resulting in gang rapes (Balmer *et al.*, 1997). Incidences of child abuse are also common and have been well documented in South Africa (Westcott, 1984; Jaffe and Roux, 1988).

The aspects of sexual behaviour relating to sexual awareness, infertility, maternal child health and fertility regulation are very important for the African continent and these will now be considered in some detail.

Sexual awareness

Educational level and literacy rates in African countries are generally low (Figure 1). This is particularly true in the case of women and implies that they will not be effectively reached by reproductive health awareness campaigns. This is clearly demonstrated by the significant drop in birth rates in women under 20 years of age (Figure 2). It is known that adolescents, because of their high risk behaviours, are more likely to take part in unsafe sexual practices and will thus be more vulnerable to pregnancy and STDs (Brindis *et al.*, 1992), and this is clearly evident in the case of planned motherhood in Africa (Figure 2).

Available information in East, Central and Southern African countries suggests that teenagers do not have an adequate knowledge about their own sexuality and reproductive health and this puts them at the risk of unplanned pregnancy and STDs (Mbizuo *et al.*, 1995). Due to early maturity, the teenagers in these countries face many problems, such as inad-

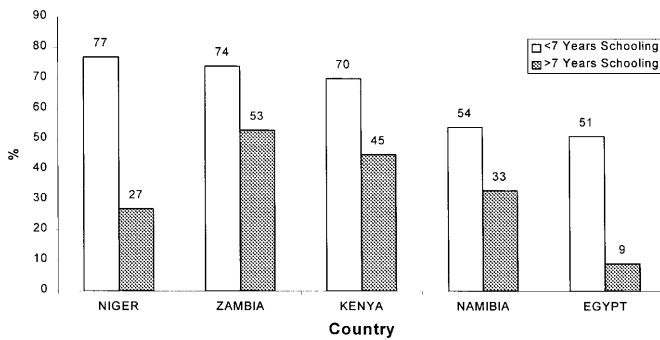


Figure 2. Percentage of women giving birth by age 20 years, in relation to their educational level. From The World's Youth Data Sheet, Population Reference Bureau (1996).

equate knowledge of reproductive biology and early sexual relationships (Commonwealth Regional Health Community Secretariat, 1990). A detailed study was done in 1689 adolescents in Kenya (Alan, 1989), and it was reported that only 15% of them knew when a girl was likely to become pregnant within the menstrual cycle and 80% were positive that pregnancy occurs during the pubertal development of girls. Up to 96% were aware that teenage boys could make a girl pregnant. Clearly, there is a need for improving the literacy rate in the continent, and this will have a major impact on reproductive behaviour.

Infertility

It is becoming increasingly clear that African women have the highest rates of disease-induced infertility in the world (Cates *et al.*, 1985; WHO, 1997). The overall infertility rate (Table II) in sub-Saharan Africa is between 12.7 and 16.9% (Ericksen and Brunette, 1996) and is the highest recorded in Africa (Sciarra, 1994). Primary infertility is not that widespread, as indicated by analysis of childlessness rates among women at the end of their reproductive cycle. Infertile women had a greater incidence of marital dissolution, reported more lifetime sexual partners and had a greater rate of STDs when compared to fertile women (Henin, 1996; David and Voas, 1981; Schrijvers *et al.*, 1991; Nabaitu *et al.*, 1994; Favot *et al.*, 1997). A man was more likely to have extramarital partners when his wife was unable to bear children (Henin, 1996). It has also been reported that first sexual debut occurred at an earlier age in infertile compared to fertile women (Duncan *et al.*, 1990). In comparison with fertile women, almost one in four of those who were infertile started sexual intercourse before 15 years of age in Ethiopia (Duncan *et al.*, 1990). The psychological burden of infertility itself makes a woman expose herself to multiple partners in an effort to get pregnant (de Bruyn, 1992).

Table II. Prevalence of infertility in selected African countries. Adapted from Ericksen and Brunette (1996)

Country	Rate of infertility (%)	Year
Liberia	14–17.6	1986
Burundi	8.6–11.5	1987
Cameroon	15.6–19.4	1988
Cote d'Ivoire	11.5–14.8	1981
Kenya	13.7–16.7	1989
Lesotho	17.1–21.5	1977
Malawi	12.2–15	1992
Mali	13.7–16.7	1987
Nigeria	10.5–14.6	1990
Tanzania	10.7–12.0	1992
Uganda	9.9–13.5	1988
Zambia	13.8–17.5	1992
Botswana	14.9–21	1988
Zimbabwe	16.8–22.4	1988

Only a few studies have examined the association between infertility and STDs including HIV. In a study done in Gabon, HIV prevalence was highest among women with primary (9.3%) followed by secondary (2.1%) infertility when compared with fertile (0.7%) women (Schrijvers *et al.*, 1991). Similar findings were found in Tanzania (Favot *et al.*, 1997). Up to 64% of female patients in African medical centres had infertility that could be traced to a prior STD infection (WHO, 1987). The degrees of infection (STDs, pelvic inflammatory disease or pregnancy complications) varied among the different countries, with those in sub-Saharan Africa showing the highest rates (Sciarra, 1994). The specific STDs implicated in infertility are gonorrhoea, chlamydia and syphilis; scarring of the Fallopian tubes is due to pelvic inflammatory disease and syphilis which cause fetal loss through spontaneous abortion. (STDs discussed further in a subsequent section.)

Maternal child health

The two leading causes of death among women of reproductive age in sub-Saharan Africa are complications of pregnancy and HIV infection (De Cock *et al.*, 1990). The sexual revolution of the 1960s resulted in a dramatic increase in teenage pregnancies (Mati, 1989). West Africa has the highest incidence of teenage pregnancies (56%) in the world (Table III). Premarital and unplanned teenage pregnancies may lead to premature departure from school, limited career opportunities and increased health risks from pregnancy complications and abortion (Nicholas, 1986; Alan, 1989; Kane *et al.*, 1993a). The level of education itself has a strong bearing on the occurrence of teenage pregnancies in Africa, and receiving more than 7 years of schooling clearly reduces this incidence (Figure 2). The traditional early marriage for girls in many African cultures also contributes to this.

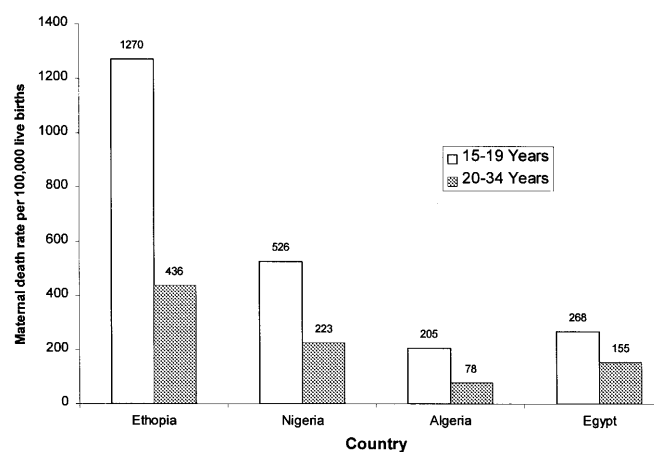
Table III. Mean reproductive data for women in Africa in 1995. Adapted from Population Reference Bureau Data for the World's Women (1995), Washington, USA

