Sexual Behavior, HIV, and Fertility Trends: A Comparative Analysis of Six Countries

Phase I of the ABC Study

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Acknowledgements

Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ASFR	Age Specific Fertility Rate
BUCEN	Bureau of Census
CBoH	Central Board of Health
CPR	Contraceptive Prevalence Rate
DHS	Demographic and Health Survey
GPA	Global Programme on AIDS
HIV	Human Immunodeficiency Virus
MoH	Ministry of Health
NASCOP	National AIDS and STD Control Programme
NGO	Nongovernmental Organization
PSI	Population Services International
SBS	Sexual Behavior Survey
STD	Sexually Transmitted Disease
TFR	Total Fertility Rate
UN	United Nations
UNAIDS	United Nations Joint Programme on HIV/AIDS
USAID	United States Agency for International Development
WHO	World Health Organization
WTFR	Wanted Total Fertility Rate

Executive Summary

The USAID-supported ABC Study examines how prevention behaviors may have affected HIV prevalence as well as fertility patterns in three countries where HIV prevalence declined during the 1990s (Uganda, Zambia, and Thailand) and in three countries where it appears not to have declined (Cameroon, Kenya, and Zimbabwe). This Phase I Report compares levels and trends of behavioral indicators such as abstinence, age of sexual debut among youth, faithfulness in sexual relationships/reduction in multiple sexual partners, and condom use (especially with non-regular partners). These types of behaviors are often referred to collectively as the "ABCs" (for Abstinence, Being faithful, and Condom use) of HIV prevention.

The ABC Study considers such behaviors within the context of HIV prevalence trends in the six countries during the 1990s. Among the declining prevalence countries, the most dramatic reduction occurred in Uganda, where prevalence among pregnant women in the capital city of Kampala, for example, fell from about 30% in 1992 to approximately 10% by the end of the decade. And while prevalence levels had generally been lower in other regions of the country, similarly large declines occurred (although in 2001, national prevalence may have increased slightly for the first time in a decade). Thailand also experienced a significant decrease in HIV prevalence, especially in high-risk groups, among whom the epidemic was concentrated (as opposed to sub-Saharan Africa's typically more generalized epidemics). In addition, there are suggestions of a substantial decrease in prevalence among urban youth in Zambia during the 1990s. Cameroon, Kenya, and Zimbabwe all experienced large increases of HIV prevalence in the 1990s, although prevalence varied considerably among them, ranging from almost 10% in the western African country of Cameroon to about 15% in Kenya (where the epidemic may have recently begun to stabilize), to more than 30% in the southern African nation of Zimbabwe.

The report relies primarily on nationally representative survey data, mainly from Demographic and Health Surveys (DHS). Phase II of the ABC Study will explore the various contextual, sociocultural, and programmatic factors that appear to be associated with the behavioral trends described in this report. The final ABC Study report is due to be issued by late 2004.

The Phase I Report includes the following findings and conclusions:

- In the two sub-Saharan African countries that experienced declines in HIV prevalence during the 1990s (Uganda and Zambia), increases in all of the ABC behaviors (abstinence/delay of sexual debut, being faithful/partner reduction, and condom use with non-regular partners) occurred. In Thailand, there were substantial reductions in commercial and other non-marital partnerships, as well as large increases in condom use for commercial sex. The same multifaceted behavior change is not evident in the three countries that did not experience declines in HIV prevalence, where condom use increased, but there was little reported change in abstinence or partner reduction behaviors.

- In Uganda, the country with the earliest and greatest reduction in HIV prevalence, declines in non-regular and multiple sexual partnerships were greatest between the late 1980s — when the rate of new infections (HIV incidence) likely began to drop — and the mid-1990s. Levels of premarital sex also declined during this period, along with an increase in the average age at sexual debut throughout the decade. Increases in condom use with non-regular partners occurred throughout the 1990s, although levels of condom use were not substantial until the middle of the decade.

