AIDS in Africa During the Nineties: Tanzania

A review and analysis of surveys and research studies

2001

Recommended citation:

MEASURE; National AIDS Control Programme, Tanzania; and Bureau of Statistics, Tanzania. *AIDS in Africa During the Nineties: Tanzania*. Carolina Population Center, University of North Carolina at Chapel Hill, 2001.

This report was made possible by support from USAID under the terms of Cooperative Agreement HRN-A-00-97-00018-00. The opinions expressed are those of the authors, and do not necessarily reflect the views of USAID.

ACKNOWLEDGEMENTS

This report is based on an analysis and review of existing data in Tanzania during the nineties and was carried out as part of a series of reports on AIDS related trends during the nineties. A special country report on adolescents will appear separately. Funding for the report series is provided by the United States Agency for International Development (USAID -Africa Bureau / Sustainable Development and the Global Bureau on HIV/AIDS). Many people and institutions have contributed in different ways to this report, including the National AIDS Control Programme in Tanzania, the Bureau of Statistics of Tanzania, USAID/Tanzania, MEASURE *DHS*+, and MEASURE *Evaluation*.

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1 INTRODUCTION

The first cases of AIDS in Tanzania were reported in the northwest region of Kagera in 1983 (Kapiga et al., 1994). This is also the region where the highest levels of prevalence were detected in the late eighties. In the following years, HIV spread to all regions of mainland Tanzania and, at a slower rate, to the regions of Zanzibar. Based on projections and limited data, UNAIDS estimated that, by the end of 1999, as many as 1.3 million adults and children out of Tanzania's population of 30 million were infected with HIV and that 140,00 people died of AIDS in 1999. Nearly 700,000 children who were alive and under 15 had lost their mother or both parents to AIDS (UNAIDS, 2000).

Two years after the first HIV infection was identified, a national AIDS Task Force was established. This task force developed a short-term plan which was mainly aimed at the mobilization of the health sector through training health workers and establishing blood safety measures. Two years later, in 1987, the Tanzania National AIDS Control Programme (NACP) was established and formally launched in 1988. Three medium term plans were developed for the periods 1987-91, 1992-96 and 1998-2002. Shortage of funds and political commitment has hampered the implementation of the medium term plans throughout the nineties (Msamanga and Swai, 1998). A National HIV/AIDS Policy was initially drafted in 1995, however in 1997 it was revised as National Guidelines for the Multi-Sectoral Response and has yet to be approved by the cabinet. By the end of 2000, recent events indicate a higher level of commitment by the government of Tanzania as the president has established the Tanzanian AIDS Commission. It is anticipated that by late 2001 the Tanzania AIDS Commission will be fully established.

The severe AIDS epidemic presents an enormous challenge to Tanzania, which ranks among the poorest countries in the world. As elsewhere in sub-Saharan Africa, heterosexual transmission accounts for the majority of infections. The response of national programs has primarily focused on the health sector, and to a lesser extent on other sectors such as labor and education. Increasing knowledge and awareness and promoting condom use among the sexually active population have been key strategies. Other components included efforts to control bacterial sexually transmitted diseases, mainly through the improvement of treatment services and blood safety, and the establishment of HIV screening of blood transfusions in health facilities.

Data

This report focuses on trends in the AIDS epidemic, AIDS-related knowledge, attitudes and sexual behavior among men and women in Tanzania during the nineties. The main sources of data on the spread of HIV in Tanzania come from antenatal clinic surveillance under the Epidemiology unit of NACP and local research studies. Figure 1.1 depicts the regions where the most important research studies have been carried out since 1987. Chapter 2 provides a synthesis of HIV prevalence and incidence data from these sources.

The remaining chapters focus on trends in the AIDS epidemic, including AIDS-related knowledge, attitudes and sexual behavior among men and women in Tanzania during the nineties. This trends analysis is based on five cross-sectional surveys that were conducted in Tanzania between 1989 and 1999. These surveys were based on nationally representative samples of men 15-59 and women 15-49 years old. The national survey data are complemented by findings from local research studies. Table 1 shows the sample sizes of the five national surveys.

Table 1.1. National data sources for estimates of AIDS-related knowledge and sexual behavior indicators.

Year	Data Source	Zanzibar included	Sample Details	
			N of Men	N of Women
1989/1990	WHO KABP[1]	Zanzibar not included	1,511	2,341
1991/1992	DHS[2]		2,114	9,238
1994	TKAP[3]	Zanzibar not included	2,097	4,225
1996	DHS[2]		2,256	8,120
1999	RCHS[4]		3,812	4,144

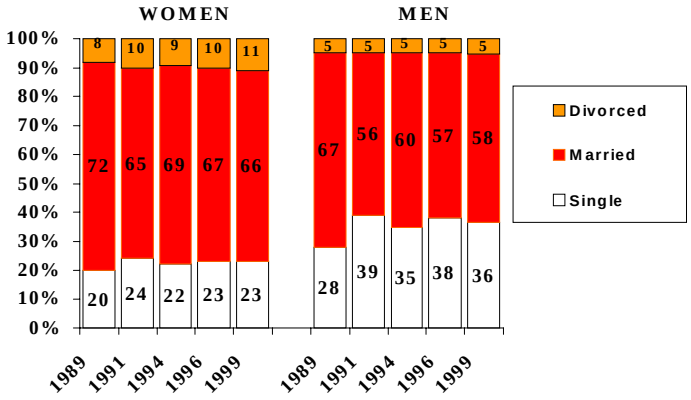
[1] World Health Organization's Knowledge, Attitudes, Beliefs and Practices Survey
[2] Demographic and Health Survey
[3] Tanzania Knowledge, Attitudes and Practices Survey
[4] Reproductive and Child Health Survey

Descriptions of the surveys and selected characteristics of the respondents can be found in Appendix A. In all surveys, three out of four respondents were living in the rural areas. The percentage of respondents with no education decreased somewhat, particularly during the first half of the nineties. In 1999, 27% of women and 14% of men had no formal education. The highest level of education of the majority of respondents was primary school. Only 7% of men and 5% of women had secondary education or higher.

Because marital status is strongly correlated with sexual behavior and because changes in marriage patterns can occur as a response to the AIDS epidemic, trends in marriage are compared over time. The marital status of men and women in each survey is shown in Figure 1.2. About one in ten women and one in 20 men were divorced, separated or widowed at the time of interview in each survey. Two-thirds of women and slightly less than 60% of men were in a marriage or cohabiting union at the time of the survey. There was little change between the surveys.

Figure 1.1
Map of Tanzania with regions and locations of research studies

Figure 1.2
Marital status of respondents in national surveys, Tanzania, 1989-1999



2 THE SPREAD OF HIV IN TANZANIA

- UNAIDS estimates that one in twelve adults is infected in Tanzania, based on surveillance of pregnant women in antenatal clinics and research studies.
- The AIDS epidemic struck first in the late eighties in Kagera region, especially Bukoba town, and Kagera is the only region that has documented a very substantive decline in HIV prevalence and incidence from the early nineties.
- In most regions there is little evidence of a decline, with either stable prevalence during the middle of the nineties, or gradual increases. In Mbeya region, where HIV prevalence is among the highest in the country, there was some evidence of a modest decline in the second half of the nineties.
- In all regions there are striking differences by residence. HIV prevalence in larger towns and cities (regional capitals) is often at least three times higher than prevalence in rural villages. Several smaller towns or trading centers and roadside settlements have HIV prevalence levels similar to larger towns and cities, or levels between those of cities and rural villages.
- Other sexually transmitted infections are very common in Tanzania. In Mbeya region, a decline in the prevalence of syphilis was observed among women attending antenatal clinics during the first half of the nineties.

According to UNAIDS, national HIV prevalence among adults 15-49 years old in Tanzania was 8.1%. This corresponded with about 1.2 million adults living with HIV, whether or not they have developed symptoms of AIDS. In addition, 59,000 children were estimated to be living with HIV/AIDS.

In most countries, the national estimates of HIV prevalence are primarily based on data from surveillance among antenatal women. Tanzania also has a system of sentinel surveillance, based on 24 clinics in 11 regions of the country. There are, however, few clinics for which a consistent time series can be constructed, and fewer clinics were reporting in the second half of the nineties than in the earlier years. Tanzania also has a fairly large number of research studies that included the collection of population-based data on HIV. The antenatal clinic data and the research studies form the basis for the estimates of the spread of HIV in Tanzania. Kagera, Mwanza, Arusha, Kilimanjaro and Mbeya regions and Dar es Salaam city have more extensive information than other regions.

According to analysis of the genetic diversity of HIV-1 in samples from Dar es Salaam and Kagera (Lyamuya et al., 1998) and from Mbeya (Hoelscher et al., 1998) three viral subtypes are common in Tanzania: HIV-1 subtype A, C and D.

Mwanza region

Figure 2.1 summarizes HIV prevalence among men and women by place of residence in Mwanza region. There are substantial differences between place of residence, with urban Mwanza (the regional capital with more than 200,000 inhabitants) having considerably higher prevalence than

the rural areas. The rural areas have been divided into trading center, roadside villages, and truly rural agricultural villages. Trading centers are located along the main roads, near Lake Victoria. They may also be located along secondary roads, but often have a market and a large health facility.

In Mwanza town, the one and only public antenatal clinic shows a fairly stable level of HIV prevalence among pregnant women from 1989 to 1995, averaging about 12%. A survey in 1990/91 and a study of factory workers and spouses of male factory workers during 1992-94 showed a slightly higher prevalence among women. Men in Mwanza town had somewhat lower HIV prevalence (15.3% and 15.2% respectively) (Barongo et al., 1992; Senkoro et al., 2000).

In roadside settlements and trading centers, HIV prevalence in the antenatal clinic data from one hospital was about 5%, but the population-based studies recorded higher levels of prevalence among women and men, ranging from 7-12% for women and from 5-9% for men. These data were derived from a population-based survey in 1990/91 (Barongo et al., 1992), the baseline survey of the STD intervention trial in 1992 (Grosskurth et al., 1995) and the Kisesa village (including trading center and peri-trading center population) (Boerma et al., 1999). HIV prevalence in the rural villages was below 5% in the population-based studies, although levels may still be increasing. The lowest levels were observed in Lake Victoria island communities, which were part of the STD intervention trial (Grosskurth et al., 1995).

Three studies in Mwanza region provide data on HIV incidence. Among male factory workers, HIV incidence was 1.1 per 100 person years during 1992-96 (Senkoro et al., 2000). Female factory workers and wives of male factory workers had higher incidence (1.9 per 100 person years). In both the STD intervention trial 1992-94 and the Kisesa community study 1994-97, the incidence in women was slightly higher than in men. More striking were the differences by place of residence. Figure 2.2 presents HIV incidence for both sexes combined by residence. HIV incidence in the trading centers in both studies (with or without STD interventions) exceeds 1%, while rural incidence levels are below 1% (Grosskurth et al., 1995; Boerma et al., 1999).

More women than men are infected

Almost all population-based studies in Tanzania indicate that HIV prevalence is somewhat higher among women than men. This may mean that more women 15-49 are infected than men, as is also estimated by UNAIDS (ratio of women to men infected is about 1.25:1). There are several explanations for this difference. The efficiency of transmission from an HIV-infected man to a woman is higher than the reverse. In addition, women tend to get infected at a younger age than men. Since there are many more younger women than there are older men (due to rapid population growth in the past and to higher mortality at older ages), there are higher levels of prevalence among all women combined. It may also be that HIV prevalence among men is underestimated in surveys. Participation rates in surveys are generally lower for men than for women. There is some evidence to support that those who do not participate in the surveys have higher risk behaviors than those who do participate, if only because they are more mobile.

HIV incidence rates provide a better picture of male-female differences. As the graphs in this chapter show HIV incidence levels were slightly higher among females in most studies (Bakari et al., 2000; Boerma et al., 1999; Grosskurth et al., 1995; Killewo et al., 1993).

Kagera region

Kagera region reported the first case of HIV infection in Tanzania in 1983. This was also the first region to report high prevalence levels in 1987 (Killewo et al., 1990) and high incidence levels for 1987-89 (Killewo et al., 1993). Bukoba town was severely affected, with an HIV prevalence of 24% in 1987 and an incidence of nearly 5 per 100 person years during 1987-89. HIV prevalence in rural Kagera region was much lower with a prevalence of 5% in 1987 and an incidence of 0.8 per 100 person years during 1987-89. However, in the rural districts surrounding Bukoba town (Muleba and Bukoba rural) HIV prevalence was 10% in 1987.

During the nineties, Kagera region has observed a significant decline in HIV prevalence, first in women and then in men, as shown in surveys and antenatal care surveillance in 1990, 1993 and 1996 (Kwesigabo et al., 1998; Kwesigabo et al., 2000). The decline in HIV prevalence was most pronounced among young people. Figure 2.3 presents HIV prevalence trends in Bukoba town and in rural Muleba/Bukoba for women and men. By 1996, HIV prevalence levels had dropped to about 14% among women and 10% among men in Bukoba town and to 6-8% among rural women and men. These levels are similar to those observed in Mwanza region. In 1999, Bukoba town reported a prevalence of 7.0% among antenatal women, which is considerably lower than the 13.7% detected in 1996.

