

# **Demographic Characteristics and HIV/AIDS Impact**

**By**

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## **1. Introduction**

HIV/AIDS is now the leading cause of deaths in Sub-Saharan Africa. The joint U.N. Programme on AIDS (UNAIDS, 2002) estimates the number of HIV infections worldwide by the end of 2001 at about 40 million, with a large majority in Africa. Sub-Saharan Africa has been the most severely affected by HIV/AIDS, with about 28.5 million people living with HIV (70% of the global total). Variations of prevalence are found within the sub-region. The Southern African region has the highest HIV prevalence of at least 10% and most showing prevalence of 20% or more. The highest prevalence rates are observed in Botswana (35.8%), Swaziland (25.3%), Zimbabwe (25.1%) and Zambia (20%), and relatively lower levels in Malawi (16%) and Mozambique (13.2%) (USAID, 2000). The HIV prevalence in the East and Central African region is between 5% and 15%, and the West African countries are the least affected (5%).

The number of people living with HIV/AIDS in Zimbabwe by the end of 2001 is estimated at 2.3 million people; 2 million adults aged 15-49 years (33.7% of the adult population) of which 1.2 million are women aged 15-49 (UNAIDS, 2002). High adult HIV prevalence rates in Southern Africa are also observed in Botswana (38.8%), Swaziland (33.4%), Lesotho (31%), Namibia (22.5%), Zambia (21.5)% and South Africa (20.1%), relatively lower figures in Malawi (15%), Mozambique (13%) and Tanzania (7.8%), and the lowest in Angola (5.5%), the Democratic Republic of Congo (DRC 4.9%), and Mauritius (0.1%). Furthermore, 2.6 million children under the age of 15 in Sub-Saharan Africa are estimated to be HIV infected (UNAIDS, 2002). The highest

numbers of infected children aged 0-14 are observed in the Southern African region, especially in countries with larger populations, such as South Africa (250,000), Zimbabwe (240,000), Tanzania (170,000), DRC (170,000) and Zambia (150,000).

Young people aged 15-24 are particularly vulnerable to HIV infection, especially in countries with high prevalence. UNAIDS (2002) estimates that about 11.8 million young people aged 15-24 are living with HIV/AIDS and an estimated half of the new cases of HIV occur in young people within the ages 15-24 {United Nations Children's Fund (UNICEF, 2002)}. In developing countries, up to 60% of all new infections are among young people aged 15-24, of which young women are twice as many as the young men (WHO, 2000). Higher HIV prevalence rate means that the chances of becoming infected are high, e.g. the UNAIDS (2002) estimates that in Lesotho, with a high adult HIV prevalence of 31%, an adolescent who turned 15 in 2000 has a 74% probability of becoming infected with HIV by her/his 50<sup>th</sup> birthday compared to a probability of 19% for an adolescent in Guyana, a country with relatively lower adult HIV prevalence of 2.7%.

The HIV/AIDS epidemic has tremendous effects on the country's demographic characteristics, economy, and social progress. This paper discusses the impact of HIV/AIDS on the demographic characteristics, including morbidity (diseases) and mortality (deaths), fertility (the number of children a woman would bear during her lifetime), migration patterns and population growth. This is achieved by presenting a review of literature and studies carried out in Southern Africa and mostly outside the

region in Uganda, where vast research on HIV/AIDS has been conducted. Most of this literature has been sourced from journals, institution's reports and several books and pamphlets.

## **2. Mortality and Morbidity**

The effects of HIV/AIDS are devastating as it causes substantial mortality and morbidity. This section discusses the effects of HIV/AIDS on adult and under-five mortality, including its effect on the population structure, life expectancy at birth, and diseases associated with HIV/AIDS.

### **2.1 Mortality**

HIV/AIDS is now the leading cause of deaths in Sub-Saharan Africa, since it is associated with very high mortality rates. According to UNAIDS (2002), the number of AIDS deaths worldwide in 2001 was 3 million, Sub-Saharan Africa accounting for 2.2 million deaths, of which 360,000 have occurred in 2001 in South Africa, 200,000 in Zimbabwe, 140,000 in Tanzania, and 120,000 in Zambia and the DRC. The June 2000 National AIDS Co-ordination Programme (NACP) reports a lower cumulative figure in Zimbabwe as of June 2000, of 82,973 since 1987.

Studies conducted in Sub-Saharan Africa have shown that the epidemic is associated with very high mortality rates and reduced life expectancy at birth. Gregson et al. (1997) in their study in Manicaland Province, Zimbabwe, reported more pronounced increases in mortality in the Honde Valley, where HIV levels among pregnant women were higher

(24.1%) than in Rusitu with lower HIV prevalence of 14.2%. The authors further reported that district registry records indicated that most of the excess mortality was attributable to HIV-related diseases. Similarly, Boerma et al. (1997) also found high mortality rates of 72.8 per thousand population among HIV-positive adults aged 15-44 compared to a rate of 41 per thousand population among the HIV-negative adults in Tanzania. In Swaziland, Whiteside et al. (2002) reported an increase in the number of deaths of people aged 26-40. Although the authors were not able to attribute the cause of death to HIV/AIDS, they found AIDS as the only possible explanation. The authors also stated that this is evidenced by the obituary columns of the newspaper. Nunn et al. (1997), in their study in Masala, Uganda, concluded that in a rural African population with no access to antiretroviral drugs, HIV infection is associated with very high mortality rates.