- While the trends in sexual behavior within these countries are consistent with trends in HIV prevalence, the differences in patterns of sexual behavior across the five African countries are not sufficient to fully explain differences in HIV prevalence. Other factors such as male circumcision (which is a norm in Cameroon, but nearly absent in Zimbabwe) must also be considered.

- While fertility declined in all five sub-Saharan African countries between the late 1980s and the late 1990s, the more modest reductions in Uganda and Zambia suggest that the increases in age of sexual debut and declines in non-regular partnerships that occurred there may have had little impact on fertility.

Sexual Behaviors: Trends and Levels

The report includes the following observations on specific behavioral trends and levels:

- **Age of sexual debut:** In Uganda, the median age of sexual debut among both young men and women increased by about one year over the course of the decade. Young women and men in Zambia, especially in urban areas, also postponed sexual debut. The percentage of 15- to 19-year-old urban women reporting ever having sex dropped from 56% to 40% between the early and late 1990s. For urban males, an even sharper decline from 67% to 34% took place between the middle and end of the decade. By contrast, the trend data for young men and women in Zimbabwe and women in Cameroon or Kenya (which lack trend data for men) show little evidence of postponed sexual debut.

- **Premarital sex:** In Uganda, a large decline in sexual activity among unmarried 15- to 24-year-old females (from 35% to 22%) and males occurred during the first half of the decade (although there was an increase among young women to 27% during the second half of the decade). Data from Zambia indicate a decline (from 39% to 26%) throughout the decade in the percentage of unmarried young women reporting sex in the previous year. The percentage of unmarried young men in Zambia reporting sex in the previous year dropped sharply from 63% to 24% in the latter half of the decade.

  In Kenya there was also a decline in sexual activity among unmarried men aged 20–24, but the percentage reporting activity (56%) remained high. At the end of the decade, Cameroon had the highest rates of sexual activity reported by both young unmarried men (58%) and women (52%).

- **Non-regular partnerships:** Large declines in non-regular (non-marital and non-cohabiting) partnerships among men and women occurred in the early 1990s in Uganda and in the late 1990s in Zambia. Sub-national Global Programme on AIDS (GPA) survey data from Uganda in the mid-1990s indicate that many fewer men and women reported casual partners than in the late 1980s (15% of men, down from 35%, and 6% of women, down from 16%). The declines in Zambia occurred among adolescents and adults in both urban and rural settings. By the late 1990s, only 29% of Zambian men reported a non-regular partner, compared with 53% in the mid-1990s. Data from Thailand in the early 1990s also indicated there were large declines in the percentage of men reporting non-marital and commercial sex partners (from 21% to 10% for the latter between 1990 and 1993).

  Kenya saw only a small decline in non-regular partnerships among men and virtually no decline among women. Trend data on non-regular partnerships are lacking for Cameroon and Zimbabwe. Among the six countries, however, these two countries had the highest reported rates of such partnerships at the end of the decade — about 60% of men in Cameroon and 40% of men in Zimbabwe reported a non-regular partner in the previous year, compared to 35% in Kenya and less than 30% in Uganda and Zambia.

- **Singles with multiple sexual partners:** In Uganda, a large decline — from 54% to 33% (GPA data) — occurred among single men reporting two or more partners in the previous year between

the late 1980s and mid-1990s. Between the mid- and late 1990s in Zambia, the percentages of singles reporting multiple sexual partners in the past year declined from 54% to 30% for men and also fell substantially among women (from 17% to 8%).

Kenya may also have had a small decline in multiple partnerships among singles, but multiple partnerships remained high (52%) among Kenyan men late in the 1990s. At the end of the decade, levels of multiple partnerships among singles were highest in Cameroon. This was true for both single men (68%, compared with roughly 30% for single men in Uganda, Zambia, and Zimbabwe) and single women (30%, compared with 18% for Kenya, 11% for Zimbabwe, 8% for Zambia, and 6% for Uganda).