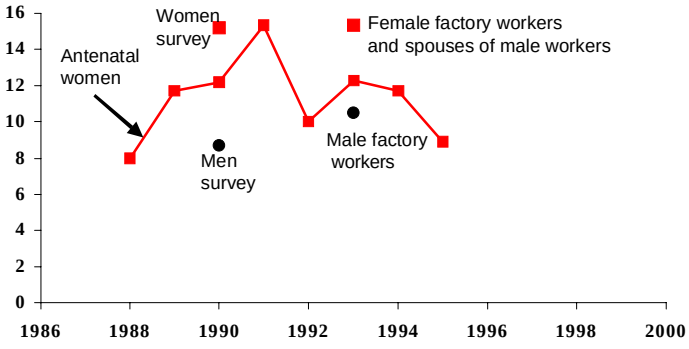
HIV is more common among divorced men and women

In Tanzania, women typically are married at the age of 19, while men marry in their mid-twenties. Polygyny is still fairly common with 18% of women in a polygynous union by 1999. Marital instability is high: for instance, almost one in ten women was divorced or separated in 1999. Such women had levels of HIV prevalence 2-5 times higher than women who were married at the time of the survey (e.g. Mnyika et al., 1994; Barongo et al., 1992; Quigley et al., 1997). This may indicate that the men or women themselves have high risk behavior now or had in the past, or that their partners had high-risk behavior (which may have led to a divorce). There is no consistent evidence that women or men in polygynous unions have higher levels of HIV prevalence (Kapiga et al., 1994). In all studies, widows and widowers—potentially a group with high HIV prevalence—comprise too small a group to be studied separately.

Male circumcision and HIV

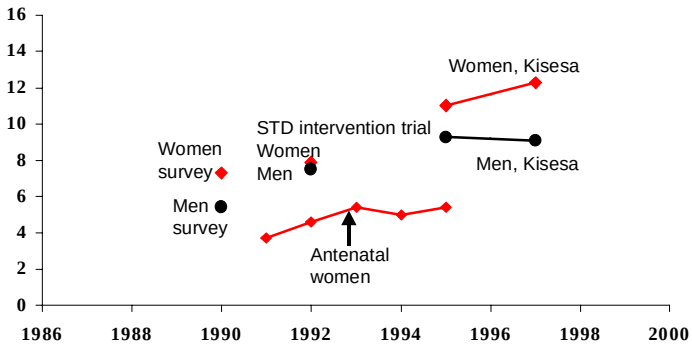
Male circumcision is a customary practice among Muslims and a large number of ethnic groups in Tanzania. In a study of more than 10,000 men, circumcision in the Mwanza region had a modest protective effect against HIV infection, which was somewhat stronger in places with higher transmission, such as urban areas and roadside settlements (Urassa et al., 1997b). In Mwanza, it was also noted that male circumcision rates were increasing, especially among boys who attended secondary school and underwent circumcision in the late teens (Nnko et al., 2001). In-depth research suggested that boys and girls felt circumcision was a good practice because it was more hygienic and led to fewer sexually transmitted diseases.

Figure 2.1
HIV prevalence among adults 15-49, Mwanza town



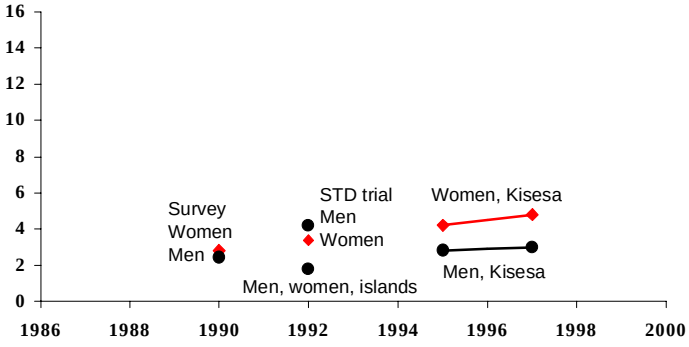
Sources: Antenatal data from Ministry of Health; Survey data from Barongo et al., 1992; Factory workers and spouses data from Senkoro et al., 2000

Figure 2.1b
HIV prevalence among adults 15-49, Roadside settlements and trading centres, Mwanza region



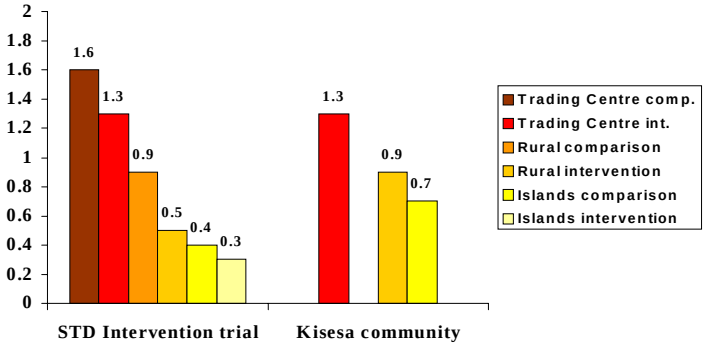
Sources: Antenatal data from Ministry of Health; Survey data from Barongo et al., 1992; STD intervention trial, Grosskurth et al., 1995; Kisesa from Boerma et al., 1999

Figure 2.1c
HIV prevalence among adults 15-49, rural villages, Mwanza region



Sources: Antenatal data from Ministry of Health; Survey data from Barongo et al., 1992; STD intervention trial, Grosskurth et al., 1995; Kisesa from Boerma et al., 1999

Figure 2.2
HIV incidence per 100 adults 15-49, by place of residence, cohort studies, Mwanza region



Sources: STD intervention trial, 12 communities, 1992-94 (Grosskurth et al., 1995b); Kisesa, 1994-97 – trading centre, peri-trading centre and rural villages (Boerma et al., 1999)

Arusha and Kilimanjaro regions

In Kilimanjaro region, antenatal clinic surveillance in Umbwe (Moshi rural district) shows an increase, especially from 1997; HIV prevalence was nearly 20% in 1998-99 (Figure 2.4). The site itself is not rural. HIV prevalence data from 1991 in Kahe village, a trading center along the railroad, showed the lowest prevalence at that time (Klouman et al., 1997).

In Arusha region, there are large differences between urban and rural populations (Figure 2.5). A survey in 1992 showed that HIV prevalence within Arusha town also differs substantially by socio-economic status (Mnyika et al., 1994). In the poorer neighborhood, HIV prevalence was much higher than in the better-off neighborhood. The trading center of Usa River and a rural village had, in turn, much lower prevalence.

Mbeya region

In Mbeya region, the system of ANC-based surveillance is more extensive than anywhere else in Tanzania. Surveillance started in 1988, and, from 1989, more than 1,200 women in multiple sites were tested each year. Figure 2.6 shows the trends in HIV prevalence in three sites. Levels of HIV prevalence are high. In Mbeya town, where three clinics were participating, prevalence has been between 15% and 20% since 1992. In rural Mbeya (although some of the sites are trading centers or small roadside towns), four sites were maintained from 1988 and five from 1994. The graph shows the mean HIV prevalence in the rural sites, where prevalence increased gradually from 7% in 1990 to 13% by 1995-96. The town of Kyela is on the border with Zambia. The antenatal clinic there has reported high levels of infection since 1989. During 1992-95, HIV prevalence among Kyela pregnant women even exceeded 25%, declining to only slightly lower levels during 1996-98. Kyela HIV prevalence was still higher than Mbeya town in 1998.

Figure 2.7 presents the results of a combined analysis of all sites, excluding the border site (Brigitte Jordan, GTZ, personal communication). All annual estimates of HIV prevalence are adjusted for age, as there were considerable differences between years, and shown with 95% confidence intervals. The border site was excluded because the trend was very different from all other sites. HIV prevalence climbed rapidly in the late eighties, stayed at about 15% during 1990-93, peaked in 1994 at 20.5%, and has remained between 16% and 19% during 1995-99.

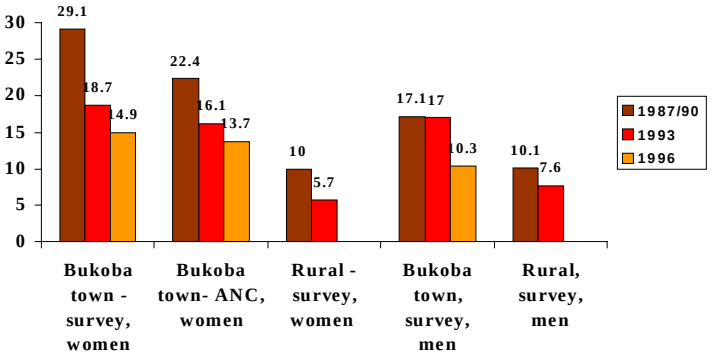
Dar es Salaam city

The first ANC-based estimates in Dar es Salaam were obtained in 1986, when HIV prevalence was 3.6% (Mhalu et al., 1987). HIV prevalence rose to a level between 10% and 15% during 1990-95, as measured at the antenatal clinic of Muhimbili Medical Centre (and Temeke clinic). In 1995-96 a large study of 3,757 antenatal women as a baseline for an intervention trial reported a prevalence of 14.1% (Fawzi et al., 2001). In 1999, two antenatal clinics in Temeke, Kasombo and Kigamboni, reported HIV prevalence of 15.3% and 14.1%, respectively (Ministry of Health, 2000).

Two cohort studies provide data on prevalence and incidence (Figure 2.8). Female family planning clients had an HIV prevalence of 11.5% at enrolment in the study during 1992-95 and had a high HIV incidence (3.4 per 100 persons years) (Kapiga et al., 1998a). HIV prevalence among female and male police officers was 18.0% and 13.8% respectively during 1994-96, while HIV incidence figures were 2.2 and 2.0 per 100 person years for females and males, respectively (Bakari et al., 2000).

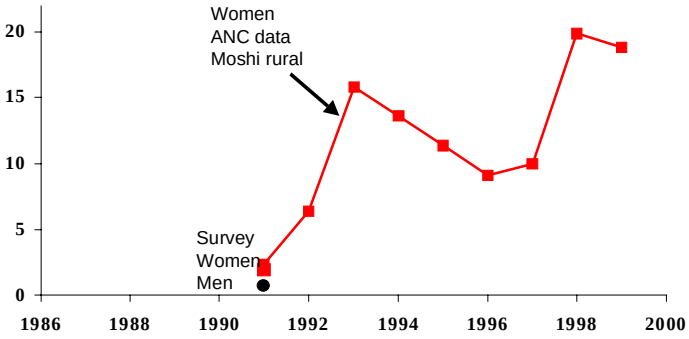
Dar es Salaam also participated in a three-country trial on the efficacy of voluntary counseling and testing (VCT). HIV prevalence among individuals and couples at the beginning of the study during 1995-96 was 29% among women and 12% among men (derived from tables in Voluntary HIV-1 counseling and testing efficacy study group, 2000). The large discrepancy between the VCT volunteers and the other data for women in Dar es Salaam indicates that VCT data are not a good source of monitoring the epidemic.

Figure 2.3
HIV prevalence among adults 15-49, Kagera Region, urban and rural



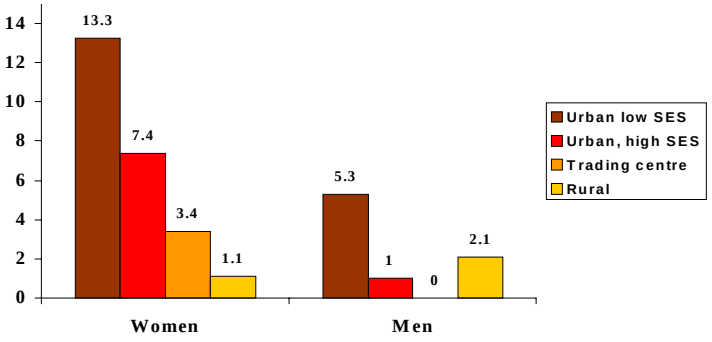
Sources: Kwesigabo et al., 2000 and Kwesigabo et al, 1998; ANC is antenatal clinic

Figure 2.4
HIV prevalence among women 15-49, Kilimanjaro Region



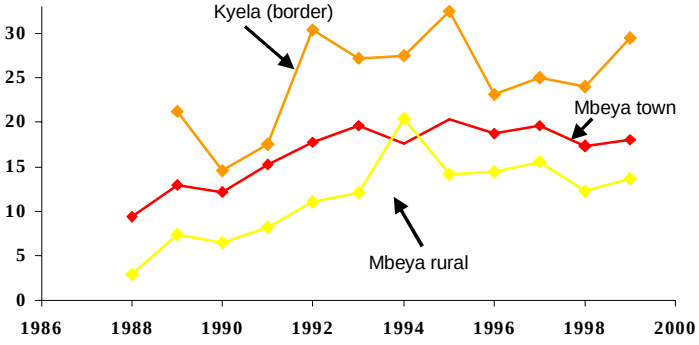
Sources: Antenatal data from Ministry of Health; Survey data for Kahe trading centre from Klouman et al., 1997.