Region	No. of women ($\times 10^6$)	Total % women aged 15–49 years	Total fertility rate	Contraceptive prevalence rate (%)		Births under medical care (%)	Maternal mortality rate (deaths/10 000 births)
				All	Modern		
North Africa ($n = 6$)	79.2	49.5	5	39	36	44	310
West Africa ($n = 15$)	106	44.5	7	8	4	39	830
East Africa ($n = 17$)	114	44.7	6	15	11	36	440
Central Africa ($n = 7$)	41.4	43.7	6	10	3	48	740
South Africa ($n = 5$)	23.9	49.4	5	47	45	61	100
Mean	72.9	46.4	6	23.8	19.8	36.8	484

It has been estimated by WHO that the risk of dying due to pregnancy-related causes is twice as high for women aged 15–19 years than for those aged 20–34 (Figure 3), and five times higher for girls aged 10–14 years. In many African countries, school girls are forced to initiate a sexual relationship with older financially secure men ('sugar daddies'), who exchange gifts for a sexual relationship, and it is this poverty which causes strife in these relationships. Pregnancy-related complications are the major cause of health-related problems among 15–19 year olds. (Feldman *et al.*, 1997). Availability of basic antenatal care has a direct bearing on the maternal mortality rate, as Figures 4 and 5 demonstrate. The maternal mortality rate for Zimbabwe is 168 maternal deaths per 10 000 deliveries (Mbizuo *et al.*, 1996) and this could be prevented in 90% and 85% of women who died in rural and urban areas respectively. The common causes of death were haemorrhage, abortion-related sepsis and puerperal sepsis.

Severe anaemia is an important contributor to the morbidity and mortality associated with pregnancy, and may be caused by multiple factors, including malaria, iron and folate deficiency and hookworm infections. It is generally treated by blood transfusions, and in view of the AIDS epidemic this practice is risky. A recent study undertaken in Kenya (Zucker *et al.*, 1994) concluded that blood transfusions are only life saving in a small proportion of women and should not be given routinely.

Up to 80% of all the hospital admissions for teenage girls in sub-Saharan Africa are for induced abortion complications (Fathalla, 1994). It is accepted that abortion is of major concern in Africa (Figure 6). Even though many religions prohibit abortion (Orthodox Church, Islam), it is still a major cause of maternal mortality among adolescent students (Soyoum and Getahun, 1988). An important contributor to this phenomenon is the culture of 'sugar daddies' as mentioned above. In Tanzania, in a hospital-based study of adolescents seeking

**Figure 3.** Maternal mortality in selected African countries. From The World's Youth Data Sheet, Population Reference Bureau (1996).

treatment for abortion complications, it was determined that 31% of girls under 18 years of age were made pregnant by men aged >45 years (data sheet for the World's Youth by Population Reference Bureau, 1996). In Uganda, 49% of sexually active primary school girls reported being forced to have sexual intercourse with other men and 22% did it in exchange for money or gifts.

Fertility regulation

Fifty three per cent of the world's couples are believed to be using contraception, and the main methods employed are the pill and sterilization (Spira, 1994). Africa is the only region in the world where the prevalence of use of contraceptives continues to remain low (Tables III and IV). In sub-Saharan Africa, the overall prevalence rate is <13%. In the 22 countries comprising this region, fewer than 5% of couples are using

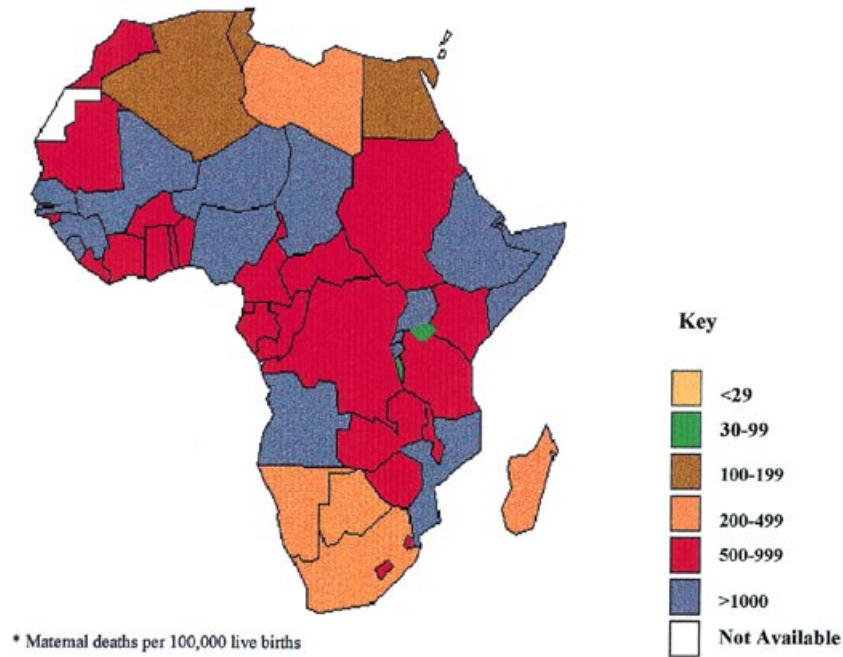


Figure 4. Maternal mortality rates in 1990. Adapted from Maternal Health around the World, WHO (1997).

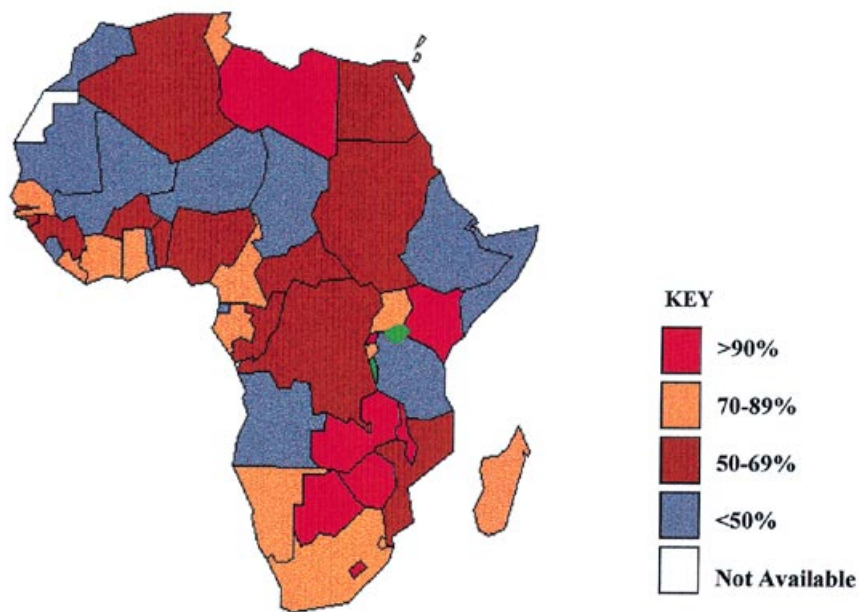


Figure 5. Pregnant women who had at least one antenatal visit in 1996. Adapted from Maternal Health around the World, WHO (1997).

modern contraceptives. As indicated elsewhere in this review, the teenagers in this region face many problems, including limited knowledge of and access to different contraceptive methods, which in turn lead to low rates of contraceptive use (Commonwealth Regional Health Community Secretariat, 1990). This is evident from data collected on teenage women (Figure 7), and it is interesting to note that there is a lower

prevalence of use of contraceptives among married women than single ones.