- **Higher-level multiple partnering among men:** Regarding the important "core transmitter" group of men reporting three or more non-regular partners in the previous year, there was a very large decline in Uganda (in the GPA surveys, from 15% in 1989 to 3% in 1995). This figure remained low (2%) at the end of the decade, in striking comparison with Cameroon (26%). Zambia also experienced a large decline from the mid-1990s (from 31% to 12%), while there was little change in Kenya. No trend data are available for Cameroon and Zimbabwe, although the former had the highest percentage of men reporting three or more partners at the end of the decade. Zimbabwe, where factors such as lack of circumcision and "dry sex" practices may contribute to HIV transmission, appears to be an anomalous case, with low levels of men (2%) reporting three or more partners. It should be noted, however, that some surveys have found higher levels of multiple partnership in Zimbabwe.

- **Condom use with non-regular partners:** Uganda, Zambia, and Zimbabwe saw substantial increases in reported condom use with non-regular partners in the late 1990s. At the end of the decade, condom use at last sex with a non-regular partner was highest for women and men in Zimbabwe (43% and 70%, respectively), followed by Uganda (38% and 59%). In Thailand, condom use with commercial sex workers also increased significantly among men paying for sex (from 36% to 71% between 1990 and 1993).

Fertility-Related Findings

The report also notes that fertility declined in all five sub-Saharan African countries between the late 1980s and late 1990s, with steep declines occurring in Kenya, Zimbabwe, and Cameroon. The more modest reductions in Uganda and Zambia indicate that the increases in age of sexual debut and declines in non-regular partnerships that occurred may have had little impact on fertility. While condom use with non-regular partners increased in all countries, it remains very low (less than 4% in all countries) among regular (marital or cohabiting) partners. The impact of condom use on fertility was thus likely to be minimal. At the end of the 1990s, use of modern contraceptives was highest in Zimbabwe and Kenya (58% and 32%, respectively), moderate in Zambia and Uganda (23% and 18%), and low in Cameroon (7%). The greatest increase in contraceptive use during the 1990s occurred in Uganda (up from 3% in 1989), though it remained low among 15- to 24-year-old women.

Chapter 1: Introduction

1.1 *Overview*

This report has been prepared as part of the ABC Study, a study jointly supported by the Offices of HIV/AIDS and Population/Reproductive Health at USAID in Washington, D.C. The main objective of the study is to determine how and to what extent prevention behaviors may have affected HIV prevalence and fertility in three countries where HIV prevalence declined during the 1990s (Uganda, Zambia, and Thailand) and in three countries where there is little evidence of much of a decline (Cameroon, Kenya, and Zimbabwe). The study is a joint effort between Harvard School of Public Health, U.S. Bureau of the Census (BUCEN), MEASURE *Evaluation*, ETR Associates, and PSI/AIDSMark.

The criteria for selection of the study countries was based upon the need to examine a manageable number of countries (maximum six), half of which actually had some evidence of a decrease in HIV prevalence (as opposed to stabilization of prevalence, which would have entailed considering a very large number of potential candidates), in comparison with three other countries that had not experienced such prevalence decline. The former were easily identified, as only a small handful of developing countries have recorded an actual decrease in prevalence. The most widely acknowledged cases are Uganda and Thailand, and while in Zambia there has been only a relatively very small decline in national prevalence, a substantial decline appears to have occurred among urban youth during the 1990s.

The three other African countries were selected due to a combination of factors, mainly in order to include representativeness from each larger region of sub-Saharan Africa (one relatively high-prevalence country from western, eastern, and southern Africa) as well as countries for which reasonably adequate seroprevalence and DHS behavioral data were available. Although "ABC" has typically been more of a programmatic emphasis in some high prevalence, generalized African epidemics, it was decided to also include the southeast Asian country of Thailand, in part for variety (regarding the different epidemiological and contextual factors involved in a more concentrated, low-prevalence epidemic).