Figure 2.5
HIV prevalence among adults 15-49, Arusha Region, by residence, 1992



Sources: Mnyika et al., 1994

Figure 2.6
HIV prevalence among antenatal women 15-49, three sites in Mbeya Region



Sources: Antenatal data from Ministry of Health, NACP reports

Figure 2.7
HIV prevalence Mbeya in antenatal women - all ages and sites adjusted for variation over time in age and sample size

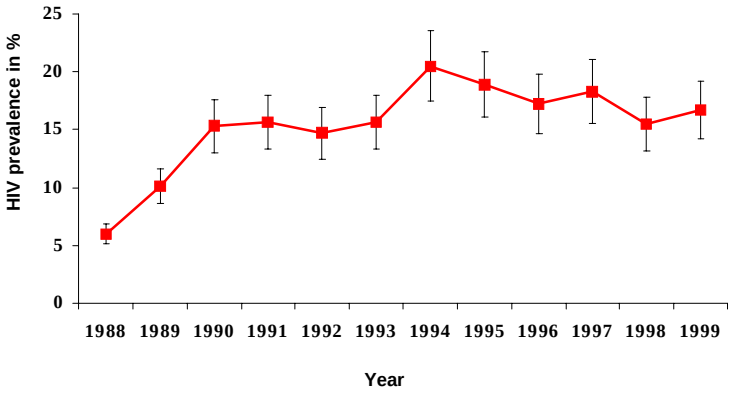
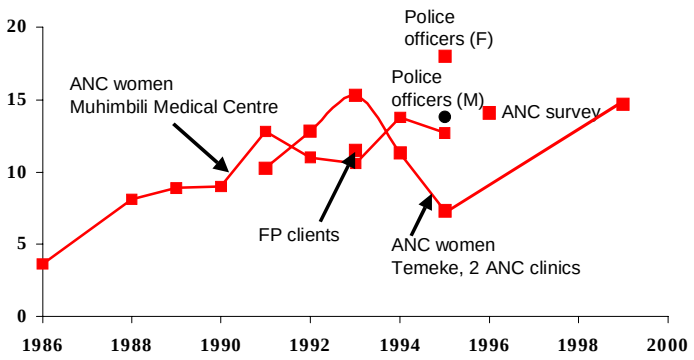
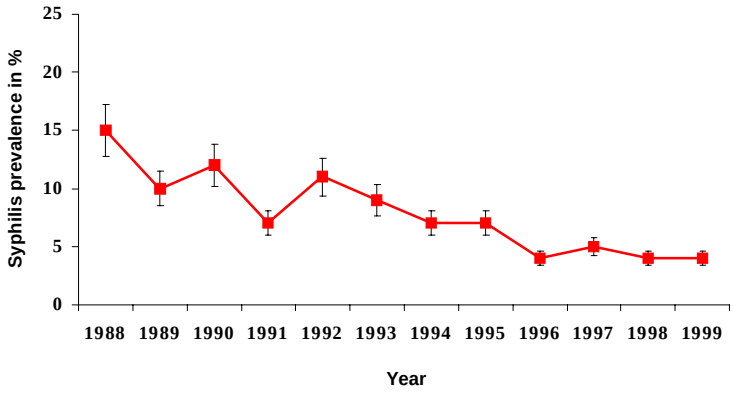


Figure 2.8
HIV prevalence among women and men, Dar es Salaam city



Sources: Antenatal data from Ministry of Health, NACP reports; Bakari et al., 2000; Kapiga et al., 1998; Fawzi et al., 2000

Figure 2.9
Syphilis infection rate in pregnant women Mbeya Region



Other regions

An antenatal clinic in Mafinga, a roadside settlement in Iringa Region, reported an HIV prevalence of 20.9% in 1999, compared to 25.0% in 1992. In the regional hospital in Morogoro, 18.4% of antenatal women were HIV infected in 1999, while Turiani Designated District Hospital in the same region reported 9.8% (Ministry of Health, 2000).

In southern Tanzania, Lindi and Mtwara regions have only limited data. A comparison of antenatal clinic data in Lindi town between 1989 and 1993 showed a rise in HIV prevalence from 0.5% to 8.7% (Petry and Kingu, 1996). In Ruvuma, HIV prevalence in the regional capital Songea ranged from 10% to 16% among antenatal women during 1992-97, while in rural Namtumbo, figures ranged from 3% to 7% during the same period.

Rukwa region in western Tanzania has two antenatal clinics that reported regularly between 1992 and 1997. For most years during that period, HIV prevalence was slightly above 20% in urban Sumbawanga and around 11% in rural Namanyere.

Antenatal clinics in Musoma, the regional capital in Mara region, and in Nyasho reported HIV prevalence rates between 6% and 9% during 1991 and 1995. A large population-based survey in the nearby town of Tarime, Mara region (Shao et al., 1994) showed that HIV prevalence varied substantially between men and women and also by place of residence. High-risk groups (largely employees of bars) had the highest prevalence, especially women.

Other sexually transmitted diseases

A review of studies on the occurrence of other sexually transmitted diseases (STDs) is beyond the scope of this report; only a brief overview is presented here. The importance of controlling STDs for the AIDS epidemic was shown in the randomized trial in Mwanza region during 1992-94, where STD control reduced HIV incidence significantly (Grosskurth et al., 1995). During the nineties, several studies have shown that STDs are very common in Tanzania.

Syphilis is common in much of Tanzania. Studies among antenatal women in Mwanza region reported 10.1% infected (Mayaud et al., 1995). Population-based surveys in Mwanza region in 1990-91 and 1992 found about 8% of males and 9% of females 15-54 years with active syphilis (positive RPR and TPHA test) (Grosskurth et al., 1995; Newell et al., 2001).

Figure 2.9 shows the trend in syphilis infection rate – determined by RPR and TPHA test – among antenatal women in Mbeya region. These data were obtained from the sentinel sites. The percentage of pregnant women with a positive results on both tests – indicative of active syphilis – declined dramatically during the nineties from 15% in 1988 to 4% in 1999 (Brigitte Jordan, GTZ, personal communication). The decline between 1990 and 1996 was very gradually from over 10% to 4%, and from 1996 the proportion has been constant at 4%.

Trichomonas vaginalis was the most common infection in a sample of women attending rural antenatal clinics in Mwanza region, with 27% of all women infected (Mayaud et al., 1995). Among family planning clients in Dar es Salaam, 22% of women had trichomonas infection (Kapiga et al., 1998b).

Chlamydia infection and gonorrhea are also common. In antenatal women in Mwanza, 8.4% had either or both infections, with chlamydia being more common than gonorrhea (Mayaud et al., 1995). In a survey in rural Mwanza region, 2.2% of men had gonorrhea and 0.7% chlamydia.

These were mostly asymptomatic, as only 15% of those found to be infected had complaints (Grosskurth et al., 1996). Among family planning clients in Dar es Salaam, 8.2% of women had gonorrhea and/or chlamydial infection, with chlamydia being four times more common than gonorrhea (Kapiga et al., 1998b).

Serological studies have shown high rates of infection of herpes simple virus type 2 (HSV-2) in the general population. In Mwanza, 20% of men and 50% of women 15-29 years old had HSV-2 antibodies (Obasi et al., 1999). Yet, data from an STD clinic suggest that less than 10% of ulcers in STD patients in Mwanza were attributable to herpes (Grosskurth et al., 2000).

More educated women are at higher risk

Educational levels in Tanzania are low. Only 5% of women and 7% of men have had at least some secondary education. However, most studies show that women with secondary education or more have higher levels of HIV infection than women with no or primary education (e.g., Quigley et al., 1997; Barongo et al., 1992; Kapiga et al., 1994; Senkoro et al., 2000). Among men the relationship between HIV prevalence and level of education is weak. It is not immediately clear why more educated women have higher risks of HIV infection. It may be partly associated with higher mobility (e.g. female teachers, nurses). Reported sexual behavior data do not seem to indicate that more educated women have more sexual partners.

Most women become infected before age 25
Most men become infected at age 25-34 years

Age is an important risk factor for HIV infection and there are major differences between men and women. HIV prevalence for women peaks during their twenties, while male prevalence reaches a peak between ages 25-34. Most women become infected during their late teens, most men during their twenties.

Highest incidence:

Women

15-19: women using family planning methods in Dar es Salaam, (Kapiga et al., 1998a)
20-24: rural women in Kisesa (Boerma et al., 1999)
15-24: rural women in Mwanza region, (Grosskurth et al., 1995); rural and urban women in Kagera region, (Killewo et al., 1993)

Men

30-34: male police officers in Dar es Salaam, (Bakari et al., 2000); rural men in Kisesa, (Boerma et al., 1999)
25-34: male factory workers in Mwanza city, (Senkoro et al., 2000); rural men in Mwanza region, (Grosskurth et al., 1995); rural and urban men, Kagera region, (Killewo et al., 1993)

3 AIDS-RELATED KNOWLEDGE AND ATTITUDES

- Even though most people have heard of AIDS and more than 80% know that AIDS can be avoided, the survey data of the nineties indicate that there are many gaps and uncertainties in people's minds concerning the transmission of HIV.
- For most knowledge indicators, there was some improvement in either the early or late nineties, but overall the changes are small.
- Women are somewhat less knowledgeable than men, although there was little difference for many indicators. Rural residents are less knowledgeable than urban residents.
- Even though more people have personally been confronted by AIDS—knowing somebody who has HIV or who has died of AIDS—the majority do not feel at risk of becoming infected.

Awareness of AIDS was almost universal by the beginning of the 1990s among residents in both urban and rural areas. In 1989/90, 91% of women and 94% of men had heard of AIDS; by 1999, 99% of men and 97% of women were aware of AIDS. Details on the trends in eight knowledge indicators among men and women are presented in Appendix Tables B.1-B.3 at the national level and in Tables B.4-B.6 for urban mainland, rural mainland and Zanzibar.

In general, levels of further knowledge about AIDS increased steadily over the decade. For nearly all indicators, men had better knowledge than women. In general, increases in the proportion of people with further knowledge about HIV/AIDS were sharpest when levels in the early nineties were lowest. This applied to women when compared to men nationally, and to both men and women of rural areas or Zanzibar when compared with urban residents.

Knows AIDS can be avoided: a dip in the mid-nineties

Individuals who were aware of AIDS were asked a series of questions about their further knowledge pertaining to prevention and transmission. All those who had not heard of AIDS were considered not to have the correct knowledge on any of the knowledge questions. In 1989/90, individuals were asked whether or not they thought that AIDS could be avoided by changing their behavior, to which 81% of women and 88% of men answered yes. In the surveys from 1994 on, individuals were asked whether they thought HIV/AIDS could be avoided (with no reference to behavior or other means). The percentage of respondents who knew AIDS could be avoided in general was lower than those who responded to the question about behavior change. Between 1994 and 1996, there was a slight decline (Figure 3.1). This trend was reversed in 1999 when 82% of women and 89% of men said that AIDS could be avoided. In general, women less frequently felt AIDS could be avoided, which could be due to lower levels of knowledge. It is also possible that women feel less in control of their own sexual behavior, or that of their partners, than men. In 1999, the urban and rural differentials were still notable. Among women, 92% of urban residents, 78% of rural and 87% of those in Zanzibar said AIDS could be avoided; among men the figures were 94%, 87% and 92%, respectively (Appendix Table B.4).

Figure 3.1
Knows AIDS can be avoided:
women and men, Tanzania, 1989-99

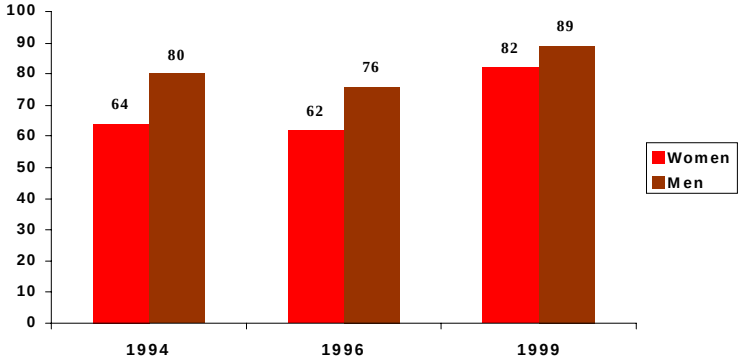


Figure 3.2
Ways to avoid AIDS: Using a condom

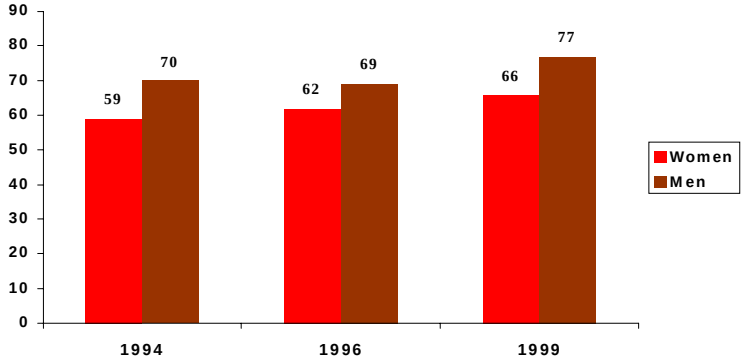
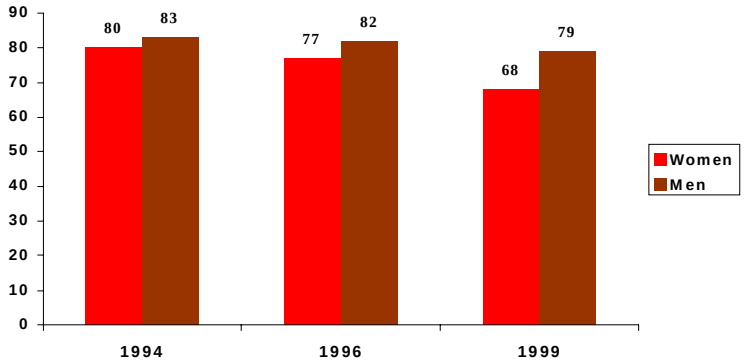


Figure 3.3
Ways to avoid AIDS: Sticking to one faithful partner



Knowing how to reduce the risk of sexual transmission: women are less confident

Two prompted questions are used to assess whether respondents know how to prevent or reduce the risks of sexual transmission of HIV. In the three most recent surveys, people were asked whether they can protect themselves from getting AIDS by using condoms. There was a slight increase in the proportion who believed this was possible, but in 1999 almost one-third of women and 23% of men did not think using a condom could reduce the risk of becoming infected with HIV (Figure 3.2).

Staying with one faithful partner is another strategy to reduce the risk of HIV/AIDS. Women were somewhat less likely to consider this as a method of HIV prevention in 1999 than in 1994, while men stayed at the same level from 1994 to 1999 (Figure 3.3). The reason for the decline among women may be both because they believe many women are infected through their (unfaithful) partners and due to their lack of control over their partner's sexual behavior.

The UNAIDS knowledge indicator no.1 combines the answers to both the questions on condoms and monogamy into one. For women, there was no change, with 54% knowing both ways of preventing AIDS in 1994 and 1996, and 56% in 1999. For men 63% knew both ways in 1994 and 1996 and 69% in 1999.