### **Distribution of AIDS Deaths by Age and Sex**

The HIV/AIDS epidemic has a significant impact on the age and gender-composition of the population. HIV/AIDS is most prevalent in two age groups: ages 15-49 and 0-4, emphasising the fact that the main modes of transmission are sexual intercourse and mother-to-child transmission, respectively.

Since the main mode of HIV transmission in Sub-Saharan Africa is heterosexual contact, the majority of the people affected are adults within the sexually active group aged 15-49, the most economically productive ages. As a result, the highest number of AIDS cases is found in the age group 20-49. Figure 1 shows the age-sex distribution of cumulative

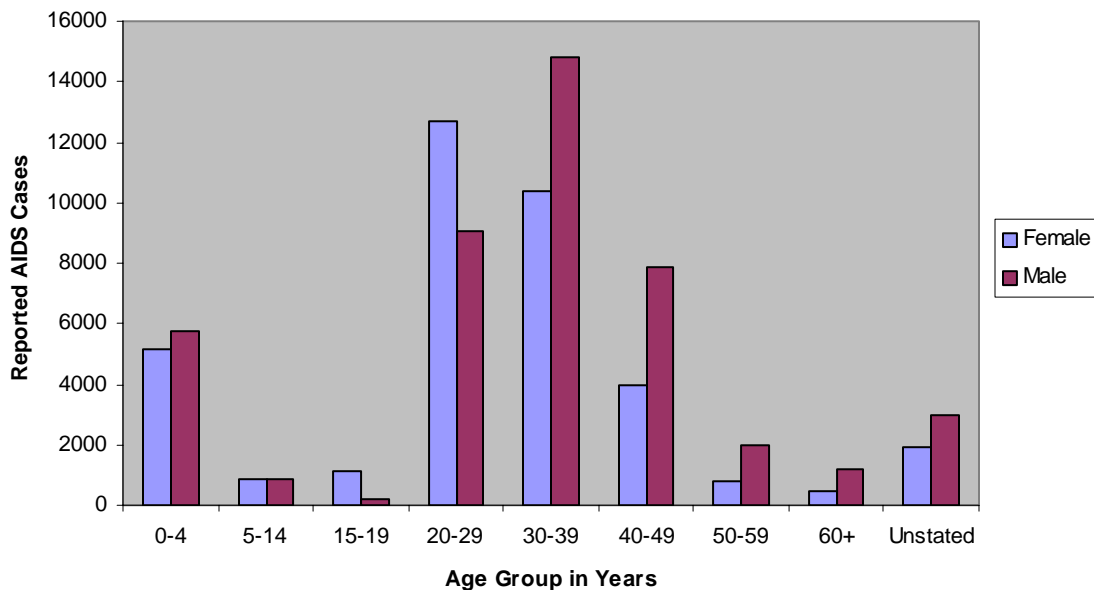
number of reported AIDS deaths in Zimbabwe through June 2000, although these estimates are lower than those reported by UNAIDS. About three-quarters (73%) of AIDS cases are found within age group 15-49. High deaths occur in the adult population aged 20-49. This is the economically productive segment of the population, and thus deaths in this age group are an important economic burden as they alter the population structure. The increase in the number of adult mortality increases the dependency ratio (the ratio of the dependent population below 15 years and above 65 years to the working population), a higher ratio means that a worker has more people to support. The investment put in the education and training of this age group would be lost. These deaths also have negative consequences on the affected families since these people who are dying are raising young children, thereby leading to a number of orphans. The effect of HIV/AIDS on increased orphanage is discussed in Section 2.4.

AIDS also has a strong impact on mortality among children under the age of 5 years, this includes infant and child mortality. Countries with high HIV prevalence, such as Zimbabwe, have experienced increases in infant and child mortality rates since the advent of HIV/AIDS, eroding the progress made in reducing infant and child mortality rates during the post independence period. The proportion of infected women has led to many cases of paediatric AIDS, through mother-to-child transmission as most children who are infected by their mothers during pregnancy, at childbirth or during breastfeeding develop AIDS and eventually die before their 5<sup>th</sup> birthday (Gregson et al., 1996). UNAIDS (2002) reports that under-five mortality in Sub-Saharan Africa has increased by 20-40% due to AIDS. In Zimbabwe cumulative AIDS deaths in the age group 0-4 was 11,028,

accounting for about 13% of the national total (NACP, 2000). See also Figure 1. In Rakai, Uganda, the infant mortality among children of HIV-infected mothers was almost double that of uninfected mothers (Sewankambo et al., 1994).

The least number of AIDS deaths occur in the ages 5-14, (NACP, 2000). Since HIV prevalence is lowest within this age group and half of Zimbabwe’s population is currently below the age of 15 years, HIV prevention efforts targeting adolescents before they become sexually active may prove to be most effective programme to combat the HIV/AIDS problem. Thus, these young people may hold the greatest hope of slowing down the epidemic (Mataure et al., 2002).

**Figure 1: Reported AIDS Cases in Zimbabwe by Age and Sex**



**Source:** National AIDS Co-ordination Programme, June 2000

Although both sexes are equally affected in the sexually active age group 15-49, women are infected at younger ages compared to their male counterparts, consequently leading to earlier deaths than their male counterparts. Looking at Figure 1, the highest reported AIDS cases for females are in the age group 20-29 compared to the age group 30-39 among males (NACP, 2000). Similar patterns are observed in Southern Africa and elsewhere. Preston-Whyte (1999) reports growing rates of HIV infection in South Africa beginning in early adolescence and reaching dramatic heights in the early twenties. In Uganda, where substantial research on HIV/AIDS has been conducted, Monk and Ineichen (2000) reported that although both sexes were affected equally in the age group 15-49, the highest rates of HIV/AIDS among women were observed in the younger age groups 20-30, implying that many were infected at younger ages.