Two of the most important determinants of contraceptive use in Africa are residence in rural/urban regions and educational level (Pannenberg, 1987). In a study done in Ethiopia (Central Statistical Authority, 1991; Duncan *et al.*, 1997), it was found that contraceptive use was highest in the capital

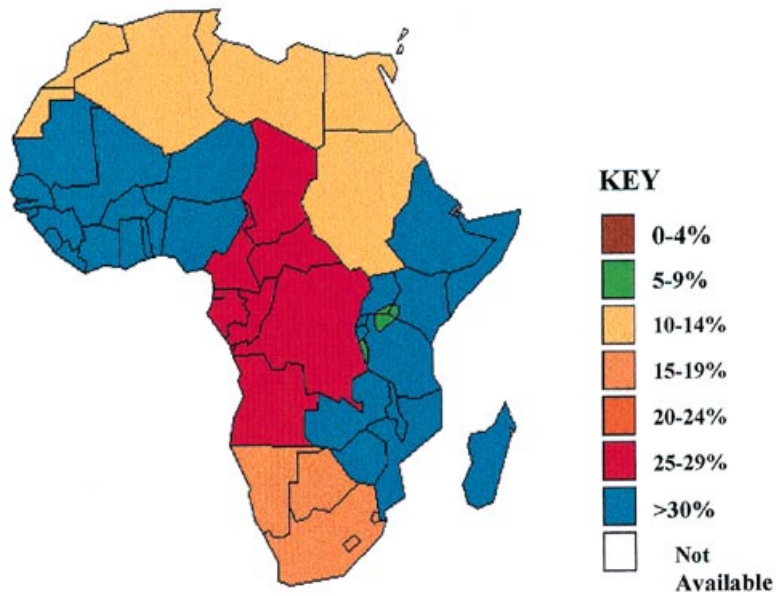


Figure 6. Women having unsafe abortions in 1996. Adapted from *Maternal Health around the World*, WHO (1997).

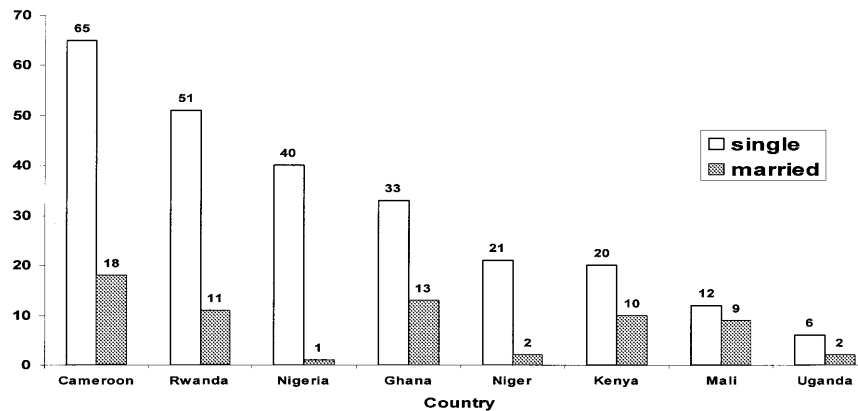


Figure 7. Percentage of African women between the ages of 15 and 19 years using contraceptives. From *The World's Youth Data Sheet*, Population Reference Bureau (1996).

Addis Ababa (17.4%) followed by other urban areas (12.7%). The most popular method was the pill (45%), followed by natural methods such as withdrawal, abstinence and ovulation prediction by either examining cervical mucus quality or detecting a rise in basal body temperature (37%).

In Africa, family planning is not generally discussed among women, even those who are young and educated, and seldom between the husband and wife. This is especially true in rural communities, where contraception is generally considered to be a male prerogative (Mengistu *et al.*, 1991). Religion as well as economical situation also influence the use of contracep-

tives. A recent study performed in Ethiopia (Duncan *et al.*, 1997) showed that Moslem women (14%) and women with a low family income (0.4%) had a lower prevalence of contraceptive use when compared to either orthodox (27%) or high income bracket women (29%).

Even though the condom (both male and female) is effective in preventing pregnancy (WHO, 1997), it is not a widely used method of contraception (Table IV), and various studies have shown that its utilization is perceived to represent lack of trust between partners (Mathews *et al.*, 1990). The use of condom is further discussed in the section about HIV (below).

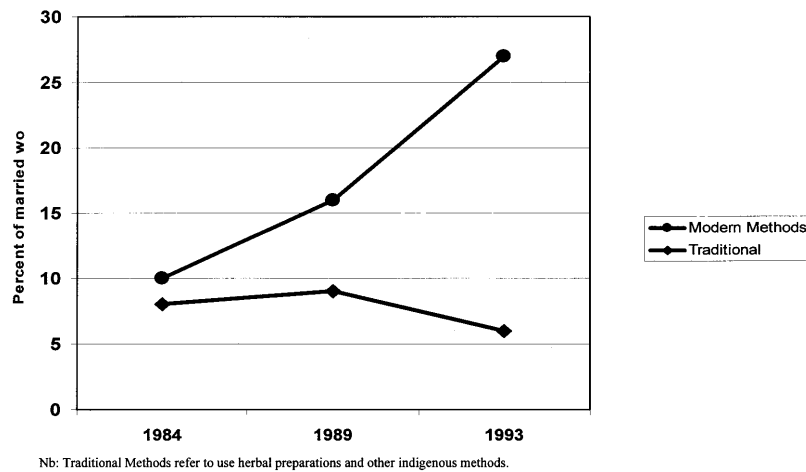


Figure 8. Prevalence of contraceptive use. Note that traditional methods refers to the use of herbal preparations and other indigenous methods. From National Council for Population Control and Development (1995); Family Planning Projects Analysis for Kenya 1989–2025.

Table IV. Numbers ($\times 1000$) of contraceptives used for birth control in Africa. Values in parentheses are percentages. From United Nations Population Fund (1994)

Region	Sterilization		Oral pills	Injections	IUDs	Condoms	Others
	Female	Male					
Sub-Saharan Africa	523 (7)	5 (0)	1907 (26)	409 (6)	481 (7)	333 (5)	3666 (49)
North Africa	766 (5)	16 (0)	5200 (33)	100 (1)	3617 (23)	1139 (7)	4858 (31)

Even though it is acknowledged that biomedical research has helped to provide more people access to a greater range of safe and modern methods of fertility regulation (UNDP/UNFPA/WHO/World Bank, 1995), not all people are able to find a method that meets all their needs, and the range of choices offered to men remains limited. A major step in the evolution of ideas in the field of family planning in Africa is the acceptance that the use of contraceptives and user perspectives as well as inclusion of men may influence prevalence rates.

Over the past two decades, an unprecedented decline in fertility with a corresponding increase in contraceptive use has occurred in some African countries. It has been shown that the prevalence of use of contraceptives has been increasing steadily in Southern sub-Saharan regions. A recent study done in 2500 adolescent students in South Africa (Buga *et al.*, 1996) demonstrated that 23.5% of girls ($n = 775$) and 62.1% of boys ($n = 794$) were using contraceptives. The prevalence rate of use of contraceptives in Kenya has risen significantly in recent years (Figure 8). Compared to 10 years ago, Kenyan women today are three times more likely to use contraceptives. The use of modern contraceptives has increased from 17 to 27% in just 5 years. This rise in the use of contraceptives is the biggest factor in the decline in fertility over the same period (Figure 9). Although the total fertility rate has declined from 7.7 to 5.4 over the past 10 years, surveys carried out by international non-governmental organizations (NGOs) indi-

cate that Kenyan men and women want still greater control over their fertility. The NGOs are playing an important role in Africa in areas of innovative research and development, training activities (national research and development) and in service delivery. It has been reported that 78% of Kenya's married women do not desire a pregnancy but only 33% are using contraception. Approximately 45% (1.5 million) women are currently at risk of becoming pregnant. This clearly demonstrates that there is a considerable 'unmet need' for family planning in Kenya.