The urban and rural differences among both men and women were considerable, and, for the most part, did not change over time. People in urban areas are much more informed about the prevention of HIV infection. In 1999, 80% of women and 86% of men in urban areas agreed that HIV could be avoided by using a condom, while only 60% of women and 74% of men in rural areas responded similarly, with the levels in Zanzibar being close to the rural areas. In the combined knowledge question, the differences were somewhat less among women, with 69% of urban residents and 51% of rural (56% in Zanzibar) answering both questions correctly. This reflects the smaller gap between women regarding being able to protect themselves by sticking to one faithful partner, based on residence. The urban-rural differentials between men were similar for all three indicators.

Misconceptions about HIV/AIDS

Infected person can appear healthy: need to focus on the rural population

Figures 3.4a and 3.4b show the increase in the proportions of individuals who knew that a person infected with HIV could appear healthy. In 1989/90, there were only 28% of women and 37% of men who knew this, compared with 69% of women and 77% of men in 1999. The increase in knowledge occurred mainly before 1994. Equally important, however, is that by 1999, still 31% of women and 23% of men did *not* know that a healthy person could be HIV infected (they either responded 'no' or 'don't know'). In the urban areas, nearly nine out of ten respondents were knowledgeable, but in the rural areas 37% of women and 28% of men said that a healthy person could not have HIV. Clearly, there is a need to further educate the rural populations about asymptomatic infection.

Figure 3.4a
Knowledge of transmission: knows HIV infected person can appear healthy, women, 1989-1999

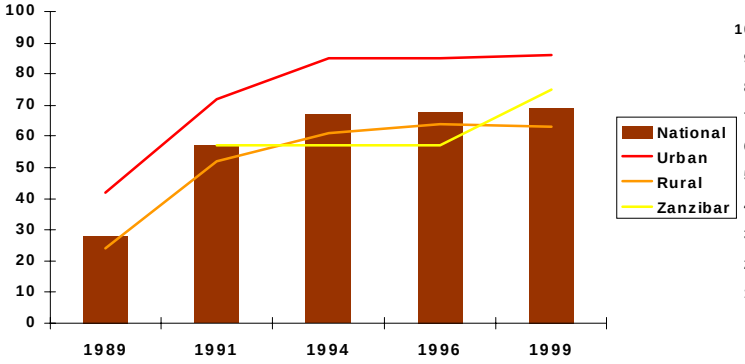


Figure 3.4b
Knowledge of transmission: knows HIV infected person can appear healthy, men, 1989-1999

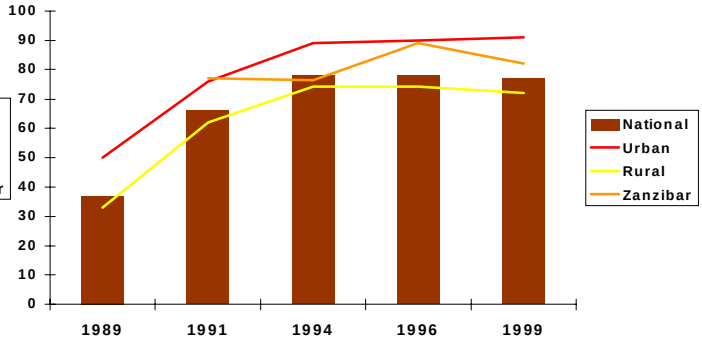


Figure 3.5 a
Knowledge of transmission: knows HIV not transmitted by mosquitoes, women, 1989-1999

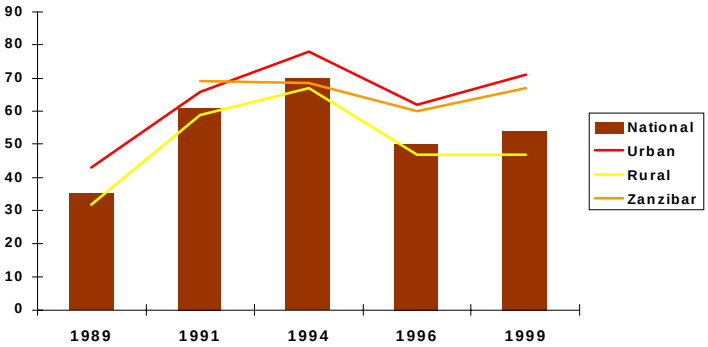
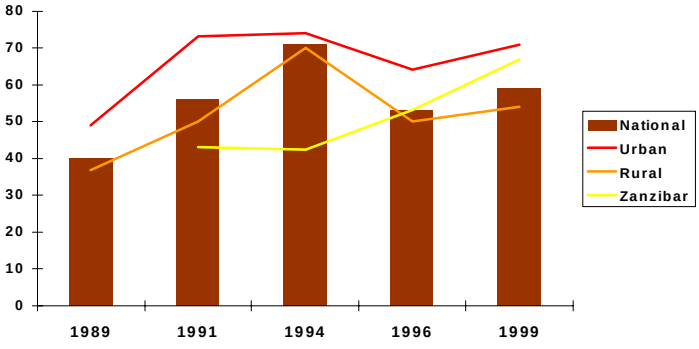


Figure 3.5 b
Knowledge of transmission: knows HIV not transmitted by mosquitoes, men, 1989-1999



HIV is not transmitted by mosquitoes: just over half of respondents agree

Respondents were asked if they thought a person could get AIDS from mosquito bites. In 1999, only 54% of women and 59% of men stated that this was not possible. Others thought it was possible or did not know. There was a small change between 1991 and 1999. In 1991, 61% of women and 56% of men said that a person could not get AIDS from mosquito bites, while in 1989 knowledge levels were lower (although this survey may have used a different way of asking the question). In 1999, there were still very large differences between urban and rural residents, and these were similar for both men and women: 71% of urban residents knew that HIV could not be transmitted via mosquito bite, but only 47% of women and 54% of men living in rural areas knew this; in Zanzibar, 67% of both women and men answered correctly.

In 1994 and 1996 a different question was asked: do you think persons can protect themselves from getting AIDS by avoiding mosquito or other insect bites? The correct answer to this question was no, but the results may not be directly comparable to the results of the 1991 and 1999 surveys. In 1994, 70% of women and 71% of men said no; in 1996, 50% of women and 53% of men did not think a person could protect him or herself by avoiding mosquito bites.

Figures 3.5a and 3.5b show the proportions of individuals who knew that HIV could not be transmitted by mosquito bites. Among women, the national and by-residence patterns are very similar: a steady decrease in the proportion of women who thought that one could become infected by mosquitoes was observed, from about one-third of women to less than one-quarter. Among men, the trends in this misconception were less steady in urban and rural areas, and sharper among men in Zanzibar.

Eating with person with AIDS is safe: more than one-third are not so sure

Another misconception that has been asked in most surveys concerns sharing food or eating utensils with an AIDS patient. The question was asked differently in the various surveys, which affects a comparison of trends over time. In 1991 it was asked whether one could get AIDS from sharing utensils, while in 1994, 1996 and 1999 it was asked whether people could protect themselves from getting the AIDS virus by not sharing food (1999) or eating utensils (1994, 1996) with a person with AIDS.

The trend analysis is limited to the period 1994-1999 when the questions were asked in a similar way (Figures 3.6a and 3.6b). It appears that the percentage of people who believe that HIV cannot be transmitted by sharing food or eating utensils declined between 1994 and 1996, but then rose slightly in 1999. In 1999, 59% of women and 64% of men agree that it cannot be transmitted this way. The urban and rural trends during this period were very similar to the national patterns among both women and men. Rural residents were much less likely to believe that they could not become infected by sharing food or utensils when compared to urban residents and those in Zanzibar.

Composite indicator of misconceptions: no improvement in the nineties

The difference in the way the questions on mosquitoes and sharing food were asked between surveys makes a comparison of the combined indicator over time difficult to interpret. However, in all four surveys between 1991 to 1999 only four out of ten respondents, male or female, answered correctly to all three questions and there was no improvement over time.

Figure 3.6 a
Knowledge of transmission: knows HIV not transmitted by sharing food/utensils, women, 1989-1999

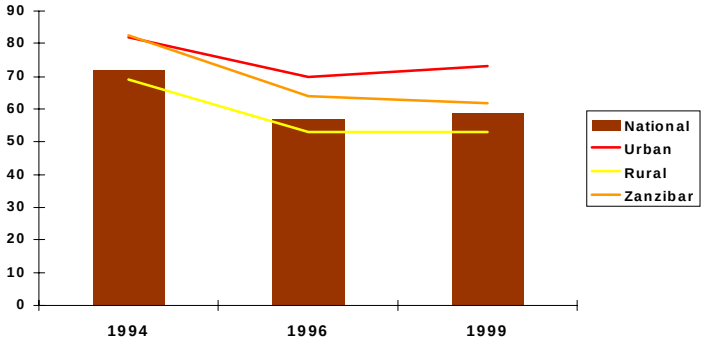


Figure 3.6 b
Knowledge of transmission: knows HIV not transmitted by sharing food/utensils, men, 1989-1999

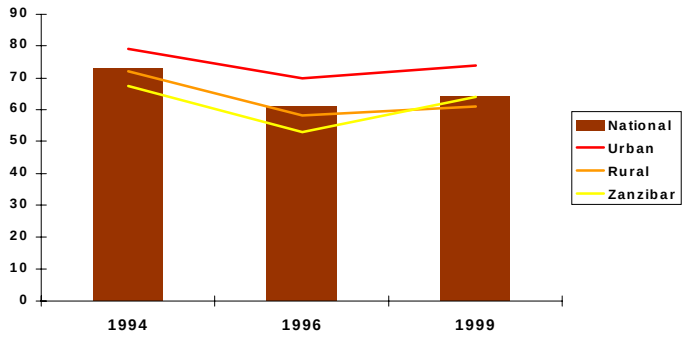


Figure 3.7
Knows mother-to-child transmission: Women and men, 1989-1999, national

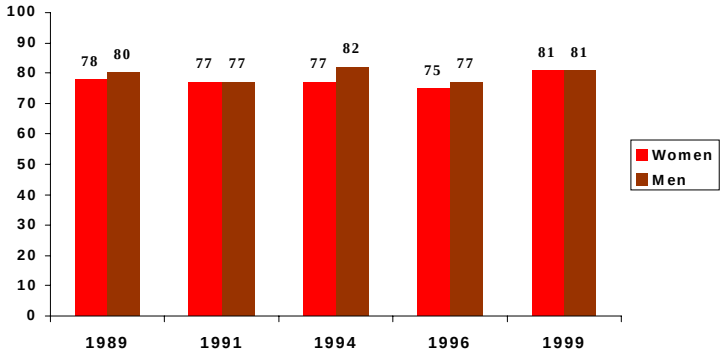
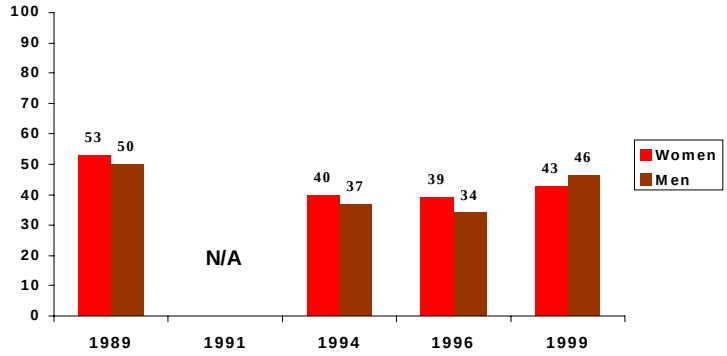


Figure 3.8
Feeling at risk for HIV infection: Women and men, 1989-1999, national



Mother-to-child transmission: most people know about it

Four out of five men and women know that HIV can be transmitted from the mother to the child (Figure 3.7). In 1989 most respondents already knew about vertical transmission (78% of women and 80% of men). None of the surveys included questions on whether or not the respondents think that mother-to-child transmission can be prevented.

Risk perception: most people do not feel at risk

Personal risk perception was explored by asking respondents who had heard of AIDS, "Do you think your chances of getting AIDS are small, moderate, great or no risk at all?" Figure 3.8 shows that the percentage of women and men who perceived themselves at risk (small, moderate or great) did not change much during the nineties. About four out of ten respondents felt at risk. Urban and rural respondents in mainland Tanzania felt equally at risk, but respondents in Zanzibar felt less at risk of getting AIDS (see Appendix Table B.1).

Knowing someone with AIDS: becoming more common than not

The personal perception of risk for HIV/AIDS may be affected by the extent to which an individual has been exposed to the epidemic. Personally knowing someone who is HIV positive, or who has died of AIDS, may be an important factor (Figures 3.9a and 3.9b). The question, "Do you know someone who is living with HIV or who has died of AIDS," was only asked in the surveys from 1994 onward. By 1994, half of respondents knew someone who was living with HIV or had died of AIDS. By 1999, two out of three men and women knew someone. The increase occurred in rural and urban mainland and Zanzibar. Zanzibar men and women and rural mainland women reported the lowest levels of exposure to a person with HIV/AIDS, overall.

Figure 3.9a
Knowing someone who with HIV or someone who had died of AIDS, women, 1994-1999

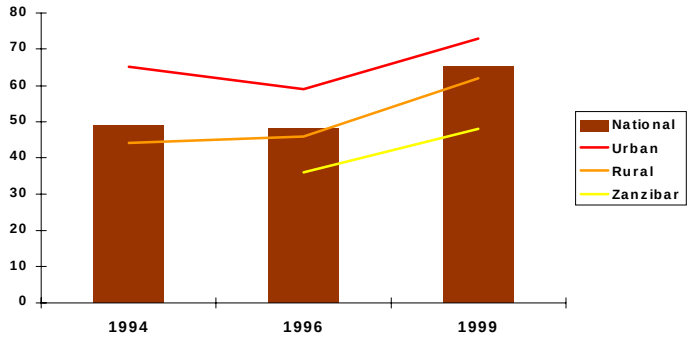
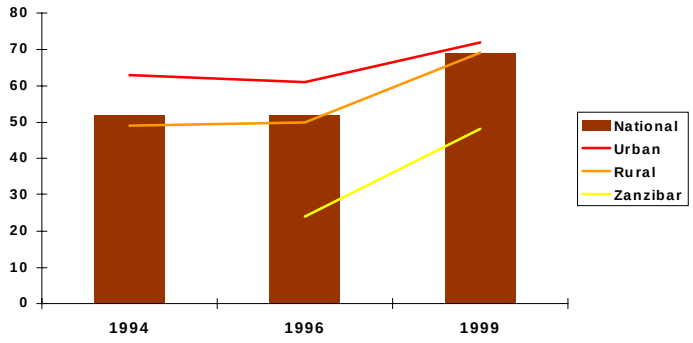


Figure 3.9b
Knowing someone who with HIV or someone who had died of AIDS, men, 1994-1999



4 SEXUAL BEHAVIOR

- Multiple partnerships—measured by the number of non-marital partnerships in the last year—were common, especially among men. There is little national evidence of a reduction in the prevalence of multiple partnerships, although the trends are difficult to assess due to both changes in the phrasing of survey questions and the potential for changes over time in reporting bias.
- There is little evidence of change in adolescent sexual activity, and premarital sex remained equally common during the nineties.
- Research studies show changes in sexual behavior after specific interventions.