Young women are more vulnerable to HIV/AIDS because of their early sexual development and/or their involvement in sexual activity with older men that exposes them to HIV transmission, or due to their physiological immaturity, as well as biological and cultural reasons which makes them more prone to HIV infection (MOHCW, 2000; UNAIDS, 2002). Preston-Whyte (1999) states that the teenage years and early twenties are the ages when women become sexually active and establish families, the higher death rates for women in younger ages. They have fewer protective antibodies than do older women, and their immaturity of their cervixes increases the likelihood that exposure to infection will result in the transmission of the disease (UNAIDS, 1999). Young women are also vulnerable to sexual violence and exploitation, lack of access to contraception and reproductive health services, and the inability to negotiate with partners about safe sex work together put young women at risk (UNICEF, 2002; UNAIDS, 2002). The



belief by men that having sex with a virgin cleanses HIV and/or that a virgin is “safe” puts girls at higher risk of infection.

### **Reduced Life Expectancy at Birth**

AIDS, because of the increased mortality, is erasing decades of progress made in life expectancies at birth. Steep drops in life expectancies have been observed in countries with high HIV prevalence, i.e. Botswana, South Africa and Zimbabwe compared to the steady increase in countries with significantly lower HIV prevalence, such as Madagascar, Senegal and Mali (UN, 2001). According to UNAIDS (2002), average life expectancy in Sub-Saharan Africa is now 47 years, when it would have been 62 years without AIDS. In Botswana, life expectancy dropped from 60.2 years in 1990-1995 to 44.4 years in 1995-2000 (UN, 2001). Zimbabwe’s life expectancy is estimated at about 43 years in 1995-2000, whereas without AIDS it would have been 66.5 years (UN, 2001).

Studies conducted in HIV prevalent countries also confirm the reduction in life expectancy. For example, in a longitudinal study of approximately 10,000 people in Masaka district, Uganda, Nunn et al., (1997) reported a substantial reduction in life expectancy among HIV positive adults. Life expectancy of those infected was 42.5 years (males 41.4, females 43.5) compared to 58.6 years for HIV-negative adults (males 56.5, females 60.5).

AIDS-related deaths are likely to continue to increase in the near future. UNAIDS (2002) projects that, in Sub-Saharan Africa, the number of people dying of AIDS in Sub-

Saharan Africa between 2000 and 2020 would be 55 million additional deaths, i.e. 39% more deaths than would be expected in the absence of AIDS. The Central Statistical Office (CSO) estimated the death rate in Zimbabwe at about 10/000 population for 1993/94. With no AIDS the death rate would continue to decline over time. However with AIDS, the projections show the death rate more than doubling to 23/000 by 2005. Botswana's life expectancy is projected to fall further to 36.1 years in 2000-2005, while in Swaziland, it would be reduced by 25 years during the period 2000-2005 (UN, 2001). Similarly, in South Africa, although the epidemic started later, the 2000 World Population Prospects, estimates life expectancy to drop by 18 years between the period 2005-2010. This also supported by the demographic projections made by the Centre for Actuarial Research at the University of Cape Town which indicate that life expectancy could increase from 62 years in 2000 down to 41 years in 2010 (Fassin, 2002). It is argued that Africa, which already lagged behind in the epidemiological transition, will be "drawn back even further compared to the other developing countries outside the continent" (Awusabo-Asare et al., 1997).

### **Increased Number of Orphans**

One of the effects of adult mortality is the increase in the number of orphans, and consequently increased level of fostering. According to UNAIDS (2002) the number of children aged 0-14 in Sub-Saharan Africa orphaned by AIDS as of 2001 is 11 million. Within the SADC region, the highest numbers of orphans are found in DRC (930,000), Tanzania (810,000), Zimbabwe (780,000), South Africa (660,000) and Zambia (570,00). The NACP estimated a total of 600,000 orphans in Zimbabwe by 2000, compared to

67,000 in 1992, and is expected to increase to 910,000 by the year 2005. This dramatic increase in the level of orphanhood has implications of fostering. As a result of the increasing adult mortality the dependency ratio is likely to increase as the number of orphans increases.

Traditionally, fostering has been one of the adaptive mechanisms to deal with disruptions created by high adult mortality and other uncertainties in life. The extended family system in most countries in Africa has tended to cushion the burden created as a result of the death of the breadwinner of the household. Previously, in most cases the children left behind were taken care of by other relatives, especially grandmothers, and is still the practice in a few cases. However, the HIV/AIDS pandemic has changed the dynamics, as the extended family is no longer able to cope with the situation. In some cases where both parents have died due to AIDS, households may be headed by adolescents. This situation is likely to worsen because orphans left behind will have no grandparent generation to care for them (Awusabo-Asare et al., 1997). Children left behind may be forced to drop out of school or sell household's assets or sex to support younger siblings, increasing their own vulnerability to HIV infection (Awusabo-Asare et al., 1997). This situation is likely to worsen as the epidemic progresses.