Sexually transmitted diseases

As in the rest of the world, early sexual maturation, coupled with the increasingly younger age at first coitus in young teenagers, has resulted in greater exposure to STDs in Africa. The factors that favour the increased STD incidence (and prevalence rates) in Africa include: (i) high birth rates, resulting in increasingly large sexually active populations; (ii) wars and civil unrest altering the male to female population ratio, leading to the development of CSW; (iii) urbanization and male migration, promoting male promiscuity and commercial sex; (iv) poor medical services, leading to lack of treatment of common STDs and hence their spread; (v) general poverty in female communities and low income promoting commercial sex. Behavioural factors such as anal sex, sexual relations during menstruation and many traditional practices also influ-

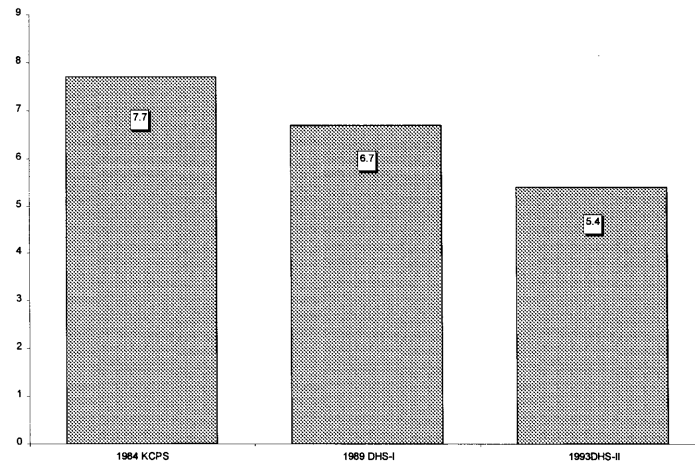


Figure 9. Total fertility rate in Kenya between 1984 and 1993. From National Council for Population Control and Development (1995): Family Planning Projects Analysis for Kenya 1989–2025.

ence the spread of STDs. Apart from HIV, the other common STDs reported in Africa include gonorrhoea, syphilis, chlamydia, chancroid, human papilloma virus, herpes simplex, trichomoniasis and candidiasis.

A nation-wide survey of high school students in several African countries (Erickson and Brunnette, 1996) showed that one-third of the adolescents had a history of STDs. A recent study done on 2500 adolescents in a rural South African school (Buga *et al.*, 1996) demonstrated that 198 girls (pelvic inflammatory disease, 5.5%; cervicitis, 12.9%; vulval sores, 6.5%; vulvovaginitis, 36.5%; dysuria, 32.3%) and 387 boys (urethritis, 14.5%; penile sores, 19.1%; dysuria, 69.5%) had STDs. Interestingly, half of the sexually active girls and one quarter of the boys had a past history of STDs. The incidence of STDs is also high in Zambian adolescents (Likwa, 1989). In a study done in a South African children's hospital, 107 children were found to have STDs transmitted by child abuse (Argent *et al.*, 1995), and gonorrhoea was the most common disease.

The prevalence of STDs in Ethiopia is among the highest in Africa; Up to 86% of all females attending the Venereal Disease Clinic in Addis Ababa in 1981 were prostitutes and 83% of the male attendees indicated they had become infected with gonorrhoea from them (Tesfaye, 1981). Another study showed that up to 64% of Ethiopian women had three or more different STDs (Duncan *et al.*, 1997). Pelvic inflammatory disease was present in 49% of married women and 72% of prostitutes. The most compelling finding of a recent review of STDs in South Africa (Pham-Kanter *et al.*, 1996) was that they are endemic: 17% of antenatal clinic attendees had at least one urogenital tract infection while 49.90% of women attending family planning and antenatal clinics had at least one STD (syphilis, 15%; chlamydia, 16%; gonorrhoea, 8%; the rest vaginal infections). The female migrants in Abidjan are mostly prostitutes and their most frequent health problems

include STDs (pelvic pain, genital sores and vaginal discharge). Similar findings have been recorded in Uganda (Nozuko *et al.*, 1997) and Kenya (Laga *et al.*, 1991). The most frequent STD in pregnant women in Kenya (Temmerman, 1993) was syphilis (3.6%, 173/4753). The prevalence of this disease increased from 2.9% in 1989 to 5.3% in 1991.

It is well known that prisoners are a high risk group for STDs due to their history of illicit drug use or prostitution at the time of incarceration (Patel *et al.*, 1990; Power *et al.*, 1991; Vlahow *et al.*, 1991) but few studies have been done on their sexual behaviour in Africa (Maboshe *et al.*, 1989; Kebede *et al.*, 1991; Vaz *et al.*, 1995). A study done in four correction units in Mozambique on 1284 male and 54 female prisoners showed that 32% and 41% had a history of prostitute contact and STDs respectively. The predominant STD in female prisoners was syphilis.

In Africa, STDs are the most common cause of infertility (Goeman and Piot, 1990; Favot *et al.*, 1997). The association between STDs and HIV is well documented (Latif *et al.*, 1989; Bassett *et al.*, 1992) and sexual behaviour is strongly associated with both (Laga *et al.*, 1991). A study done in Nairobi (Temmerman *et al.*, 1990) reported a low rate of partner notification and in this population women coming home with information regarding STDs automatically risked the blame for this being put on them by their spouses, increasing the risk of being abandoned by the husband or replaced by other women. This forces most of the women to keep the information to themselves. The use of condoms has also been shown to suggest that one of the partners might have a STD and this factor promotes tension, anger and confrontation (Mathews *et al.*, 1990; Ijsselmuiden *et al.*, 1991; Abdool-Karim *et al.*, 1992). It has been believed that people infected with STDs often do not seek medical attention and this was confirmed in a recent Kenyan study on trade route stops (Nozuko *et al.*, 1997), where it was reported that up to 30% of

males and 52% females had STDs. The latest episode of such diseases was treated either by self prescribing or using a friend's medicine by 9% of females and 14% of males.

Human immunodeficiency virus

It is believed that the HIV virus was present in Central Africa by 1959 (Nahmias *et al.*, 1986). The spread of HIV infection has occurred at variable rates in different African countries (Allen *et al.*, 1991; Anderson *et al.*, 1991; Nkowane, 1991), and the pandemic in Africa differs from that in the rest of the world in the predominance of heterosexual transmission (Piot *et al.*, 1990). It is estimated by WHO that 13.3 million infected individuals (60% of the world's total population infected with HIV) live in sub-Saharan Africa (UNAIDS, 1996), and more than half are women (Persson, 1994). Kenya is among the most severely affected of the 22 countries making up this region, with a prevalence of 11%.

Epidemiological studies indicate that the spread of AIDS in Africa took place at the same time as elsewhere in the world, but was mainly restricted to the sexually active heterosexual populations, primarily CSW and their customers in urban areas along commercial trading routes (Barongo *et al.*, 1992; Karim *et al.*, 1992; De Cock 1996). The male partners then spread the infection to their spouses in rural areas. East and Central Africa was the first region to become infected, and in some areas up to 20–30% of sexually active individuals may be affected (WHO, 1992). The infection in Kenya was introduced later (in the 1980s; Nkowane, 1991) and spread rapidly among certain groups, such as CSW (Plummer *et al.*, 1991), and more gradually in the general population (Braddick *et al.*, 1990).