Premarital sex: common and little evidence of a decline

Postponement of first sex is a key intervention in the AIDS program. Most women reported that they started to have sex at age 16 or 17, and got married about two years later. This situation did not change much between 1991 and 1999. Men also typically reported initiating sexual activity at age 16-17, but then marry considerably later, at age 24-25. Details about trends in adolescent sexual behavior are presented in a separate report about trends in adolescent sexual behavior in Tanzania.

The UNAIDS adolescent sexual behavior indicator no.2 is the percentage of never-married adolescents (here defined as 15-24 years old) who have had sex in the last year. Figure 4.1 shows that in 1999, 41% of young single women and 61% of young single men had sex during the last year. Among women, premarital sex was slightly more common in 1999 than in the preceding years. Among single men there was no clear trend with the exception of 1996, when premarital sex was less common. Urban and rural trends were similar for both girls and boys.

Multiple Partners

The surveys provide information on a few indicators to describe the trends in sexual behavior during the nineties. The indicators focus on the reporting of non-regular (defined as non-marital, non-cohabiting partners) and extra-marital partners in the last year. One common pattern observed in all these indicators for both men and women was a dramatic rise in the reporting of multiple partnerships in 1999 as compared with previous years. Although the same information regarding multiple partners was collected in the surveys conducted from 1994 onward, the way in which it was collected in 1999 differed from the previous two. In the earlier surveys respondents were asked, “How many partners did you have during the last year?” In 1999 the respondent was asked about the time he/she last had sex, followed by specific questions on the nature of the partnership (relationship, age partner, etc.). Then the respondent was asked about the last time he/she had sex with another partner. It is not immediately clear whether the 1999 reports are simply more complete reports of sexual behavior in the last year. However, it is important to note that the levels of multiple partnerships in the 1999 survey are much closer to those reported in research studies throughout Tanzania (see Box on multiple partnerships).

Introducing a new method, albeit improving the reliability of estimates, creates difficulties for interpreting trends over time. At first glance, it appears that there has been an increase in risky partnerships in Tanzania. However, these figures are probably a reflection of better reporting in

1999 than in previous years, as there is no other evidence to support an increase among either men or women in high-risk sexual activity.

Non-marital, non-cohabiting partner

In 1999, 25% of women and 48% of men reported sex with at least one non-marital, non-cohabiting (also referred to as non-regular) partner during the last year. This proportion was much higher than in 1994 and 1996 when 4-6% of women and 20-25% of men reported such sexual activity (Figures 4.2a and 4.2b). Two or more non-regular partners was also common, especially among men. Four or more non-regular partners was rare among women, but reported by 6% of men in 1999. More urban than rural women reported two or more partners, and the mentioned increase from 1996 to 1999 was much sharper for urban women (see Appendix Table B.6). This was not the case among men. First, there was very little difference between urban and rural men reporting two or more partners. Second, the increase from 1996 to 1999 was equal for urban as well as rural men.

Multiple partnerships are common: research studies

Research studies often use different indicators of sexual behavior, especially with varying recall periods. In general, however, all studies show that multiple partnerships are common and that rural urban differences appear to be negligible. The results are much closer to those of the 1999 DHS than to the earlier surveys. A short summary of results from population-based surveys shows that:

- In a study of police officers, 36% of men and 14% of women reported extra-marital sex in the last three months (Bakari et al., 2000).
- In the Dar-es-Salaam study of 1991, 14.8% of married women attending a family planning clinic reported that they had sex with someone other than their husband or regular partner during the last year (Kapiga et al., 1995).
- In rural Mara region, 28% of men and 7% of women reported two or more sexual partners in the last month; on average, men had 4.3 partners in the last year, women 1.5 (Konings et al., 1994).
- In the baseline and follow-up survey rounds of the Mwanza STD intervention trial, 52% of men and 11% of women had more than one sexual partner in the last year, while 29% of men and 3% of women had more than two sexual partners, with little change between 1992 and 1994 (Grosskurth et al., 1995; Munguti et al., 1997).
- Among male factory workers in Mwanza, 6% and 21% of married men had extra-marital sex in the last month and last year respectively; 22% of men and 5% of women reported having sex with more than one person in the past month (Borgdorff et al., 1994).
- In rural Kisesa, Mwanza, 27% of men and 3% of women had three or more partners in the last year (Boerma et al., 1999).
- In Arusha region 49% of men and 25% of women reported two or more sexual partners in the last five years (Mnyika et al., 1997).

Figure 4.1a
Premarital sex: single women 15-24 who had premarital sex in the past year

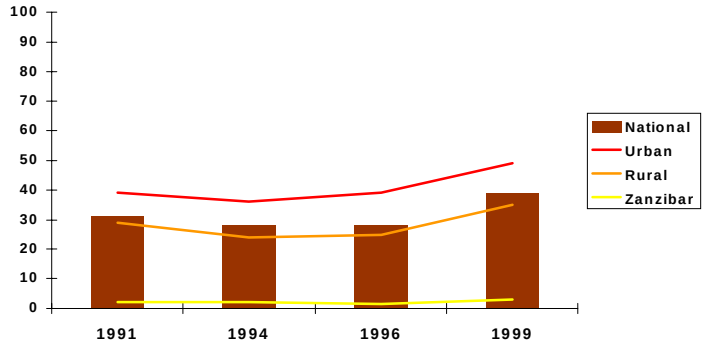


Figure 4.1b
Premarital sex: single men 15-24 who had premarital sex in the past year

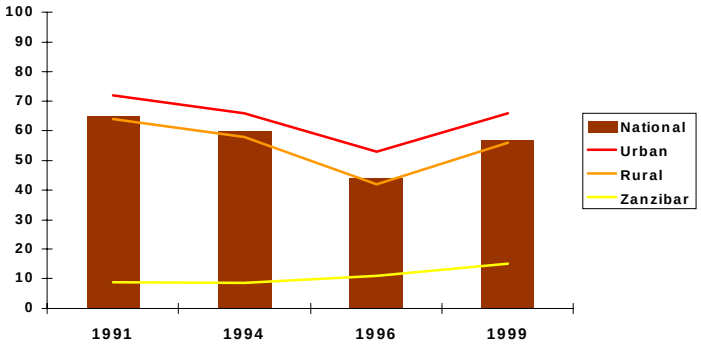


Figure 4.2a
Non-marital, non-cohabiting partners during the last year, women, Tanzania, 1994-99 (%)

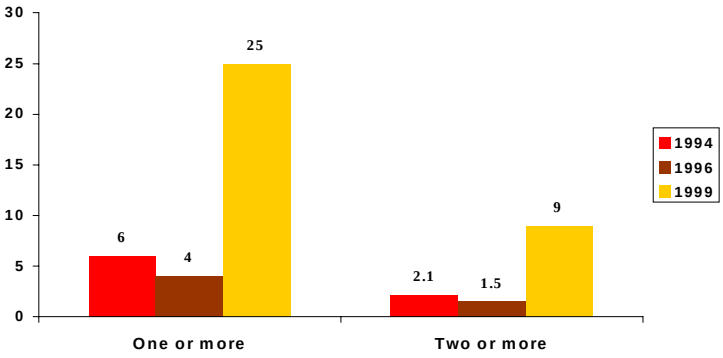
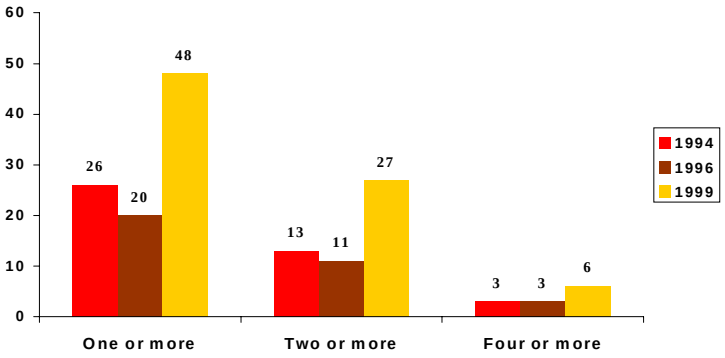


Figure 4.2b
Non-marital, non-cohabiting partners during the last year, men, Tanzania, 1994-99 (%)



Extra-Marital Sex

Similar patterns were observed for married women and men who reported having sex with someone other than their spouse in the last year (Figures 4.3a and 4.3b). Among women, more urban than rural residents reported extra-marital sex and the increase from 1996 to 1999 was more pronounced among urban residents. Among men, equivalent numbers reported such partners in 1994, but more rural than urban residents reported extramarital partners in 1996 and 1999, with a sharper increase from 1996 to 1999 among rural men.

The proportion of individuals belonging to special populations who report multiple partners also tends to be higher than in the general population.

Some evidence of change among men

In a cohort of factory workers in Mwanza where a variety of prevention-oriented activities took place, the proportion of men reporting multiple partners decreased markedly over two years of observation during 1991-1994, from 22% to 12%. A similar decrease was observed in the number of men reporting casual partners, from 10% to 5%. The changes were partly attributed to interventions of moderate intensity – mainly health education and condom promotion (Ng'weshemi et al., 1996).

Voluntary counseling and testing helps to reduce unprotected intercourse

Initially, voluntary counseling and testing (VCT) services were only available in the large hospitals, but increasingly, such services have become available in smaller health facilities or sometimes in a special VCT center. According to national statistics, 2,570 clients were tested, of which two-thirds were found to be HIV-infected. This suggests that most testing occurs in hospital settings with a large proportion of sick people. A recent study was conducted in Dar es Salaam as part of a three-country randomized trial. The provision of VCT to couples resulted in fewer couples reporting unprotected intercourse (Voluntary HIV-1 counseling and testing efficacy group, 2000). Two months after testing, the percentage reporting unprotected intercourse dropped from 77% to 58% among men and from 80% to 63% among women. Among couples who were only given health information, unprotected intercourse was also less common (for men a decline from 82% to 70% and for women from 81% to 67%). Individual men and women who received VCT were less likely to engage in unprotected intercourse with non-primary partners than men and women who received only health information.

Figure 4.3a
Married women who reported sex with someone other than their spouse during the last year

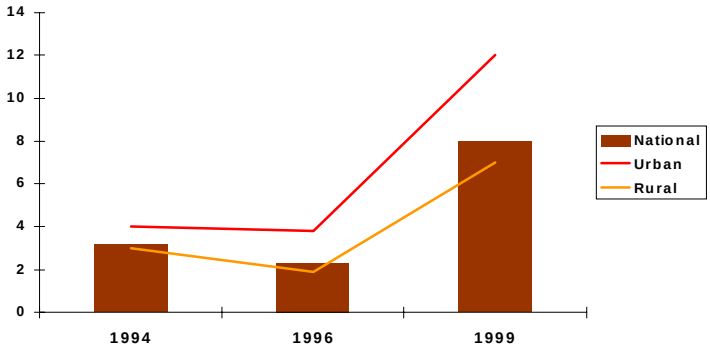
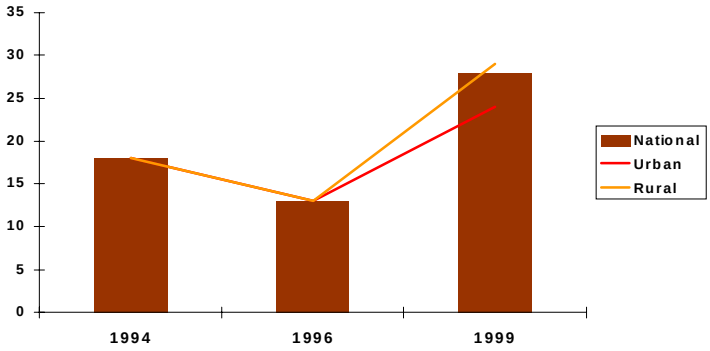


Figure 4.3b
Married men who reported sex with someone other than their spouse during the last year



5 CONDOM KNOWLEDGE AND USE

- Most people have heard of (male) condoms. During the nineties, an increasing number of men and women knew where to get a condom. Yet, 28% of men and 47% of women did not know where to get a condom in 1999.
- By 1999, more people had used a condom at least once, and more urban men and women used a condom with non-regular partners than in the early nineties.
- Estimates of self-reported condom use and condom consumption figures for 1999 suggest that the figures are fairly consistent for non-marital partnerships. An estimated 16 million non-marital acts were protected by the use of social marketing condoms out of a total of 72 million such sexual acts. An estimated 288 million sexual acts took place with marriage and a condom was used in less than 8 million of those acts.

Condom promotion and distribution

During the early years of the epidemic, the distribution of free condoms to health facilities was a key prevention strategy. The condoms were distributed through the Family Planning Unit and the NACP of the Ministry of Health. Condom social marketing activities began in 1988 under the USAID-funded AIDSCOM project. Sales were low, however, and the Tanzania Social Marketing project was redesigned in 1993, including a re-packaging of the *Salama* brand condom.