## **2.2 Morbidity**

HIV is associated with other diseases, further complicating the mortality situation. People infected with HIV may suffer from several opportunistic infections such as tuberculosis (TB), malaria, and other communicable diseases. The combination of

Tuberculosis and AIDS is recognised as a deadly combination (NACP, 2000). TB has been found to be the most important opportunistic infection associated with HIV in Southern Africa, as well as the rest of Sub-Saharan Africa. The Ministry of Health and Child Welfare (2000) reports that two-thirds of the TB patients in Zimbabwe are HIV positive. In their case control study on the impact of HIV on morbidity and mortality from TB in rural Malawi, Glynn et al. (1997) reported that between 1986 and 1994 the incidence of TB in the studied area doubled because the HIV positive were 7 times more likely to develop TB than the HIV-negative. The impact of HIV on TB is greater since an increase in the number of TB infections may lead to increases in the spread of the disease to the wider population, including those not infected with HIV (Awusabo-Asare, 1997).

HIV infection has also been associated with malaria. Chirenda et al. (2000) reported association of HIV infection with the development of severe complicated malaria at a rural hospital in Zimbabwe. Other medical problems associated with HIV/AIDS include herpes, Kaposi sarcoma, pneumonia, cryptococcal meningitis, chest infections, stomach problems, skin disorders and oral thrush, boils etc.

### **3. Fertility**

The premature deaths and high morbidity of so many people of childbearing have implications on fertility. Since the main mode of transmission of HIV in Sub-Saharan Africa is heterosexual, most of the affected adults are women, forming about half of the

total. This means that the impact of HIV/AIDS on fertility could be serious, since it is the women who are most concerned with childbearing.

HIV can result in lower fertility among infected individuals leading to reduction of fertility at macro level. Fertility transition in some of the Southern African countries, such as Botswana, South Africa, Swaziland and Zimbabwe started well before the effects of the epidemic were felt, and thus it is difficult to attribute the fertility decline to HIV/AIDS (Ntozi, 2002). However, at the individual level, there is mounting evidence of association between HIV infection and reduction of fertility in Sub-Saharan Africa. Ntozi et al. (1995) conducted a study among 1,797 households in 3 districts in northern Uganda and among 2,352 households in 6 districts outside northern Uganda in 1992 and 1995 to investigate fertility levels and trends in the population. The results showed that AIDS affected households had lower fertility rates than the non-AIDS households in both surveys (6.8 compared to 8.0 in 1992, and 5.3 compared to 6.3 in 1995). Similarly, Carpenter et al. (1997) reported fertility reduction in their 6-year study of a cohort of over 3,500 women aged 15-49 in rural Masaka District, Uganda (with an HIV prevalence of 11.8%) during the period 1989/90 to 1995/96. With the exception of women aged 15-19, HIV women had lower fertility rates in each age group than HIV negative women. The general fertility rate of HIV-positive women was 194.8 per 1,000 women, much lower than 212.3 per 1,000 for HIV negative women. Gregson et al. (1996) also reported fertility decline in the Honde Valley, Zimbabwe. The authors appear to have suspected that HIV might be part of the explanation for fertility decline. Fertility decline has also

been reported in Zaire (Ryder et al., 1991) and Tanzania (Ainsworth et al., 1996 in Ntozi, 2002).

The reduction in fertility among women infected with HIV is due behavioural (voluntary) and biological (involuntary) changes. Voluntary fertility control include delayed onset of sexual activity and age at first marriage, reduced sexual activity and remarriage, and increased marital dissolution. Involuntary fertility reduction include reduced pregnancy rate, rising levels of abortions/ foetal mortality and increased levels of widowhood. On the other hand, fertility of an individual woman may increase as couples may deliberately seek to increase fertility in response to the high mortality for fear that they might not live throughout the normal reproductive lifespan. HIV positive women may voluntarily reduce their fertility by changing their sexual behaviour, or by increased use of contraceptives (Carpenter, 1997). They may also want to replace dead children, or to produce many so as to ensure that some survive the AIDS mortality, thereby increasing the average number of children per woman (Setel, 1996 in Gregson et al., 1997; Ntozi and Kirunga, 1998). However, many people in Africa are not aware of their HIV status and thus the reduction in fertility would be unlikely, especially in societies which emphasise the importance of childbearing. While most of the women may not know their HIV status, those with advanced symptoms such as weight loss or fever, or whose partner has recently died of AIDS, may suspect it and may alter their behaviour accordingly (Carpenter, 1997). Gregson et al. (1997) consider that the effects of fertility reduction outweigh those increasing it.

The effect of HIV/AIDS on the determinants of fertility that include marriage, contraception, pregnancy, abortion, breastfeeding, postpartum abstinence, pathological sterility and natural fecundity, is discussed in this section.

### **3.1 Sexual Activity and Contraceptive Use**

Women may respond to HIV/AIDS by delaying their first sexual intercourse, and those sexually active reduce premarital sexual relations due to fear of infection (Asiimwe-Okiror et al., 1997). Some governments and church leaders encourage adolescents to abstain from sex until marriage. These actions are likely to limit childbearing. In their population-based study of 1,500-1,600 adult women and men aged 15-49 in 5 urban and rural districts of Uganda between 1989 and 1995, Asiimwe-Okiror et al. (1997) reported that the onset of sexual relations decreased during the 6-year period. The proportions of male and female youth aged 15-19 years who had never had sexual intercourse had increased from 31% to 56% and 26% to 46% respectively. The median age at first sex had increased from below 15 years to 17.4 years for males and 16.6 years for females.