The factors affecting the heterosexual spread of HIV in sub-Saharan Africa include: early age at first coitus, patterns of sexual partner change, commercial sex, prolonged separation from spouses, presence of STDs (especially ulcerative ones), roadside settlements, variations in infectiousness, migration/mobility and lack of male circumcision (Abramson and Herdt, 1990; Killewo *et al.*, 1990; Neequaye *et al.*, 1991; Plummer *et al.*, 1991; Serwadda *et al.*, 1992; Laga *et al.*, 1994a; Van de Perre *et al.*, 1987).

African countries show distinct patterns of HIV seroprevalence, and it is apparent that the sexually active adolescents in the general population have the highest prevalence. This has been documented in Botswana (Macdonald, 1996), Kenya, Uganda (Nozuko *et al.*, 1997) and Tanzania (Grosskurtha *et al.*, 1995). In Uganda, a strong correlation exists between HIV infection and migration status. The prevalence of infection is 5.5% in static populations but up to 16.3% in mobile groups (Decosas *et al.*, 1995). Similar observations have been reported in Kenya (Bwayo *et al.*, 1994) and Senegal (Kane *et al.*, 1993b). Migration from neighbouring countries, increasing the male to female ratios and leading to commercial sex, has resulted in the Ivory Coast having the highest prevalence of HIV in West Africa (Decosas *et al.*, 1995). Infected men then

spread the disease to 3–4 partners upon their return to their original country. Widespread social disruption due to civil war has caused similar migrant labour patterns in Mozambique and led to an increase in the prevalence of HIV in this country (Ministry of Health-Mozambique, 1987).

The rapid spread of HIV in sub-Saharan Africa is also facilitated by the unsafe sexual behaviours of truck drivers and CSW along the trade routes (Piot *et al.*, 1994). The prevalence of HIV in East African truck drivers is 35% in Ugandans (Carswell *et al.*, 1989), 27% in Kenyans (Bwayo *et al.*, 1994), 51% in Rwandans (Carswell *et al.*, 1989) and 23% in other five nationalities (Carswell *et al.*, 1989). In the Kenyan study (Bwayo *et al.*, 1994), HIV infection was directly correlated with the duration of driving and trips outside Kenya and inversely correlated with the number of trips per month. As expected, HIV-seropositive men reported fewer trips home to their wives and more frequent visits to prostitutes. Sizeable prostitute populations exist along trade routes and up to 75% of the truck drivers reported sexual intercourse with them (Nozuko *et al.*, 1987; Bwayo *et al.*, 1994). In a 2 month period, CSW at three stops along the Trans Africa Highway reported sexual intercourse 100 and 30 times with 30 and 12 partners respectively (Nozuko *et al.*, 1997). Up to 76% of CSW in Ilyantude, a truck stop in Southwest Uganda, were infected with HIV (Carswell *et al.*, 1989).

Increasing the number of lifetime partners also elevates the risk of infection with HIV (Hira *et al.*, 1991; Malamba *et al.*, 1994; Tyndall *et al.*, 1994). In a study done in Kenya (Tyndall *et al.*, 1994), 44% of married men were HIV-positive, but only 11% lived with their spouses and 2% were polygamous. As in the rest of the world, the presence of STDs is clearly a risk factor for HIV. The HIV seroprevalence rate among STD clinic patients in Lusaka was 60% in men and 69% in women (Hira *et al.*, 1991). The presence of genital ulcers clearly increases the risk of infection with HIV (Malamba *et al.*, 1994; Tyndall *et al.*, 1994). In Botswana, up to one-third of men with STDs are HIV-positive and in some towns the infection occurs in up to 48.5% (Macdonald, 1996). It has been shown that greater HIV shedding occurs in women with STD when compared to those free of STD (Ghys *et al.*, 1995), and this may be one of the reasons for the greater rate of infection.

The data for lack of circumcision being a risk factor for HIV in Africa is equivocal. Data from Tanzania (Urassa *et al.*, 1997) and Kenya (Bwayo *et al.*, 1994) suggest that lack of circumcision is a modest risk factor for HIV. However, another study done in Tanzania (Grosskurtha *et al.*, 1995) showed no protection for HIV. It has also been reported that the risk of infection for HIV is five times greater in other communities when compared to Muslims who practise circumcision (Malamba *et al.*, 1994).

Comparison of the age and sex distribution of people with AIDS in sub-Saharan Africa demonstrates that women consistently show an earlier peak in maximum prevalence when compared to men. Studies have demonstrated that there is a much higher efficiency of male-to-female than female-to-

male transmission of HIV (Padian *et al.*, 1991) and the virus load in the ejaculate of an infected male is very high, especially if he is infected with other STDs (Chantler, 1992). This may be one of the factors accounting for the observed difference among the sexes. Another factor may be the age difference at marriage of 5–10 years between men and women (Hunter, 1993). Populations in prisons and armies (Table V) are also at high risk for HIV infection; sexual activities do occur in prisons (Vaz *et al.*; 1995).

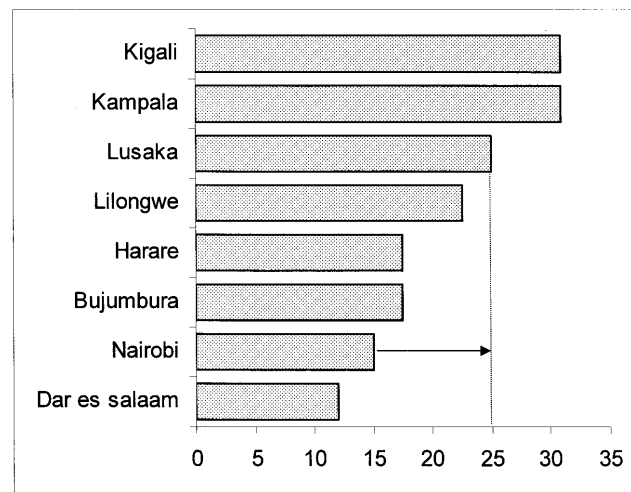
Bruising during sexual intercourse and having intercourse during menses have been shown to be risk factors for the spread of HIV, and both occur widely in Africa. In a study done in Zaire (Brown *et al.*, 1993a), 25% of men and 10% of women reported bruising during sexual intercourse. Sexual intercourse with a menstruating partner has been reported in several African countries, including Uganda (Malamba *et al.*, 1994). Consumption of alcohol at the time of coitus is higher in men who perceive themselves to be at risk of HIV infection, and this may be an important contributor to high risk behaviour (Tyndall *et al.*, 1994). From Mozambique it has been reported that HIV-infected males seek out young virgins for sexual intercourse since they believe that coitus with uninfected women will rid them of AIDS. Although female sex workers have the highest rates of HIV infection compared to any other group in Africa, it is the behaviour of their spouse or regular sex partner that is the major risk factor (Allen *et al.*, 1991).