The social marketing program, coordinated by Population Services International (PSI), aims to increase access to condoms by increasing the number and variety of outlets selling condoms. The project established an extensive and diverse distribution system. By mid-1997, nearly 32% of the condoms were distributed though wholesalers (AIDSCAP/FHI, 1997). By the end, the social marketing project was selling to a network of 40 regional retail sales points. These outlets included pharmacies, *duka la dawa* (a type of licensed drug store), grocery stores and non-traditional outlets ranging from bars and nightspots to hair salons, photo studios and gas stations. In 1999 and 2000, sales increased markedly due to an increase in distribution sites and attractive trade margins to wholesalers. In addition, institutional sales to NGOs and worksites are a part of the distribution network, with community-based AIDS education workers trained as condom sales and distribution agents. During 1996, 40% of retail sales were through NGOs. In 1999, this proportion had decreased to 13%. A large proportion of these NGO sales went to refugee camps.

Figure 5.1 presents the trend in condom distribution from 1993-2000. During the nineties the numbers of condoms distributed doubled from just over 20 million in 1993 to 46 million in 2000. The number of condoms distributed by the government remained about 20 million each year, with the exception of a low in 1995 when there were distribution problems and in 2000 when a record 26.8 million condoms were distributed by NACP and the Reproductive and Child Health Services unit. Figures on the distribution of free condoms within Tanzania indicate that nearly one in five condoms remained in the Dar es Salaam region (Msamanga and Swai, 1998). The numbers and relative share of social marketing condoms increased over time to nearly 20 million in 2000. The higher share may be indicative of higher use, as *Salama* condoms are probably more likely to be used than the condoms that are free.

Female condoms are relatively new in Tanzania. 51,358 female condoms were sold in 1999. In 2000, the sales had increased to 85,530.

Knowledge of condoms: increasing awareness

Awareness of condoms at the beginning of the 1990s was much lower than awareness of AIDS (Figures 5.2a and 5.2b). In 1989/90, the KABP recorded only 60% of women and 70% of men who had heard of condoms. Rural women in particular had little knowledge of condoms. During the nineties, steady increases were observed among men and women, both in urban and rural Tanzania. Urban women remained more aware than rural women. In 1999, 10% of men and 17% of women still had not heard of condoms.

Knowing where to get a condom

There was a steady increase in the proportion of men who knew where to get a condom, from 58% in 1991 to 72% in 1999 (Figures 5.3a and 5.3b). Among women, the trend was less apparent during the nineties, although in 1999 slightly more women knew where to get a condom than in 1991 (from 45% to 53%). Urban women and urban men kept the highest level of knowledge of a source throughout the nineties. The urban-rural differences are larger for knowledge of a source than for awareness of condoms. This may be indicative of better access to condoms in urban areas.

More people became aware of condoms, and more people knew a source of condoms during the nineties. Yet, the increase in awareness was larger than the increase in knowing a source. This indicates that the gap between demand and supply may have increased. In other words, the supply increase (measured by knowing a source) did not keep up with the increase in demand (measured by awareness). Among those who were aware of condoms, almost 90% of both men and women knew where they could get them at the beginning of the decade. In 1999, only 64% of women who were aware of condoms knew where they could get them, compared with 88% in 1991. There was also a decrease in men, but this was much less substantial, with 80% of men who had heard of condoms knowing a source in 1999.

Figure 5.1
Condoms distribution in Tanzania

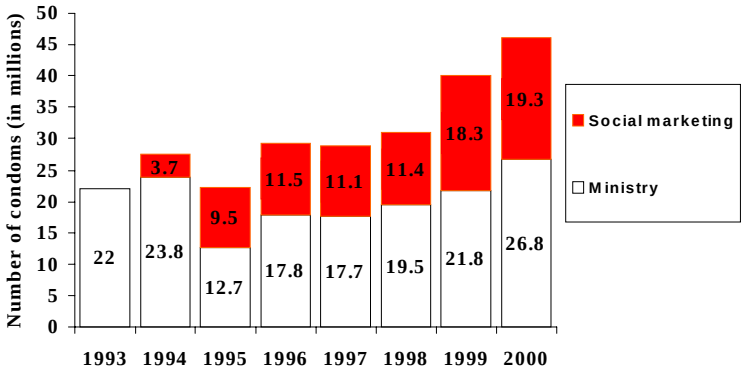


Figure 5.2a
Condoms: awareness among women, 1989-1999

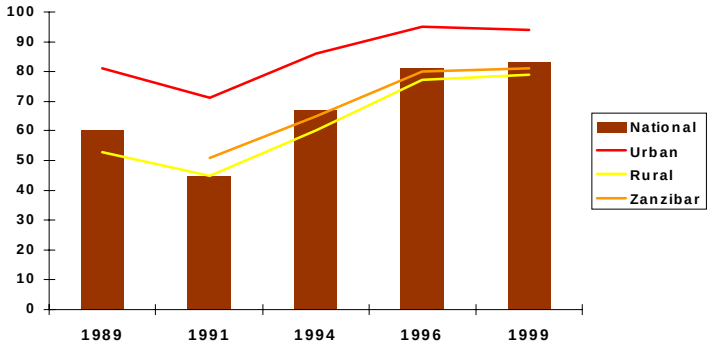


Figure 5.2b
Condoms: awareness among men, 1989-1999

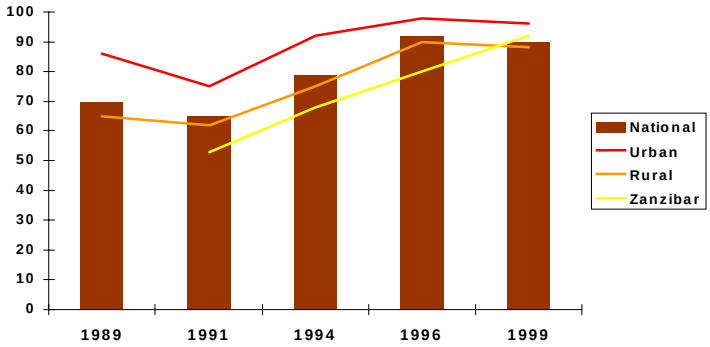


Figure 5.3a
Condoms: Knows where to get condoms, women, 1991-1999

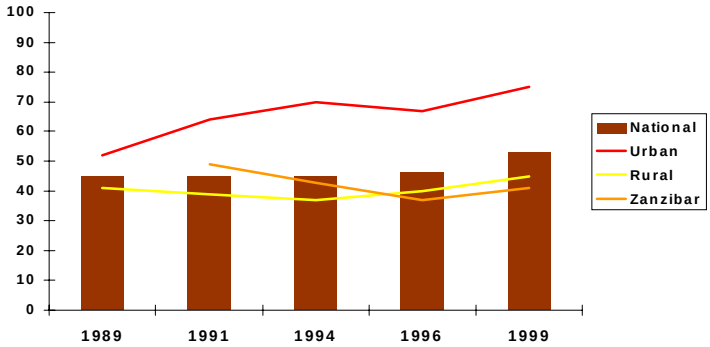
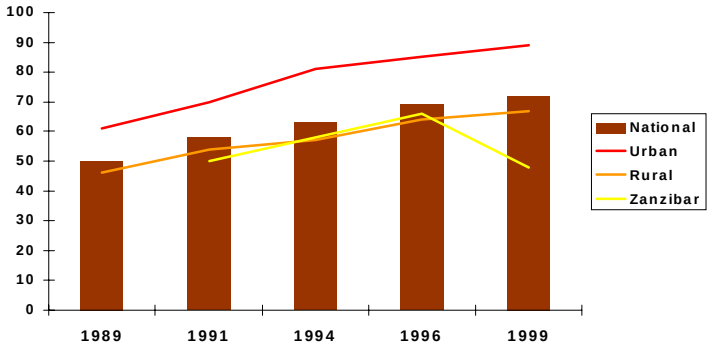


Figure 5.3b
Condoms: Knows where to get condoms, men, 1991-1999



Condoms: ever use

In general, condom use in Tanzania is low (Figures 5.4a and 5.4b). However, among sexually active women and men, the proportion of those who reported ever using condoms doubled during the nineties. For both men and women, there was a sharper increase among urban residents, compared with rural residents. This probably reflects easier access to condoms in urban areas over time. In urban areas, where condom use is substantially higher than in rural areas, only 22% of women and 45% of men had ever used condoms in 1999.

From knowledge to access to ever use to regular use

- In a population-based survey in Arusha region in 1992, 82% of men had heard of condoms, and 64% said they had access to condoms. Only 42% had ever used a condom, and 28% claimed to regularly use a condom (Mnyika et al., 1997). Slightly over 28% of men said they had condoms at home.
- In Dar es Salaam in 1991-92, among the 43% of female family planning users that mentioned use of condoms as an AIDS preventive measure, 20% were occasional users and 5% were regular users (Kapiga et al., 1995).

Condoms: use at last sex

Among those with non-regular partners, there was no change in the proportions of men who reported using a condom at the last intercourse with this type of partner, and very little change among women (Figures 5.5a and 5.5b). For both sexes, an increase was observed among urban residents, while there was a decrease (men) or very mild increase (women) among rural residents. The relationship between the proportions of individuals who reported ever using a condom and those who reported use with a non-regular partner differed between women and men. In 1996 and 1999, the proportions of men reporting both were almost the same, whereas among women, the proportion of those using a condom with a non-regular partner was notably higher than those reporting ever using one among the general population. This may indicate that the vast majority of men who have used condoms in Tanzania are those with non-regular partners. Research studies support this. In a cohort of factory workers in Mwanza, condom use among men reporting casual partners between 1991 and 1994 increased from 8% to 27%. Among regular partners, the change was much more modest (5% to 9%). Among all individuals, use in the last month only increased from 2.5 to 3.1% (Ng'weshemi et al., 1996).

Condom use within marriage was low, but there was a slight increase between 1996 and 1999. In 1996, 2% of married women and 4% of married men said they used a condom with their spouse. In 1999, 4% of women and 5% of men said they used a condom at last sex with their spouse. It is not clear why men report more frequent use with a spouse than women. Polygyny may contribute to the difference. For instance, a man using condoms with one of three wives may report condom use, but only one of those three women would be able to report use.

Figure 5.4a
Condoms: Ever used a condom, women, 1991-1999

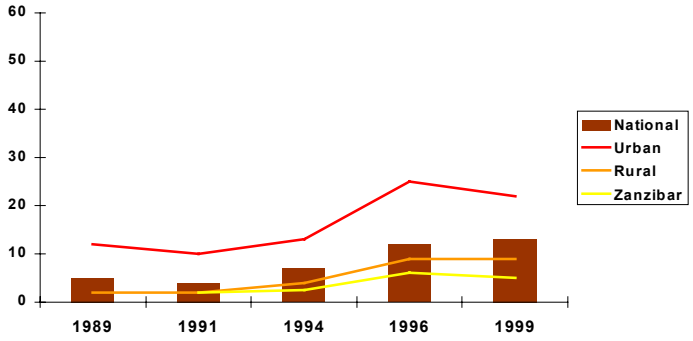


Figure 5.4b
Condoms: Ever used a condom, men, 1991-1999

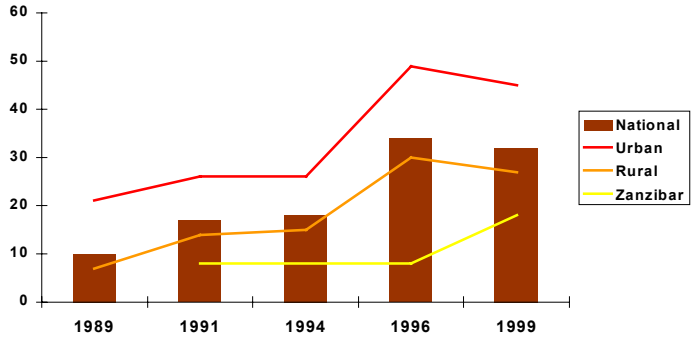


Figure 5.5a
Condoms: Used a condom at last sex with non-regular partner, women, 1994-1999

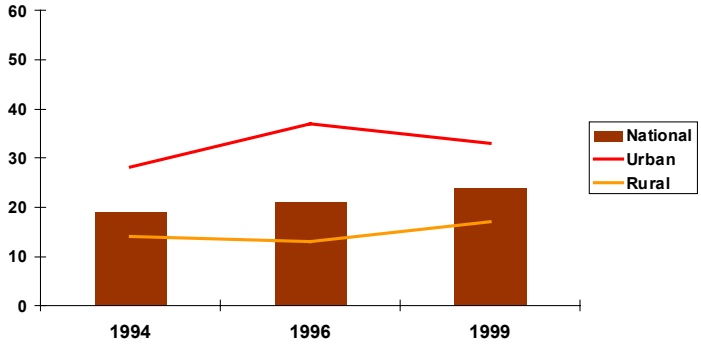
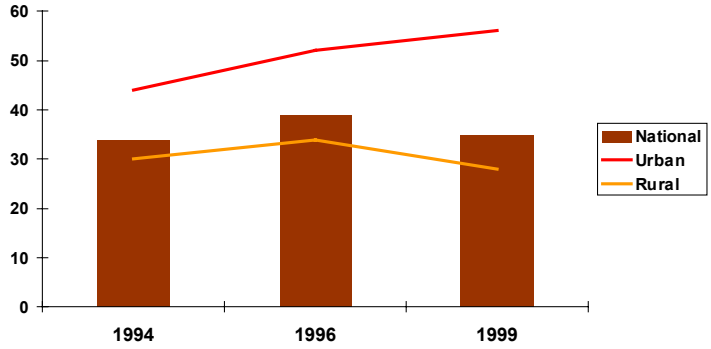


Figure 5.5b
Condoms: Used a condom at last sex with non-regular partner, men, 1994-1999



Reconciling condom distribution and reported use

The reported data on frequency of sex, type of partner and use of condoms can be used to assess if the reported use figures match the condom distribution and sales figures. Based on the data from the DHS and other surveys and research studies reported use can be estimated. These figures are a rough estimate and more needs to be done to refine estimation procedures. One can base estimates on the date of last sex, type of last sex partner and condom use. The simplest way is to only consider the last night. For example, in both the 1996 and 1999 national surveys about 8% of men 15-59 years old reported to have had sex in the night preceding the interview. If this was an average night and reporting was good, this would imply that an average man would have 30 sexual acts per year. It is important to keep in mind that this includes those who are not sexually active at all. Also the night before the interview is less likely to be a weekend night, on which sexual intercourse may be more common.