Figure 1.1 Median HIV prevalence in Uganda based on antenatal surveillance sites*
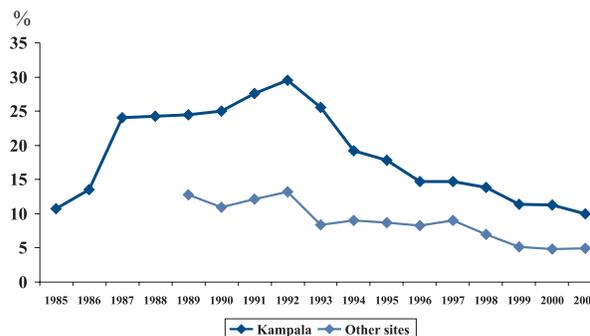
* Data have been interpolated for one-year gaps in site data

However, most of the ABC Study's data analysis focuses on behavioral and other comparisons across the five African countries.

Under Phase I of the ABC Study, MEASURE *Evaluation* was tasked with conducting a multi-country analysis of HIV-related sexual behaviors and associated fertility patterns using DHS and other national-level survey data. BUCEN provided data on trends in HIV prevalence in these same countries. It is thus the objective of this report to present levels and trends in sexual behavior and fertility-related behavior in the context of the HIV epidemic in these six countries. The report draws on secondary analyses of nationally representative survey data for five of the countries, while for the sixth, Thailand, available indicators are drawn from the published literature. Where national-level data are lacking, the results are supplemented with findings from published research studies.

The strength of this analysis is that it draws upon nationally representative survey data that were collected using a standardized methodology and using similar sampling designs. Since this is strictly a descriptive study, however, a causal association between trends or levels of sexual behavior and HIV prevalence within or across countries cannot be directly inferred. This study examines a number of indicators over time and across several countries, and most indicators are disaggregated by the background characteristics of the respondents. As a result, the potential number of two-way comparisons is great and would have made significance testing cumbersome. In addition, results

Figure 1.2 HIV Seroprevalence among 15- to 19-year-old antenatal women in Uganda: 1990–2001

%

40
35
30
25
20
15
10
5
0

Rubaga Hospital | Nsambya | Jinja | Fort Portal | Mbarara | Gulu | Mbale

■ 1990 ■ 1991 ■ 1992 ■ 1993 ■ 1994 ⊞ 1995 ☐ 1996 ⊞ 1997 ▦ 1998 ◪ 1999 ◪ 2000 ▤ 2001
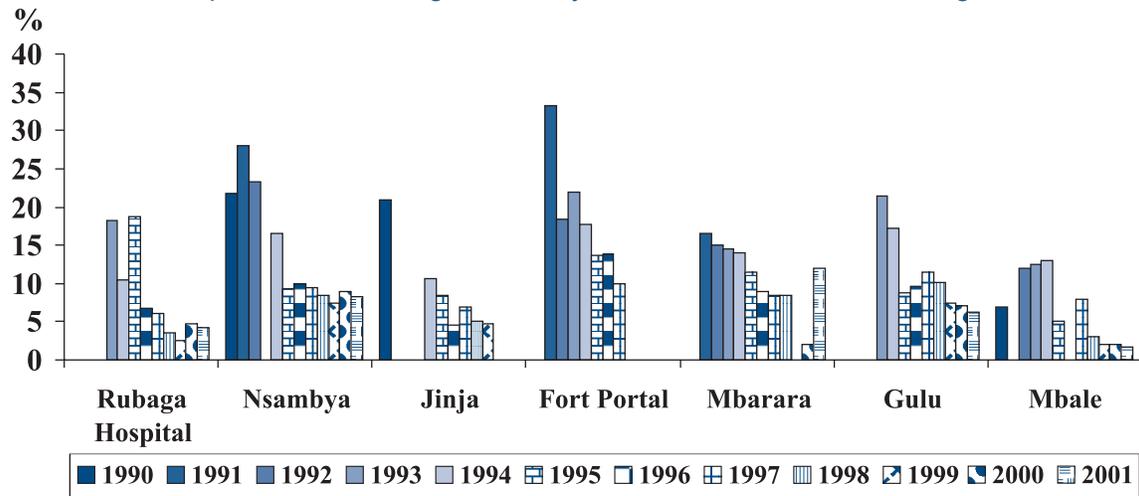
Figure 1.3 HIV Seroprevalence among 20- to 24-year-old antenatal women in Uganda: 1990–2001