Some individuals who are aware of their HIV status or suspect that they are HIV positive may want to limit the number of children or to have none at all, and thus may use contraceptives (Ntozi and Kirunga, 1998). Higher contraceptive use has been reported among HIV infected women than the HIV negative. This is because women infected with HIV may find pregnancy undesirable as it may speed up the progression of the disease or may avoid infecting the child. Glynn et al. (2000) found that HIV infected women in Ndola, Zambia who had given a birth were more likely to have used

contraceptives than HIV negative women. The proportion of HIV positive women using modern contraceptives was 20.3% compared to 14.8% among HIV negative women in 1998. Ryder et al. (1991) reported similar findings in their comparative study of 238 HIV-positive and 315 HIV-negative women in Kinshasa, Zaire. They reported that 26.4% of the HIV infected were using modern contraceptives significantly higher than 16.3% of the uninfected. Family size limit is not only restricted to HIV positive women but may affect other people who are not infected. Some couples may decide to limit their family size so that they would be able to look after the orphaned children left behind by dead relatives (Ntozi and Kirangu, 1998).

People infected with HIV may increase use of condoms, as well as dual contraception of the pill and condom, due to fear of HIV infection and/or mother-to-child transmission. While the dual contraception gives an effective protection against pregnancy, increased condom use would tend to protect HIV infection and at the same time reducing fertility, particularly where effective contraceptives have not been widely used in the past (Gregson et al., 1997). Unfortunately, the condom has been resisted in many parts of Africa. It has raised a lot of debate in many countries, with most Governments supporting it while churches like the Catholics (e.g. in Kenya and Uganda) opposing it (Ntozi and Kirunga, 1998). Resistance to condom use was also reported among men in some of the Sub-Saharan African countries (Preston-Whyte, 1999; Moyo et al., 1993). Men were reportedly to be using condoms with women at high risk such as casual partners and commercial sex workers by Moyo et al. (1993) in their study in Harare, Zimbabwe. Similarly, in South Africa Preston-Whyte (1999) reports the reluctance by



young men to use condoms because of the negative stereotypes of condoms dilemma. While men use condoms with casual partners they do not use condoms with their wives or regular sexual partners, thereby putting them at increased risk of HIV infection.

However, despite the resistance with some organisations and individuals, Demographic and Health Surveys and other studies in Southern, East and Central Africa show an increase in use of condoms for protection against HIV and STDs. The 1999 Zimbabwe Demographic Health Survey (ZDHS) reported an increase in use of condoms. Mbizvo et al. (1994) also reported higher condom use especially among the younger men in Zimbabwe because they grew up under the era of AIDS and were afraid of HIV infection.

### **3.2 Marriage**

There is also a possibility that girls may decide to postpone their marriage or not to marry at all due to fear of HIV infection (Kamali et al., 2000; Mukiza-Gapere and Ntozi, 1995; Gregson et al., 1998; 1997). Change in age at marriage and proportions marrying should affect fertility levels (Caldwell, 1977). In a longitudinal study of Masaka district, Uganda during the period 1992/93 to 1996/97, Kamali et al. (2000) observed delayed marriage among the respondents. The authors reported that women aged 13-19 in Masaka District experienced a significant decrease of annual age specific prevalence of being married, especially at ages 16-19 years. Similarly, in their study of focus group discussions in 6 districts of Uganda, Mukiza-Gapere and Ntozi (1995) reported that women were reluctant to enter into marriage for fear of HIV infection. Gregson et al. (1997) conducted an epidemiological and demographic study to establish and describe the extent and

demographic impact of HIV in rural areas of Honde and Rusitu valleys, in Manicaland, Zimbabwe between 1993 and 1995. Although marriage was universal among the respondents, the results suggest later entry into marriage: 53% of the women currently in their twenties had entered a union by age 20 compared to 61% of women aged 30. The authors also reported that personal risk was associated with non-marriage. Young women who felt at risk because many of their friends and relatives were dying of AIDS were less likely to enter long-term or co-habiting union.

HIV/AIDS is also likely to cause separation or divorce due to women refusing sexual advances from spouses for fear of infection by men with several partners (Ntozi, 2002; Orubuloye et al., 1992). HIV infected women may decide to divorce their unfaithful husbands because of the fear of infection (Ntozi, 2002). Orubuloye et al. (1992) found in their study in Nigeria that Yoruba women were breaking off marriages, refusing their husband sex or having sex only by using a condom when the husband was HIV infected.

Increased widowhood and reduced remarriage may also decrease fertility. Levels of AIDS widowhood are high as a result of adult mortality. The proportions of women who were widows in six districts of Uganda in 1992/93 were high among the prime reproductive age groups, namely 7.5% in 20-24 years, 10.6% in 25-29 years, 14.7% in 30-34 years, 17.7% in 35-39 years (Ntozi, 1997). The system of inheriting widows by the man's brothers has been widely practised in Southern Africa, as well as the rest of Sub-Saharan Africa (Caldwell, 1997). As a result, most people have moved from this system due to fear of HIV/AIDS. With the HIV/AIDS pandemic it would be difficult for

widows to find sexual partners, so that they could continue producing children and thus would reduce fertility. Gregson et al. (1997) reported risk of HIV transmission as the most common reason given for difficulty in remarriage of widows after divorce in the study rural areas of Manicaland, Zimbabwe. The six-district study in Uganda observed high proportions of widows not remarried in their prime reproductive ages, rising from 59% among the 20-24 year olds to about 70% among the 25-29 and 30-34 year olds (Ntozi, 1997). The reason given by the authors was that the widow remarriage rates have fallen as the traditional practice of widow inheritance, where a male relative of the late husband used to marry the widow, has been discouraged or is disregarded.