On the night before the interview, almost nine out of ten acts were with a marital or cohabiting partner and 4% used a condom. This corresponds with about 8 million condoms for a year. In non-marital acts, condom use was about 25% the night before the interview, which could imply the use of about 6 million condoms in a year. Other methods of estimation (using the last time sex with a non-marital partner) lead to considerably higher estimates.

The data in Figure 5.1 are based on distribution by the government (free condoms) and condoms sold to wholesalers (social marketing condoms). The latter may be more indicative of sales to the client and eventual use by the client. In 1999, public sector consumption was 40 million condoms, including 18.3 million condoms supplied by the social marketing program.

In 1999, condoms distribution/sales figures were considerably higher than estimated use. This could simply indicate that over 50% of condoms were not used. It is likely that more government condoms, which are free, go unused than social marketing condoms, both in facilities and by users. It could also be that reported data on sex with condoms are unreliable. Further work needs to be done to try to improve the estimates of condom use from survey data.

6 DEMOGRAPHIC IMPACT OF THE EPIDEMIC: MORTALITY AND ORPHANS

- Adult mortality in Tanzania has increased considerably during the nineties and there is evidence from several districts that AIDS is now the leading cause of death among adults.
- The modest child mortality decline during the eighties and early nineties in Tanzania stagnated during the second half of the nineties and this may be due to HIV/AIDS.
- The proportion of children under 15 who are orphans has gradually increased during the nineties and by the turn of the century 1.1% had lost both parents, 6.4% had no father and 3.5% had no mother.

HIV/AIDS-associated mortality

Reporting of AIDS cases is grossly incomplete, and the numbers received by the national program are only a fraction of the actual number. For example, the number of AIDS cases reported to the NACP in 1999 was only 8,850, which was less than in 1990 (Ministry of Health). However, hospital statistics indicate that a large proportion of admissions are HIV infected. For instance, at a hospital in Kagera region, one-third of adult admissions were HIV infected (Kwesigabo et al., 1999). Also, already during 1991-93, HIV seroprevalence was 32% among nearly 7,000 tuberculosis patients of the country's 20 mainland regions (Chum et al., 1996).

Several studies have shown that HIV/AIDS is now the leading cause of death among adults in Tanzania. The Adult Morbidity and Mortality Project (AMMP, 2000; Kitange et al., 1996) uses annual censuses followed by structured interviews with the relatives of the deceased (verbal autopsy) to ascertain the causes of death. The surveillance system was established in 1992 in three areas: Dar es Salaam city, Morogoro rural district in Morogoro region and Hai District in Kilimanjaro region. Both in urban Dar es Salaam and Morogoro rural district, AIDS was the leading cause of death for the period 1992-98: In Dar es Salaam city, HIV/AIDS was associated with 42% of adult male deaths and 45% of adult female deaths; in Morogoro rural district, it was associated with 51% of male and 43% of female adult deaths. In Hai district, AIDS was the second most common cause of death, with 26% of the female and 37% of the male adult deaths associated with HIV/AIDS. Figures 6.1 and 6.2 present the age- and sex-specific mortality rates during 1992-1998 in the three AMMP sites. In three studies in Mwanza region, AIDS was also the leading cause of death among adults (Senkoro et al., 2000; Todd et al., 1997; Urassa et al., 1997a).

Adult mortality is often expressed as the probability that a man or woman aged 15 dies before his or her sixtieth birthday at current mortality rates. Based on data from the 1988 Tanzania census, adult mortality was estimated at 33% for males and females (Timeaus, 1993). According to the studies in Dar es Salaam, Morogoro and rural Mwanza, the chance that an adult dies before age 60 has increased to nearly 50% due to HIV/AIDS.

Figure 6.1
Mortality for HIV/AIDS and other causes of death in selected sites, AMMP, women, 1992-98 (cause-specific rates per 1,000 population) (AMMP, 2000)

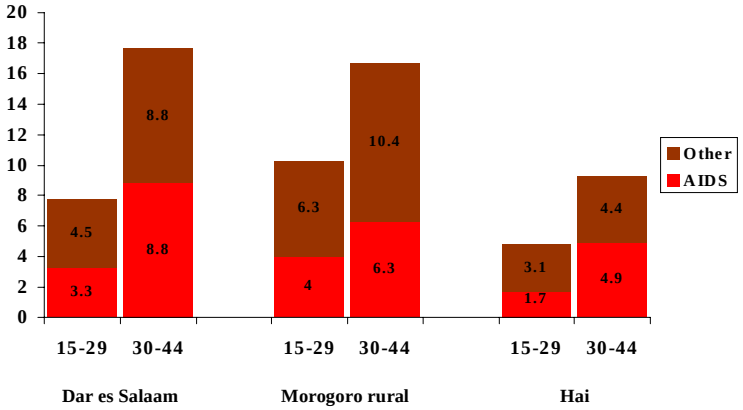
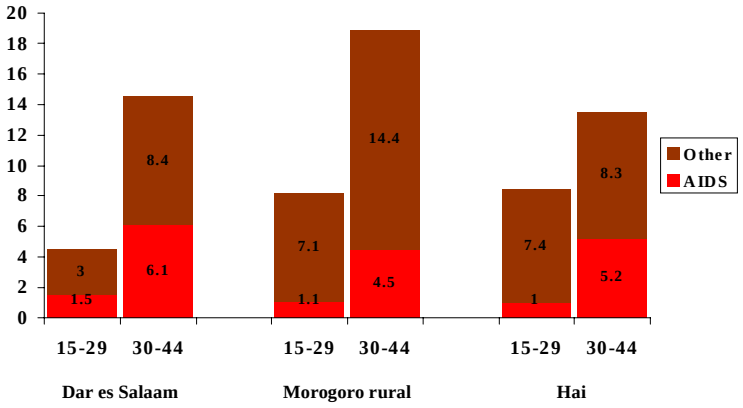


Figure 6.2
Mortality for HIV/AIDS and other causes of death in selected sites, AMMP, men, 1992-98 (cause-specific rates per 1,000 population) (AMMP, 2000)



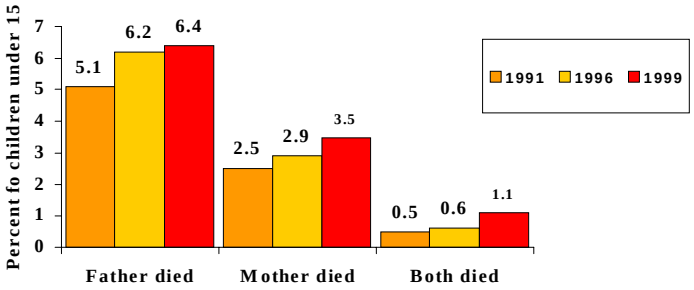
The evidence of the impact of the HIV/AIDS epidemic on child mortality is less clear. The most recent national Tanzania Reproductive and Child Health survey (TRCHS) in 1999 showed a slightly higher level of child mortality than in previous surveys. The national level of under-five mortality in Tanzania is on the order of 140 per 1,000 live births, which is only slightly lower than in the mid-eighties, with a modest increase in urban mortality rates in recent years. These changes may be associated with mother-to-child transmission of HIV. For instance, using population projections, in 1999 an estimated 1.4 million babies were born, and, of those, about 100,000 had an HIV-infected mother, assuming that fertility among HIV-infected women is reduced by about 20%. If HIV transmission from mother to child was at the assumed rate of 25%, 25,000 babies were born in Tanzania with HIV infection in 1999, or just under 2% of all newborns.

Orphanhood estimates

The increases in adult mortality imply that many more children will be orphaned because of the AIDS epidemic. Figure 6.3 shows the percentage of children under 15 years whose mother or father has died. The TRCHS 1999 showed that the fathers of 6.4% and the mothers of 3.5% of children under 15 had died. Note that these figures include those who have lost one or both parents. Both parents of 1.1% of children had died, which is almost twice the double orphan rate in 1996. In a large survey in a rural area in 1994 in Mwanza, orphan rates were about the same as in the 1996 national survey: the fathers of 5.4%, the mothers of 2.9%, and both parents of 0.7% of children under 15 had died (Urassa et al., 1997a).

Population projections indicate that Tanzania had about 15 million children under the age of 15 in 1999. In that case, the TRCHS 1999 figures correspond with an estimated 165,000 double orphans, 960,000 children under 15 with no father and 525,000 maternal orphans. The TRCHS 1999 survey data show a somewhat smaller number of orphans. These figures include AIDS and non-AIDS orphans.

Figure 6.3
Orphanhood in Tanzania, 1996 and 1999



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APPENDIX A
DESCRIPTION OF THE NATIONAL SURVEYS IN TANZANIA

The 1989/90 Tanzania Knowledge, Attitudes, Beliefs and Practices (KABP) Survey was one of a series conducted in various developing countries from 1989-1990 by the World Health Organization's Global Programme on AIDS. The purpose of these surveys was to assess AIDS-related knowledge, attitudes beliefs and practices, including sexual behavior, when little was known about these factors among the general populations of developing countries. The KABP survey employed a two-stage sampling design to select a representative sample of women and men from all Tanzania, excluding Zanzibar. This survey was designed to produce estimates for urban and rural populations separately (Cleland and Ferry, 1995).

The 1991/1992 (Bureau of Statistics and Macro International, 1993) and 1996 (Bureau of Statistics, 1997) surveys were standard Demographic and Health Surveys (DHS). DHS surveys, carried out by Macro International and within-country statistical offices, have been conducted at regular intervals in many developing countries to assess fertility, and maternal and child health among national samples of women since the 1980s. Beginning in the late 1980s, men were interviewed, and AIDS modules were added to the survey, along with questions about sexual behavior. The 1994 (Bureau of Statistics and Macro International, 1995) and 1999 (Bureau of Statistics and Macro International, 2000) surveys were based on the DHS sampling frames and methods and were conducted by the same organizations, but the focus of these questionnaires was more particularly on reproductive health knowledge and sexual behavior than the standard DHS. A three-stage sampling design was used in these four surveys. Non-response rates among women varied from 2-5%, and among men from 7-15%.

Much of the information collected on AIDS knowledge and related behavior in all the surveys allowed for comparable indicators to be created and compared across time. The particular factors selected for the present study were limited to ones where the wording of questionnaires (in the case of knowledge and attitudes) or information available (in the case of sexual behavior) enabled identical indicators to be created. The only exception to this was the series of sexual behavior questions in the 1999 TRCHS. In this survey, a new, more comprehensive strategy was employed for asking about recent sexual activity with non-cohabiting partners that may have resulted in better reporting of such partners.

Socio-demographic description of the five national samples

The five samples are representative of individuals living in Tanzania who were of reproductive age (15-49 years old) at the time of the survey. Few of the socio-demographic characteristics of the population changed over the decade. Among both sexes over the ten-year period, about one-quarter of individuals resided in urban areas, with the remainder in rural areas. The three surveys that included Zanzibar had slightly lower proportions of rural residents in their samples, with about 3% of individuals residing in Zanzibar.

Table A.1 shows the age, education and marital status of women and men over time. Age and marital status remained fairly constant. The majority of women were between 20 and 29 years old (around 40%), with the fewest in the oldest age group. About two-thirds of women were in cohabiting unions, about 10% were divorced, widowed or separated, and the remainder had never been in a cohabiting union. The number of women with primary schooling increased slightly to

about two-thirds of the sample in the later 1990s, with correspondingly less women with no education. The number of those with secondary or higher education did not change over time.

There were more older men in the 1989/90 KABP sample as compared with the four later surveys. There were also less single men and more in cohabiting unions in 1989/90 than in other years. A similar upward trend in primary education was observed for men as for women, from 1994 through 1999, matched by a decrease in the proportion of individuals with no education. The percentage of men with secondary or higher education remained the same through the ten-year period.

Table A.1. Socio-demographic distribution of women in the surveys, Tanzania 1989-99.

	1989/90 KABP	1991/2 DHS	1994 DHS	1996 DHS	1999 DHS
Total sample	2,341	9,238	4,225	8,120	4,144
Age					
15-19	22	24	21	21	23
20-29	40	38	40	38	39
30-39	25	23	25	25	23
40-49	13	15	14	16	15
Education					
None	35	34	29	29	27
Primary	61	61	67	66	67
Secondary or more	4	5	4	5	5
Marital Status					
Single	20	24	22	23	23
In union (cohabiting)	72	65	69	67	66
Divorced/Widowed	8	10	9	10	11
Residence[1]					
Urban	24	24	25	22	27
Rural	76	73	75	75	71
Zanzibar		3		3	2

[1] The 1989 and 1994 surveys did not include Zanzibar.

Table A.2. Socio-demographic distribution of men in the surveys, Tanzania 1989-99.

	1989/90 KABP	1991/2 DHS	1994 DHS	1996 DHS	1999 DHS
Total sample	1,511	2,114	2,097	2,256	3,812
Age					
15-19	16	23	21	22	22
20-29	29	27	28	30	31
30-39	25	22	24	23	23
40-59	30	28	26	25	24
Education					
None	27	20	16	14	14
Primary	65	71	77	77	78
Secondary or more	8	9	7	9	7
Marital Status					
Single	28	39	35	38	36
In union (cohabiting)	67	56	60	57	58
Divorced/Widowed	5	5	5	5	5
Residence[1]					
Urban	24	25	25	23	26
Rural	76	72	75	74	72
Zanzibar		3		3	2

[1] The 1989 and 1994 surveys did not include Zanzibar.