%

40
35
30
25
20
15
10
5
0

Rubaga | Nsambya | Jinja | Fort Portal | Mbarara | Gulu | Mbale

■ 1990 ■ 1991 ■ 1992 ■ 1993 ■ 1994 ⊞ 1995 ☐ 1996 ⊞ 1997 ▦ 1998 ◪ 1999 ◪ 2000 ▤ 2001
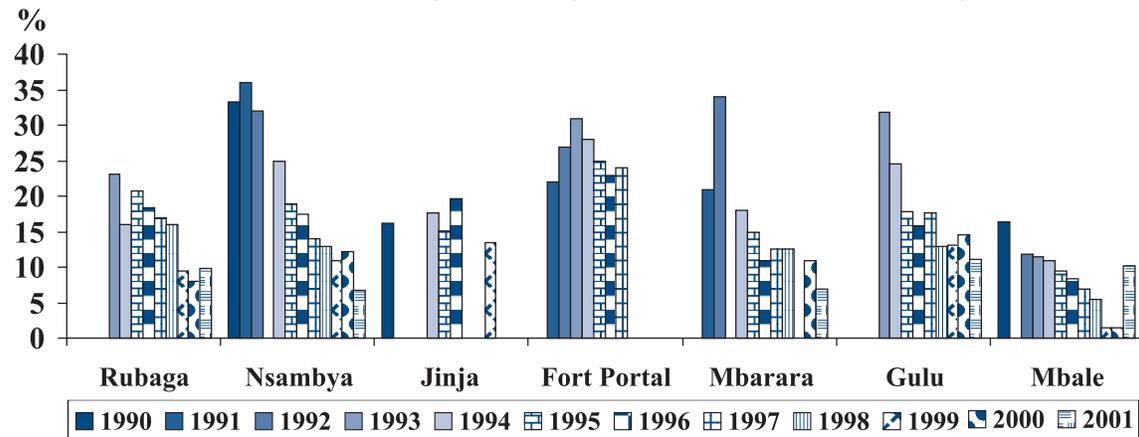
of significance testing would have to be interpreted in light of the large variation in sample size for the different indicators, thus adding to the complexity of the report. For this reason, statistical testing is not included. When studies referenced in this report have included statistical testing (as in the case of analysis of median age at sexual debut), statistical significance has been noted in the text.

Phase II of the study, conducted by investigators and field interviewers from various other research institutions, will explore the specific contextual, sociocultural, and programmatic factors that appear to be associated with the trends in sexual behavior described in this report.

1.2 *The Spread of HIV*

While a comprehensive overview of HIV-prevalence trends for each of the study countries is beyond the scope of this report, a brief overview is presented here in order to put the results into context.

Six-Country Summary

Uganda, Zambia, and Thailand saw some declines in HIV prevalence and likely incidence (the rate of new infections) during the previous decade. Of the two sub-Saharan African countries, both with generalized epidemics, the earliest and greatest declines occurred in Uganda. More recent and modest declines appear to have occurred in Zambia, with declines there most evident among youth in urban areas. In Thailand, where the epidemic has been concentrated in high-risk populations, surveillance data point to substantial declines in HIV

Figure 1.4 HIV Seroprevalence for antenatal women by age in Chelstone, Zambia: 1993–1998