### **3.3 Pregnancy rate, abortions/ foetal mortality and sterility**

HIV infected women experience reduced pregnancy rate and rising levels of induced and spontaneous abortion. Serwadda et al. (1997), in a large-scale population based study in Uganda, found a 52% lower adjusted risk of pregnancy among HIV-infected women compared to women not infected. Gray et al. (1998) reported similar findings in Rakai District, Uganda. Regardless of other factors, such as demographic and social variables, a lower pregnancy rate was observed among HIV positive women (13.4%) than among HIV uninfected women (21.4%).

The reduction in pregnancy rate is a result of reduced sexual activity as a result of the illness. Sexual activity of women may be affected because of the HIV-related illness in the woman or her partner for an extended period (Gray et al., 1998). The illness is likely to reduce the coital frequency (an important determinant of fertility), and possibly cause

spontaneous abortions (Serwadda et al., 1997; Gray et al., 1998; Ntozi, 2002). Other possibilities that lead to fertility reduction include increased amenorrhoea, reduced spermatozoa among male partners, which would affect sexual activity (Ntozi, 2002). Gray et al. (1998) found lower coital frequencies among HIV positive women in Rakai, Uganda. HIV/AIDS may lower prevalence of pregnancy due to an increase in foetal loss (Leroy et al., 1998; Glynn et al., 2000). In a study in Kigali, Rwanda, Leroy et al. (1998) reported a slightly higher proportion of HIV infected (2.7%) than uninfected women (2.2%) who had stillbirths. Glynn et al. (2000) also observed a significantly higher percentage of HIV positive (13.3%) than HIV negative women (7.9%) having a history of stillbirths in Abidjan, Nigeria.

Abortion (induced or spontaneous) is a proximate determinant of fertility, since a pregnancy is not allowed to become a live birth (Ntozi, 2002). Glynn et al. (2000) found that 6.2% of HIV infected women in Kisumu, Kenya attending antenatal clinics and with one live birth had experienced a previous induced abortion, which were higher than 4% of HIV uninfected. Induced abortions are carried out among HIV positive women to avoid mother-to-child transmission, reduce the chances of leaving orphans or decrease the AIDS progression rate. On the other hand, spontaneous abortions occur as result of the illness among HIV positive women. In Zaire, Ryder et al., (1991) suggested that spontaneous abortions and stillbirths could be important in explaining their findings of lower pregnancy rates among women in their study. In Ndola, Zambia, Glynn et al (2000) observed higher previous spontaneous abortions among HIV-infected women than

the uninfected. The proportion of HIV positive women with one birth who experienced spontaneous abortion was 4.4% higher than 1.7% among HIV negative women.

HIV/AIDS induces sterility, and reduces production of spermatozoa in men (Leroy et al., 1998; Glynn et al., 2000). The association between sexually transmitted diseases and sterility caused by pelvic inflammatory disease leading to subfecundity in several countries in Central and East Africa has been documented elsewhere (Larsen, 1989 in Ntozi, 2002). HIV, as any other STD, could lead to sub-fecundity directly or indirectly. Leroy et al (1998) investigated 1,233 pregnant women attending antenatal clinic at a hospital in Kigali, Rwanda in 1992/93. They reported significantly more STDs among HIV positive than negative women. In Zimbabwe, the Ministry of health and Child Welfare (2000) reported that HIV seroprevalence was higher among women who were seropositive for syphilis compared with women who were seronegative (51.4% and 34.5%, respectively).

#### **3.4 Breastfeeding and Postpartum Abstinence**

Breastfeeding is also known to delay pregnancy by postponing the return of ovulation. Women in Sub-Saharan Africa are known to breastfeed intensively and frequently for a long time. However, infected women may not breastfeed their babies to avoid HIV mother-to-child transmission (Gregson et al., 1997). In their study in rural Manicaland, Zimbabwe, Gregson et al. (1997) found that women who were aware of breastfeeding being a problem of mother-to-child HIV transmission were more likely to have avoided

breastfeeding their babies. This action may shorten the duration of infecundability amenorrhea leading to a pregnancy sooner and then higher fertility.

The fear of mother to child transmission is also found among HIV negative people. People who are aware of the mother-to-child transmission are more likely to oppose childbearing. Results of 8 focus groups and 23 in-depth studies in Ndola indicated that both women and men were overwhelmingly opposed to continued childbearing by persons with symptoms of AIDS in order prevent transmission of HIV to spouses and children (Rutenburg et al., 2000). Gregson et al. (1997) reported similar feelings among rural women in Honde and Rusitu Valleys in Zimbabwe. The authors reported that most respondents (83%) said women with HIV should stop childbearing because of the risks of vertical transmission and the adverse consequences of orphanhood.