Table V. AIDS in African military populations

Country	Year	Seroprevalence for HIV (%)
Cameroon	1991	6.2
Central African Republic	1991	22.0
Congo Democratic Republic	1993	50.0
Cote d'Ivoire	1994	12.0
Zimbabwe	1995	4× general population

Table VI. Percentage of pregnant women testing positive for human immunodeficiency virus

Sentinel site	1990	1992
Busia	17	30
Garissa	4.9	5.3
Kakamega	5.3	15
Kenyatta	5.8	14
Kissi	1.6	3.5
Kisumu	19	20
Kitale	3.5	21.3
Kitui	1	2
Mombasa	10	11
Nakuru	9.9	12
Nyeri	2.9	7.9
Thika	2.5	N/A



Assumption: By 2000 prevalence increases to 24% in Nairobi and to 9% in Kenya.
U.S. Bureau of census Centre for international Research Recent HIV Seroprevalence levels by country

Figure 10. Prevalence of human immunodeficiency virus (HIV) among pregnant women in selected capital cities. An assumption is made that, by the year 2000, HIV prevalence will increase to 24% in Nairobi and to 9% in Kenya. Data from the U.S. Bureau of Census Centre for International Research on Recent HIV Seroprevalence Levels by Country (NACP, 1996).

Another risk factor is emerging that is important for Africa. In the African continent many populations live in close proximity to game reserves and free-ranging populations of non-human primates. It has been suggested that persons working with non-human primates (NHP) or NHP material are at risk for occupational exposure to potentially infectious materials, including simian immunodeficiency virus (Sotir, 1997).

Sexual transmission of HIV-1 continues at an alarming rate in sub-Saharan Africa despite the fact that AIDS awareness is high. One explanation for this is that most individuals do not believe that they are at risk for AIDS and are not sufficiently motivated to change their behaviour; this has been shown by several studies (see Temmerman, 1993; Bwayo *et al.*, 1994; Tyndall *et al.*, 1994). In spite of their knowledge about AIDS, more than half (55%) of STD clinic attendees believed that their chances of getting this disease were nil or very small (Feldman *et al.*, 1997).

The transmission of HIV from mother to child is an important aspect of the AIDS pandemic in Africa. In many African countries, the HIV infection rates in rural areas are <1%, but in other regions the rates range from 5–30% (Temmerman *et al.*, 1994). The data obtained for HIV prevalence among pregnant women in eight capital cities in Africa are shown in Figure 10. Kenya has a sentinel surveillance system that provides the basis for estimating the extent of HIV infection and this operates at 13 sites where 200–300 pregnant women are tested for HIV (Table VI). The incidence of prenatal transmission of HIV is up to 48% in women in Nairobi (Datta *et al.*, 1991).

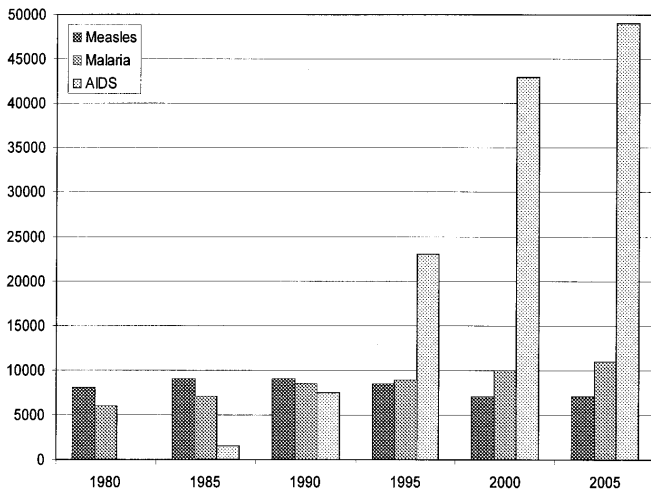


Figure 11. Annual number of child deaths in Kenya. From NACP (1996).

The prevalence rate in Botswana (Macdonald, 1996) varies from 16% (rural) to 30% (urban). Even though the prevalence of HIV among pregnant women is currently low in some regions, this does not mean that this situation will continue. This is clearly demonstrated by HIV infection trends at two sentinel sites (Kakamega and Nyeri). Even though infection rates at the two sites vary, they are rapidly increasing.

Data from Kinshasa (Ryder *et al.*, 1989), Nairobi (Temmerman, 1991, 1993) and Malawi (Miotti *et al.*, 1990) have shown a higher mortality rate in the previously born children of seropositive mothers when compared to normal. Spontaneous abortion was also associated with HIV infection (Temmerman *et al.*, 1992). In the same study, evidence of an aetiological role of syphilis in fetal death was also noted.

The increasing number of child deaths due to AIDS threatens to reverse many of the recent gains of child survival programmes in many African countries, including Kenya. As indicated in Figure 11, AIDS is the leading killer of children in Kenya. One of the worst impacts of AIDS deaths of young adults is an increase in the number of orphans. These are children under the age of 15 years who have lost their mother to AIDS infection. The numbers of these orphans will continue to increase and create many socio-economic problems. Even though AIDS will have a large impact on African population size, it will have no effect on the population growth rate, and this is demonstrated for Kenya in Figure 12.

Studies have shown an increased risk for midwives working in high HIV prevalence areas of becoming infected by occupational transmission (Hankins, 1993). Many studies report that counselling HIV-positive women regarding their HIV serostatus does not seem to influence their attitude towards subsequent reproductive behaviour (Wilkins *et al.*, 1989; Wiznia *et al.*, 1989). The majority of the cohort of women surveyed in Nairobi (Temmerman *et al.*, 1994), when confronted with the idea of a high risk for child mortality,

expressed the desire to have even more babies to increase the number of uninfected children. Studies have also shown that well-informed HIV-infected women who had got contraceptive counselling still wanted to become pregnant (Mercey, 1993).

Use of the male condom is one of the few effective methods available to prevent heterosexual transmission of HIV (Fineberg, 1988; Kallings, 1993; Saracco *et al.*, 1993). The female condom is effective in preventing pregnancy, but few studies have been done on its degree of protection against STDs and AIDS. The few data available to date in this regard are promising (WHO, 1997). In a study done in the USA (Soper *et al.*, 1994), the reinfection rate for trichomoniasis in 20 perfect users was zero. In laboratory studies, the female condom has been shown to be impermeable to STD-causing agents, including HIV (Kilbourne-Brook and Nguyen, 1997). Acceptability studies done in Africa indicate a good response for the female condom (Table VII). In Africa, lack of condom use is associated with an increased risk of HIV transmission (Ngugi *et al.*, 1988); a marked reduction in HIV infection in the female CSW was observed when STDs were controlled and condom use increased (Laga *et al.*, 1994b). Female sex workers who were offered both female and male condoms had a 34% reduction in the incidence of STDs and a 25% reduction in the number of unprotected sexual acts compared to their counterparts who were offered male condoms only (UNAIDS, 1997).

Table VII. Female condom acceptability in Africa. From WHO (1997)

Country	User acceptability (%)	Partner acceptability (%)
Kenya	93	Generally
Malawi	97	96
Uganda	92	90
Zimbabwe	90	75

Unfortunately, in Africa, use of the condom during sexual intercourse continues to be limited (Feldman *et al.*, 1997; Kanya *et al.*, 1997). In a study done on a cohort in Kenya, only 5% of men used the condom despite a 24% prevalence of HIV-1 (Tyndall *et al.*, 1994), and this was the situation even when an unlimited supply of condoms was available (Jackson *et al.*, 1997). The situation was particularly bad along the high risk trade routes (Nozuko *et al.*, 1997). It was of concern to note that individuals were not using the condom in spite of knowledge that HIV could be prevented by its use (Bwayo *et al.*, 1994; Blecher *et al.*, 1995).