%

Legend: ■ 1993 ■ 1994 ■ 1996 ■ 1998

Values by age group:
- 15-19: 28.6, 21.7, 17.1, 15.1
- 20-24: 24, 27.2, 26, 28.4
- 25-29: 30.3, 27.8, 40.8, 31.9
- 30-39: 26.4, 20, 18, 29.4
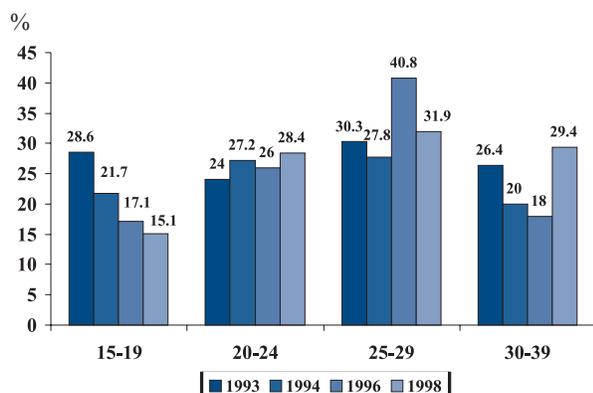
Figure 1.5 HIV Seroprevalence for antenatal women by age in Macha, Zambia: 1993–1998

%

Legend: ■ 1993 ■ 1994 ■ 1998

Values by age group:
- 15-19: 10.1, 6.2, 5.2
- 20-24: 10.1, 9, 8.7
- 25-29: 9.7, 9.7, 9.8
- 30-39: 13.5, 12.9, 10.2
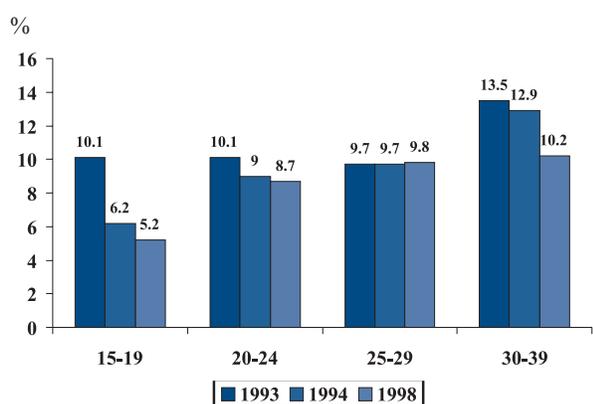
Figure 1.6 HIV Seroprevalence for women by age in Lusaka, Zambia: 1993–1998

%

Legend: ■ 1993 ■ 1994 ■ 1998

Values by age group:
- 15-19: 28, 23, 15
- 20-24: 24, 30, 28.5
- 25-29: 26, 30, 32
- 30-39: 23, 25.5, 31
- ALL: 25, 28, 27.5
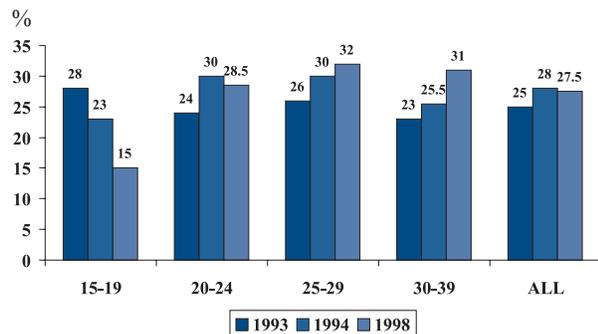
prevalence (and in all likelihood incidence) in military recruits, commercial sex workers and their clients, and STD clinic attendees, although rates among intravenous drug users have remained high. Of the remaining three countries in this report (Cameroon, Kenya, and Zimbabwe), all experienced increases in HIV prevalence during the 1990s, though the magnitude of the epidemic varied by country. The most recent surveillance data suggest, however, that the epidemic may be stabilizing in Kenya and perhaps Zimbabwe, whereas Cameroon has experienced a large increase in prevalence in recent years.