In some African countries, especially in West Africa, breastfeeding means sexual abstinence of women. The practice of postpartum abstinence, which can last as long as two years in some West African countries, is done to ensure that the mother does not become pregnant during breastfeeding (Ntozi, 2002). In the era of HIV/AIDS, this is dangerous to both women and men as it can attract HIV infection to the family. For instance, in focus group discussions in Zimbabwe, men cited postpartum abstinence by their wives as a reason for extra-marital relationships (Gregson et al., 1997). Thus, women may not practise this abstinence because of fear of HIV infection from their husbands who may be motivated to have multiple sexual partners, and hence increase in fertility.

Therefore, HIV/AIDS works through the determinants of fertility to reduce fertility among women infected with the virus.

#### **4 Migration**

Although very little research has been conducted to investigate the impact of HIV/AIDS on migration patterns, available evidence suggest that seriously infected patients often return to their natal village to die, or move away from the area to avoid discrimination or in search of better health services or for treatment. In Zimbabwe, most people prefer to be buried in their rural areas, and thus seriously ill people usually move to the rural areas to avoid transportation expenses in case of death.

Migration as a response to widowhood has been reported in several studies (Ntozi and Nakayama, 1999; Kirkpatrick, 1993). Ntozi and Nakayama (1999) reported that widows moved out of their spouses' homes as they are expected by the Ugandan society to leave their deceased husbands' homes to deter them from inviting new partners into their deceased husbands' homes. In Zambia, through fear of AIDS, some AIDS widows and their children are evicted from their homes and forced to go elsewhere (Kirkpatrick, 1993). Orphans are more mobile than other children as they move to other households (Urassa et al., 1997).

#### **5 Population growth**

Population in Sub-Saharan Africa has been growing at a fast pace before the AIDS era. It has been noted in this paper that death rates are on the increase while fertility is

declining. Mortality is projected to further increase in the next years to come while a reduction in fertility is projected due to the reasons given in section 3. Despite mortality increasing and fertility declining, the population is likely to continue to increase, but at a slower rate than if there were no AIDS (NACP & MOHCW, 1999). According to Fassin (2002), AIDS will slow the rate of population growth.

Figures 2, 3 and 4, extracted from World Population Prospects (2000), show the population growth rates with and without AIDS for Botswana, Zimbabwe and South Africa. In Botswana the population growth rate is expected to show a significant decline due to the increased mortality. The population growth rate dropped from 3.2% per year during the period 1980-1985 to 1.6% in 1995-2000. Without AIDS it would have been 2.5% in 1995-2000. It is expected that it would drop further to 0.55 between 2000 and 2010. The same is expected of Zimbabwe, where it is expected to have dropped from 3.8% per year during the period 1980-1995 to 1.9% in 1995-2000. It is also expected to further decline to 1.7% in 2000-2005. In South Africa population growth is expected to turn negative due to its lower fertility, from 1.9% in 1990-1995 to nearly zero by 2005-2010, and thereafter becomes negative. According to the UN (2000), Swaziland's population is expected to be 25% smaller than it would have been without AIDS. Therefore, HIV/AIDS will reduce the rate of population growth in countries with high HIV prevalence, thus the population will continue to grow but at a reduced rate than without AIDS.