The role of cross-border travel in the transmission of HIV was recognized soon after its discovery (Vittecoq *et al.*, 1987). A new risk behaviour for international travellers to Africa is also emerging, as reported by Hawker *et al.* (1994). In this study, 757 people were evaluated and 18.6% reported sexual activities without using condom during their visit overseas;

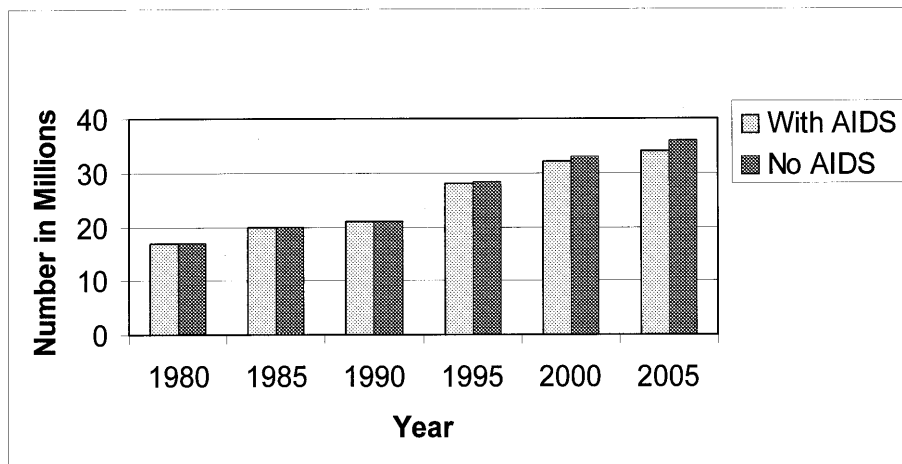


Figure 12. Total population in Kenya. From NACP (1996).

many of these were found to be HIV antibody-positive for virus originating from east, central and southern Africa. The virus was present in 16% of males and 21% of females.

Cultural (traditional) practices

Cultural practices such as ritual cleansing, inheritance of a wife by a dead man's brother and behaviour factors such as 'dry sex' (when desiccants are introduced into the vagina) influence the spread of AIDS and STDs. Other practices, such as female circumcision, also affect a woman's reproductive health.

Female circumcision, also considered as female genital mutilation (FGM), has been reported in at least 26 African countries (Figure 13 upper) that form a continuous belt across the sub-Saharan region. The prevalence of this practice within the region is very variable (Figure 13 lower). In Somalia and Djibouti, up to 98% of women practice FGM (Toubia, 1994). The Population Reference Bureau (1995) estimates that up to 85 million girls are circumcized, and the annual rate for this practice is 2 million. The delicate genitals of young girls are very vulnerable to the damage caused by surgical interference of lay practitioners using crude instruments. The clitoris, the specialized sexual organ of women which is made up of a bed of rich neurovascular erectile tissue, lies within the vulva, which is a main target of FGM. Complications common to all types of FGM include: haemorrhage and a severe pain leading to 'shock and occasional death; local and systemic infections (e.g. abscess, ulceration, septicaemia, tetanus, gangrene and severe scarring) and chronic pelvic infection (leading to severe dysmenorrhoea and infertility).

Dry sex is a common practice in many southern, central and west African countries. Dry sex refers to the practice of using herbs, pharmaceutical agents and absorbents such as cloth to dry and tighten the vagina before sexual intercourse. A wide variety of substances are used and they include soaps, ground

stones, toothpaste and herbs. The women engage in this practice for a variety of cultural reasons and often learn this behaviour from older women, or family members, or as a part of the initiation rites of young girls. The main reasons given are for treatment of vaginal infections or enhancing male sexual pleasure. In Zimbabwe, 87% of women reported using herbs or other intravaginal substances regularly prior to sexual intercourse (Runganga *et al.*, 1992). Traditional agents used in Central Africa include herbs and dry leaves (Brown *et al.*, 1993b), and these are used for treatment of vaginal infections or for the 'tightening effect'. When direct questions were asked about the practice of dry sex or bruising in Central Africa, only 1% of the women reported the former, while 25% of men and 10% of women agreed with the latter activity (Hira *et al.*, 1990; Brown *et al.*, 1993b). In a study done in Zaire in CSW (Mann *et al.*, 1992), an association was found between the introduction of materials into the vagina and HIV infection once specific intravaginal agents for tightening effects were excluded. In general, the substances used to promote dry sex cause vaginal or penile abrasion/peeling and these increase the risk of STD transmission.

A recent meta-analysis of douching studies in the past 30 years indicates that frequent douching has adverse health effects (Sherries, 1997). There is a link between pelvic inflammatory disease, fertility and douching (Scholes *et al.*, 1993; Stergachis *et al.*, 1993; Baird *et al.*, 1996). Women using a non-commercial traditional preparation were more likely to be infected with HIV (Mann *et al.*, 1992). In a study evaluating reasons for vaginal douching in 397 women, of whom 43% had HIV-positive antibodies, 60% had douched for hygienic reasons, 30% to cure vaginal discharge and 6% to treat infertility (Gresenguet *et al.*, 1997). In the same population, 43% of women reported regular douching prior to and after sexual intercourse, while 34% did it before and used either a commercial antiseptic or a traditional preparation.

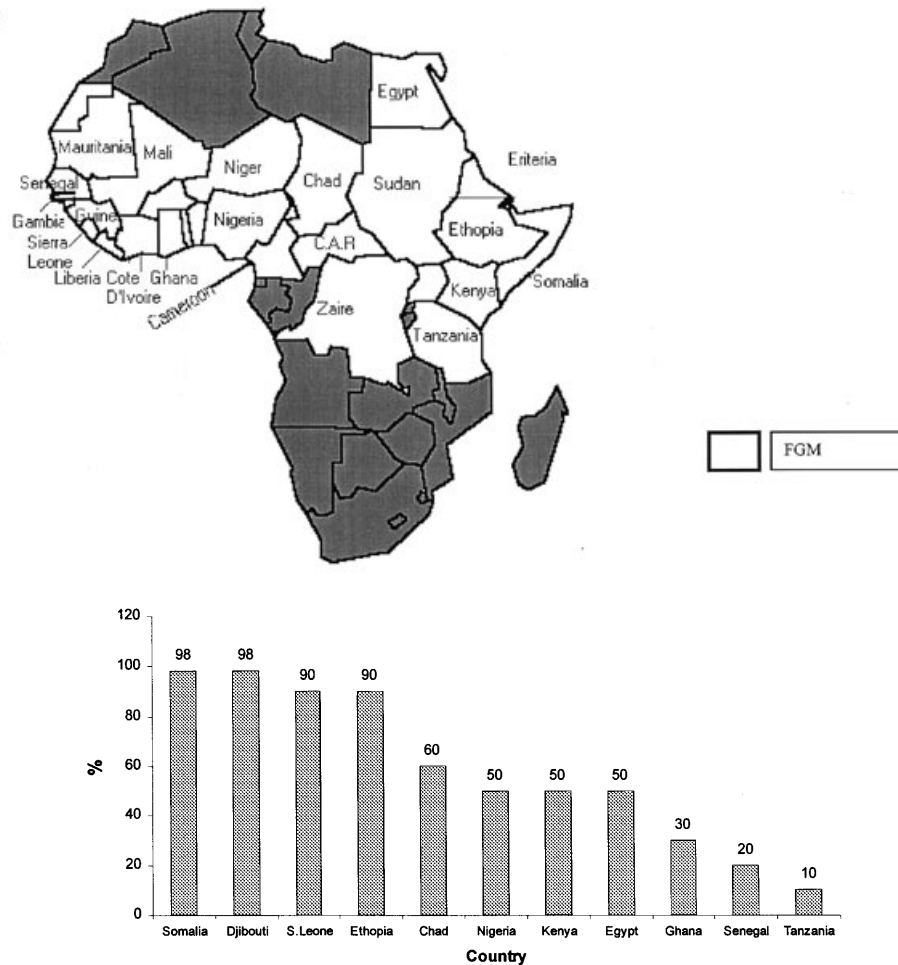


Figure 13. (upper) White areas indicate the distribution of female genital mutilation in Africa. **(lower)** 1980s estimation of percentage of women subjected to genital mutilation (Population Reference Bureau figures). From NACP (1996).