APPENDIX B: HIV PREVALENCE IN ANTENATAL CLINICS

Table B.1. Prevalence of HIV Infection among Antenatal Women

REGION	LOCATION	TYPE	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Dar es Salaam	Temeke (Kasorobo)	urban						10.3		15.3		7.3				15.3
	Temeke (Kigamboni)	urban														14.1
	Sinza - Kinondoni	urban														18.1
	Muhimbili	urban	3.7		7.8	8.9	8.9	10.3	11.0	16.1	13.8	12.2				
	Magomeni	urban								15.2						
Iringa	Mafinga	roadside						21.0	25.0							20.9
Kagera	Bukoba	urban	16.0	22.8			22.2	20.0	27.7		17.3		13.7			7.0
Kilimanjaro	Umbwe	rural						2.3	6.4	15.8			9.1	10.0	20.0	19.2
Lindi	MCH Clinics	rural				0.4				8.7						
Mara	Nyasho	rural						9.0	7.0	8.0		7.2				
	Musoma	urban						5.9	6.5	7.7						
Mbeya	All sites	all							15.4	15.9	20.3	18.6	17.4	18.2	15.4	16.8
	All urban	urban			2.9	11.6	12.2	15.3	17.7	19.8		20.3	18.7			
	All rural	rural							11.1	12.1	20.4	14.2	14.5	15.6	12.3	13.7
	Isoko	rural			2.9	2.0	2.4	6.6	18.0	8.5	8.0	10.3	7.5	8.1	10.2	19.1
	Itete	rural			1.7	9.1	6.4	3.9	5.3	15.5	5.1	14.8	5.6	14.8	11.8	11.6
	Mwambani	rural				12.0	8.5	12.9	8.0	10.7	13.0	17.5	16.0	13.7	14.5	11.0
	Chimala	roadside			4.2	6.3	8.8	9.5	8.0	10.8	16.0	10.5	17.0	15.9	12.5	12.1
	Mbeye urban	urban							19.3	17.7	19.8	20.7	18.5	19.6	17.3	18.0
	Mwanjelwa	urban			11.0	7.3			11.0	23.2	19.6			36.0		
	Kiwanjampaka	urban		3.4	7.0	10.6			17.0	22.3	19.5		17.0	22.5	20.5	23.0
	Meta	urban			10.3	16.9			25.0	13.7	16.0		14.6	32.0	12.5	13.5
	Ruanda	urban											24.0	18.1	18.8	17.5
	Kyela	border				21.2	14.6	17.5	30.4	27.5	27.5	33.3	25.9	25.0	24.0	29.5
	Mbozi	rural			4.6						15.0	13.9	17.0			
Morogoro	Morogoro	urban														18.4
	Turiani DDH	rural														9.8
Mtwara	Nanguruwe	rural						4.4				0.0				

REGION	LOCATION	TYPE	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Mwanza	Mwanza	urban		6.0	8.0	12.0	12.3	11.2	10.3	12.3	11.7	8.9	8.7			
	Mkula	rural						3.7	4.6	5.4		5.4				
Rukwa	Namanyere	rural							11.3	8.3	19.0	11.2		11.2		
	Sumbawanga	urban							12.0	23.3	31.3	22.2		21.0		
Ruvuma	Songea	urban							9.7	16.1	15.7	14.2		11.0		
	Namtumbo	rural							3.5	6.7	3.2	5.6		4.0		
	Madaba	rural							6.6	12.9						
Shinyanga	Shinyanga	urban									10.9					
Zanzibar	Pemba	urban					0.3	0.0	0.6	0.8	0.3					
	Unguja/Pemba	urban		0.3	0.5	0.6	0.6	0.7	0.5	2.3						

Source:
National AIDS Control Program, Annual Reports

APPENDIX C: TRENDS IN KNOWLEDGE AND SEXUAL BEHAVIOR, NATIONAL AND BY URBAN-RURAL RESIDENCE

Table C.1. Trends in knowledge about AIDS among women and men, Tanzania 1989-99.

	1989/90 KABP	1991/2 DHS	1994 DHS	1996 DHS	1999 DHS
Has heard of AIDS					
Women	91	93	98	97	97
Men	94	98	99	99	99
Knows HIV can be avoided					
Women	n/a	n/a	64	62	82
Men	n/a	n/a	80	76	89
Knows HIV can be transmitted from mother to child[1]					
Women	78	77	77	75	81
Men	80	77	82	77	81
Knows infected person can appear healthy					
Women	28	57	67	68	69
Men	37	66	78	78	77
Knows that HIV cannot be transmitted by mosquitoes					
Women	35	61	70	50	54
Men	40	56	71	53	59
Knows HIV cannot be transmitted by sharing food or eating utensils					
Women	44	70	72	57	59
Men	48	69	73	61	64
Combined knowledge: knows previous three indicators					
Women	8	35	41	35	37
Men	14	34	46	38	42
Knows AIDS can be avoided by sticking to one partner					
Women	n/a	n/a	80	77	68
Men	n/a	n/a	83	82	79
Knows AIDS can be avoided by using a condom					
Women	n/a	n/a	59	62	66
Men	n/a	n/a	70	69	77
Knows both ways to avoid AIDS					
Women	n/a	n/a	54	56	56
Men	n/a	n/a	63	63	69
Feels that they are at risk for HIV transmission[1]					
Women	53	n/a	40	39	43
Men	50	n/a	37	34	46
Knows someone with HIV or who has died of AIDS[1]					
Women	n/a	n/a	49	48	65
Men	n/a	n/a	52	52	69

[1] Includes individuals who have heard of AIDS.

Table C.2. Proportion of women and men reporting knowledge and use of condoms

	1989/90 KABP	1991/2 DHS	1994 DHS	1996 DHS	1999 DHS
Aware of condoms					
Women	60	45	67	81	83
Men	70	65	79	92	90
Knows where to get condoms					
Women	45	45	45	46	53
Men	50	58	63	69	72
Thinks that condoms can be used more than once[1]					
Women	n/a	n/a	n/a	n/a	n/a
Men	n/a	57	30	21	n/a
Has ever used condoms[2]					
Women	5	4	7	12	13
Men	10	17	18	34	32
Used condoms during last sex with non-regular partner[3]					
Women	n/a	n/a	19	22	24
Men	n/a	n/a	34	39	35

[1] Includes individuals who have heard of condoms
[2] Includes sexually active individuals
[3] Includes those individuals who reported having at least one non-regular partner during the last year who have also heard of condoms. Non-regular partners were those with whom the individual had sex but who were not spouses or in cohabiting unions.

Table C.3 The proportions of men and women engaging in recent sexual behavior

	1991/2 DHS	1994 DHS	1996 DHS	1999 DHS
Sexual Abstinence				
No sex during the past month[1]				
Women	45	37	40	37
Men	28	35	37	32
No sex during the past year[1]				
Women	30	22	30	18
Men	15	14	25	15
Had premarital sex during past year[2]				
Women	31	28	29	41
Men	66	61	45	61
Multiple partnerships				
One or more non-regular partners in the past year[3]				
Women	n/a	6	4	25
Men	n/a	25	20	48
Two or more non-regular partners in the past year[3]				
Women	n/a	2	1.5	9
Men	n/a	13	11	27
Four or more non-regular partners in the past year[3]				
Men	n/a	3	3	6
Sex with person other than spouse in past year[4]				
Women	n/a	3	2	8
Men	n/a	18	13	28

[1] Includes all individuals
[2] Includes never-married individuals aged 15-24
[3] Includes sexually active individuals
[4] Includes individuals in a cohabiting union

Table C.4 Trends in knowledge about AIDS among women and men by residence, Tanzania 1989-99.

	1989/90 KABP		1991/2 DHS			1994 DHS		1996 DHS			1999 DHS		
	Urban	Rural	Urban	Rural	Zanzibar	Urban	Rural	Urban	Rural	Zanzibar	Urban	Rural	Zanzibar
Has heard of AIDS													
Women	100	93	98	91	99	100	97	99	96	100	100	96	99
Men	100	96	100	97	97	100	98	100	99	100	100	99	99
Knows HIV can be avoided													
Women	n/a	n/a	n/a	n/a	n/a	78	59	77	58	60	92	78	87
Men	n/a	n/a	n/a	n/a	n/a	90	77	86	73	79	94	87	92
Knows HIV can be transmitted from mother to child[1]													
Women	85	75	88	73	84	87	74	84	72	85	90	77	89
Men	87	78	79	76	77	87	79	84	75	76	88	79	90
Knows infected person can appear healthy													
Women	42	24	72	52	57	85	61	85	64	57	86	63	75
Men	50	33	76	62	77	89	74	90	74	89	91	72	82
Knows that HIV cannot be transmitted by mosquitoes													
Women	43	32	66	59	69	78	67	62	47	60	71	47	67
Men	49	37	73	50	43	74	70	64	50	53	71	54	67
Knows that HIV cannot be transmitted by sharing food or eating utensils													
Women	58	39	79	66	83	82	69	70	53	64	73	53	62
Men	63	43	84	63	68	79	72	70	58	53	74	61	64
Combined knowledge: knows previous three indicators													
Women	17	6	46	32	43	59	35	50	30	37	54	30	44
Men	25	11	51	29	29	56	43	53	34	39	57	36	45
Knows HIV can be avoided by sticking to one partner													
Women	n/a	n/a	n/a	n/a	n/a	87	78	87	74	72	77	64	79
Men	n/a	n/a	n/a	n/a	n/a	88	81	89	79	90	84	76	83
Knows HIV can be avoided by using a condom													
Women	n/a	n/a	n/a	n/a	n/a	72	55	80	58	54	80	60	59
Men	n/a	n/a	n/a	n/a	n/a	80	67	80	67	33	86	74	67

	1989/90 KABP		1991/2 DHS			1994 DHS		1996 DHS			1999 DHS		
	Urban	Rural	Urban	Rural	Zanzibar	Urban	Rural	Urban	Rural	Zanzibar	Urban	Rural	Zanzibar
Knows both ways to avoid AIDS													
Women	n/a	n/a	n/a	n/a	n/a	68	50	73	51	48	69	51	56
Men	n/a	n/a	n/a	n/a	n/a	74	60	75	60	32	78	66	62
Feels that they are at risk for HIV transmission[1]													
Women	63	50	n/a	n/a	n/a	50	37	42	38	20	49	42	33
Men	59	47	n/a	n/a	n/a	39	37	40	33	20	50	45	36
Knows someone with HIV or who has died of AIDS[1]													
Women	n/a	n/a	n/a	n/a	n/a	65	44	59	46	36	73	62	43
Men	n/a	n/a	n/a	n/a	n/a	63	49	61	50	24	72	69	48

[1] Includes individuals who have heard of AIDS.

Table C.5. Proportion of women and men reporting knowledge and use of condoms by residence, Tanzania 1989-99

	1989/90 KABP		1991/2 DHS			1994 DHS		1996 DHS			1999 DHS		
	Urban	Rural	Urban	Rural	Zanzibar	Urban	Rural	Urban	Rural	Zanzibar	Urban	Rural	Zanzibar
Aware of condoms													
Women	81	53	71	45	51	86	60	95	77	80	94	79	81
Men	86	65	75	62	53	92	75	98	90	80	96	88	92
Knows where to get condoms													
Women	52	41	64	39	49	70	37	67	40	37	75	45	41
Men	61	46	70	54	50	81	57	85	64	66	89	67	48
Thinks that condoms can be used more than once[1]													
Women	n/a	n/a	n/a	n/a	n/a	31	54	35	54	70	n/a	n/a	n/a
Men	n/a	n/a	49	61	45	19	34	19	36	42	n/a	n/a	n/a
Has ever used condoms[2]													
Women	12	2	10	2	2	13	4	25	9	6	22	9	5
Men	21	7	26	14	8	26	15	49	30	8	45	27	18
Used condoms during last sex with non-regular partner[3]													
Women	n/a	n/a	n/a	n/a	n/a	29	15	37	13	17	34	17	9
Men	n/a	n/a	n/a	n/a	n/a	45	31	52	34	0	56	28	32

[1] Includes individuals who have heard of condoms
[2] Includes sexually active individuals
[3] Includes those individuals who reported having at least one non-regular partner during the last year. Non-regular partners were those with whom the individual had sex but who were not spouses or in cohabiting unions.

Table C.6 The proportions of men and women engaging in recent sexual behavior

	1991/2 DHS			1994 DHS		1996 DHS			1999 DHS		
	Urban	Rural	Zanzibar	Urban	Rural	Urban	Rural	Zanzibar	Urban	Rural	Zanzibar
Sexual Abstinence											
No sex during the past month											
Women	47	46	43	38	38	43	47	52	41	43	56
Men	31	30	54	34	37	41	39	56	41	36	54
No sex during the past year											
Women	29	32	28	21	23	27	31	33	18	21	35
Men	12	16	33	13	14	24	25	43	15	17	37
Had premarital sex during past year											
Women	39	29	2	36	24	39	25	1.6	49	35	3
Men	72	64	9	66	58	53	42	11	66	56	15
Multiple partnerships											
One or more non-regular partners in the past year											
Women	n/a	n/a	n/a	8	6	6	3	1.2	38	20	7
Men	n/a	n/a	n/a	30	25	25	19	12	50	48	21
Two or more non-regular partners in the past year											
Women	n/a	n/a	n/a	2.6	1.9	1.9	1.4	0	14	7	2
Men	n/a	n/a	n/a	13	13	13	11	2	27	28	10
Four or more non-regular partners in the past year											
Men	n/a	n/a	n/a	3	2	3.2	3.6	0	5	6	2
Sex with person other than spouse in past year											
Women	n/a	n/a	n/a	4	3	3.8	1.9	1.2	12	7	3
Men	n/a	n/a	n/a	18	18	13	13	6	24	29	10