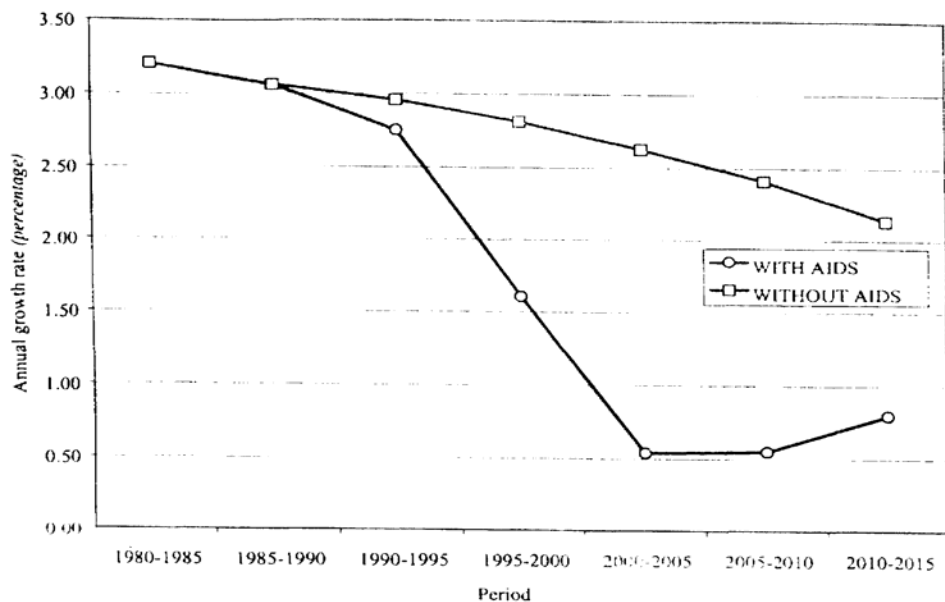


## **6 Conclusion**

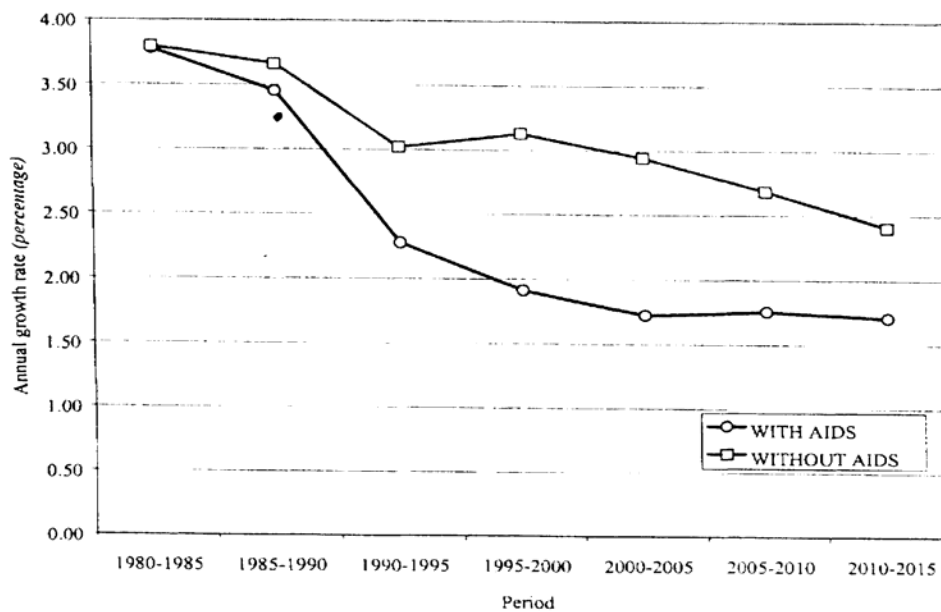
HIV/AIDS has a tremendous impact on mortality and morbidity, fertility and population growth. Studies have been conducted, mostly in Uganda, to show how HIV/AIDS impact on demographic variables. These have shown that deaths occurring in Southern Africa and the rest of Sub-Saharan Africa are principally attributable to HIV/AIDS. Population progressions also show that the epidemic will intensify in the future (UN, 2001). However, there is evidence to show that people have changed their behaviours due to fear of AIDS, as a result of increased mortality and morbidity. These behaviour changes, together with the effects of involuntary fertility control due to the HIV-related effects to the reproductive capacity of the infected men and women, are likely to reduce fertility.

It is also probable that the high mortality and the reduced fertility will contain the epidemic sometime in the future, as has happened in Uganda. The main question asked is: “Will Zimbabwe and other Southern African countries emulate Uganda?” It is reported that Uganda has managed to contain the epidemic as new infections have been reduced to low levels of 7% compared to 14% during the peak time. Reasons given for the decline in new infections is attributed to strong political commitment, training community leaders and mobilising the community; innovative communication techniques to change attitudes; reduction in discriminatory practices and involvement of people living with AIDS in care and prevention activities such as behavioural change. Thus, lessons should be learnt from Uganda by Southern African countries in order to control the disease.

**Figure 2. Annual population growth, Botswana, 1980-1985 to 2010-2015**

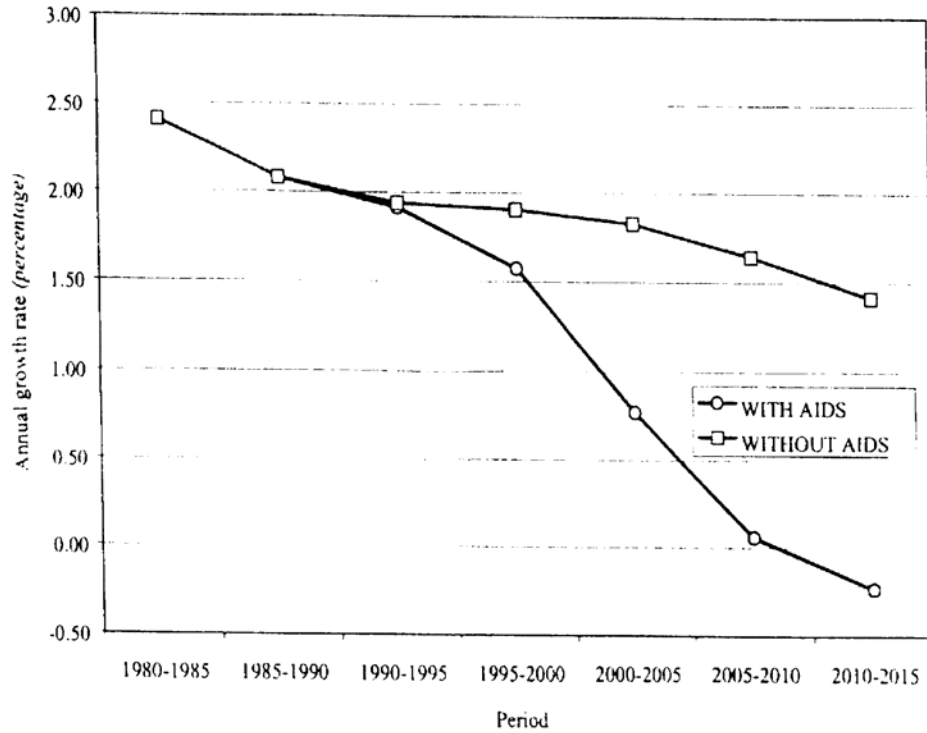


**Figure 3. Annual population growth, Zimbabwe, 1980-1985 to 2010-2015**



**Source:** United Nations Population Division, World Population Prospects, The 2000 Revision, Volume II: The Sex and Age Distribution of Population

Figure 4 Annual population growth, South Africa, 1980-1985 to 2010-2015



Source: United Nations Population Division, World Population Prospects, The 2000 Revision, Volume II: The Sex and Age Distribution of Population

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