In a study done in Zaire (Brown *et al.*, 1993b), it was reported that intravaginal substances caused inflammatory lesions of the vagina and cervix, and more recently in Malawi, a positive association was reported between HIV seropositivity and use of intravaginal agents for treatment of vaginal discharge (Dallabeta *et al.*, 1995). Available data suggest that women who use a non-commercial preparation are more likely to be infected with HIV than women who never douche (Gresenguet *et al.*, 1997). These substances may enhance heterosexual transmission of HIV either through irritation of the vaginal mucosa (thereby promoting lymphocyte proliferation; Alexander, 1990) or dehydration of the vaginal mucosa (rendering the vaginal epithelium more vulnerable to local trauma; Irwin *et al.*, 1993).

Impact of changing sexual behaviour

As indicated by WHO (1989), health education to promote behavioural change is an important strategy for the control of

HIV. Populations may indeed change their behaviour, as has been demonstrated in several studies, particularly in the case of homosexuals (Solomon and De Jong, 1989; Chipfakacha, 1993). A review of recent literature suggests that this phenomenon is achievable in Africa.

A behavioural intervention programme that included risk reduction counselling and condom promotion was initiated in Kenya (Jackson *et al.*, 1997), and the overall findings were that the incidence of extramarital sex declined (from 49 to 36%), and so did sexual intercourse with CSW (12 to 6%). However, an increase in condom use was not observed. Similar finds were reported from a Ugandan (Asiimwe-Okiror *et al.*, 1997) study of 1500 cohorts evaluated between 1989 and 1995. In both male and female adolescents (15–19 years), the proportion of individuals never having sexual relations increased from 31 to 56% and from 26 to 46% respectively. An increase in the use of condoms from 15 to 55% and 6 to 39% was also observed in males and females respectively. This latter behaviour change was more evident in the 15–19

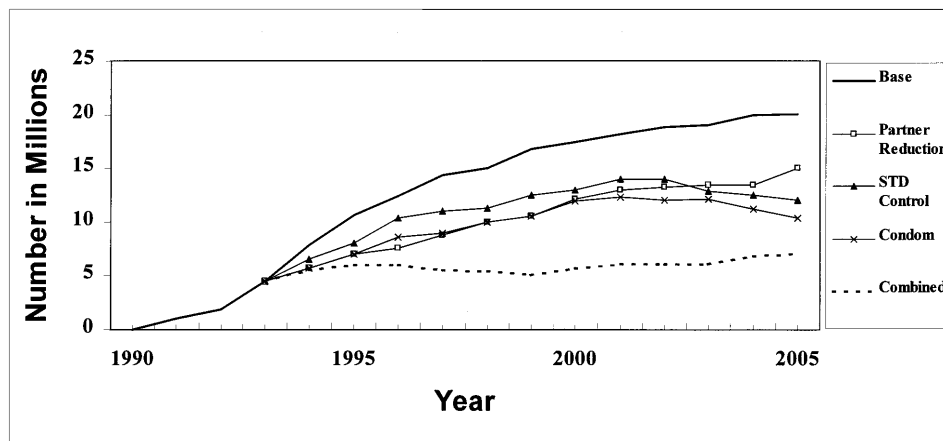


Figure 14. The effects of interventions to prevent the transmission of AIDS. From NACP (1996).

year old followed by the 20–to 24 year old populations. In the same country, a decline in the HIV prevalence rate has been noted in women attending antenatal clinics (Mati, 1997): between 1990 and 1995, the prevalence declined in 15–19 and 20–24 year old women from 17 to 11% and 20 to 17% respectively. These declines were attributed to behavioural changes, including increased condom use, reduction in the number of sexual partners and increased monogamy. It was demonstrated in South Africa (Blecher, 1995) that having prior knowledge of reproductive health resulted in two behavioural changes: increase in condom use from 15 to 51% and restriction to one sexual partner. It has been estimated that condom promotion as a public health measure may reduce transmission of HIV in areas with a high prevalence, even with <100% use (Ngugi *et al.*, 1988).

It is evident that sexually active adolescents will need to change their sexual behaviours through condom use, substitution of risky sex behaviours for safer forms of sex such as non-penetrative sexual activities, reduction in number of sexual partners, long-term fidelity or sexual abstinence to improve their reproductive health. This is graphically illustrated in Figure 14 with regard to the impact of behavioural change on HIV prevalence in Kenya.

Conclusions

The population growth rate in Africa still remains high when compared to the rest of the world and it is expected that the population will double by 2025. Unlike the rest of the world, almost 50% of the population in Africa is under the age of 15 years. It is also the only region in the world where contraceptive prevalence continues to remain low, and in sub-Saharan African the overall prevalence of contraceptive use is <13%. Despite the apparent high fertility, infertility is also a major problem in Africa, and women in the sub-Saharan region have the highest rates of disease-induced infertility in the world.

The two leading causes of death among women of reproductive age in sub-Saharan Africa are complications of pregnancy (including abortion) and HIV infection. Educational levels and general literacy rates in Africa are low and adolescents have an inadequate knowledge about their own sexuality and reproductive health and this puts them at the risk of unplanned pregnancy. Cultural practices in Africa also have a major impact on the reproductive health of women. Practices such as ‘dry sex’ effect the transmission of HIV, while FGM has an impact on women’s health and reproductive behaviour.

Transmission of HIV and other STDs continues even when the awareness of them is high. Nation-wide surveys in many African countries indicate that one-third of adolescents have a history of STDs, and the overall prevalence in Ethiopia is the highest, with up to 86% of women attending Venereal Disease Clinics found to be infected. The transmission of HIV from mother to child is an important aspect of the AIDS pandemic in Africa, and HIV infection rates in urban areas range between 5 and 30%. One of the worst impacts of deaths of young adults from AIDS is an increase in the number of orphans, and this is having a considerable socio-economic impact in Africa.

Sexual behaviour has not been well studied in Africa. Limited information has been published and even then this is restricted to urban centres. Unsafe sexual behaviours are displayed predominantly by mobile groups and CSW. Factors that lead to an increase in the male to female ratio in any region promote commercial sex. Extramarital sexual activities and the practice of polygamy also contribute to poor reproductive health.

It is apparent that, to improve their reproductive health, sexually active adolescents will need to change their conduct. Thus this review concludes with the following four recommendations.

1. Adolescents should reduce risks of exposure to STDs and HIV through behavioural changes such as having

- monogamous sexual partnerships, consistently using condoms, postponing coital initiation and abstaining.
2. The most appropriate approach for preventing perinatal transmission of AIDS in women of child-bearing age is to intensify sex education and promote condom use at an early age.
 3. General awareness of behaviour for good reproductive health should be increased through school, community and work-based programmes; emphasis should be placed on STDs, HIV and the need for partner notification as well as commitment to safe sexual practices, including the use of contraceptives.
 4. General national health care facilities should be improved to reduce the risk of STDs and abortion legalized to reduce the number of unwanted pregnancies.

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