Uganda

Uganda was one of the first countries in sub-Saharan Africa to experience the epidemic spread of HIV. The first AIDS cases were identified in Uganda in 1982 in the Rakai district on the shores of Lake Victoria (Serwadda, 1985). The number of HIV infections increased rapidly throughout the country, and by 1988 Uganda had one of the highest rates of HIV infection in Africa. By 1990, HIV prevalence in major urban areas was as high as 31% among pregnant women attending antenatal services at sentinel sites (hereafter referred to as antenatal women). After a decade of increasing numbers of new cases, the spread of the epidemic began to wane in the early 1990s. Since 1993, there is evidence of a consistent decline in HIV prevalence in antenatal women (Figure 1.1). As seen in Figures 1.2 and 1.3, these declines occurred most dramatically among antenatal women aged 15–19 and 20–24 years indicating that the number of new infections was also likely on the decline (MoH, 2001). Data from a population-based cohort study also found that declines in HIV prevalence occurred among young women aged 13–19 and 20–24 years and among men aged 20–24 and 25–29 during the 1990s (Kamali 2000). More importantly, a more recent analysis that includes data through 1999 shows a significant reduction in HIV incidence in this study population with a decline from 8.0 per 1000 person-years in 1990 to 5.2 per 1000 in 1999 (Mbulaiteye, 2002). There is some indication, however, that HIV incidence was much higher in the 1980s and that declines in HIV prevalence in the 1990s largely reflect declines in HIV incidence that occurred during the late 1980s (Low-Beer, 2002). Evidence from sentinel surveillance of younger antenatal

women and the population-based cohort indicates that incidence is likely to have continued to decline, though at a much slower rate, through perhaps 1997. The most recent prevalence data for young antenatal women suggests, however, that the rate of new infections may perhaps be increasing somewhat for the first time in a decade. Among all antenatal women, national prevalence increased from 6.1% in 2000 to 6.5% in 2001 (MoH 2001).

Zambia

In Zambia, AIDS was first detected during the mid-1980s. Although initially concentrated in urban areas, it quickly spread to semi-urban and rural areas (Fylkesnes, 2001). In 1998, prevalence among 15- to 49-year-olds in Zambia was estimated at 20% (MoH and CBoH, 1999). An examination of data from antenatal women attending HIV sentinel surveillance sites between 1990 and 1998 shows a relative stability of HIV prevalence among women living outside major urban areas, while there was evidently a decline in HIV prevalence among urban residents between 1994 and 1998. Among 15- to 19-year-olds, the overall picture between 1994 and 1998 appears to be that of a general decline in HIV prevalence (see Figures 1.4–1.6). A population-based survey also showed a decline in prevalence between 1996 and 1999 for men and women in most age groups but with a significant decline only among young women (aged 15–29 in urban areas, 15–24 in rural areas) with the sharpest declines occurring among women in urban areas (Fylkesnes, 2001). A nationally representative serosurvey in 2001–2002 found HIV prevalence was 15.6% among adults of reproductive age (CSO et al., 2003).

Thailand

In Thailand the epidemic began relatively slowly in the mid-1980s, and AIDS cases were detected primarily among men who had sex with men. This is different from the epidemic in sub-Saharan Africa, where the disease is primarily spread through heterosexual sex. By the late 1980s, HIV infection rates among injected-drug users began to rise rapidly, and high levels of HIV infection were found among brothel-based female sex workers and among men seeking services at STD clinics. In addition, in many areas of the country, HIV infection was increasingly

Figure 1.7 HIV Seroprevalence for antenatal women by region, Thailand: 1990–2001
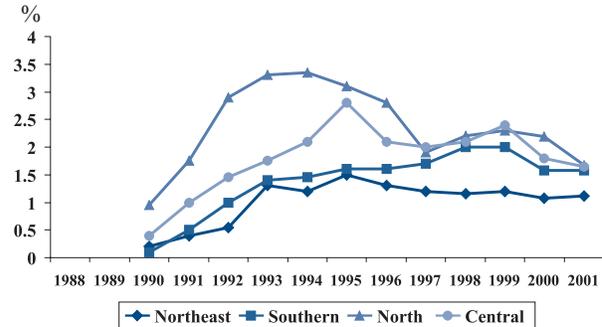
Figure 1.8 HIV Seroprevalence for military conscripts, Thailand: 1989–2001
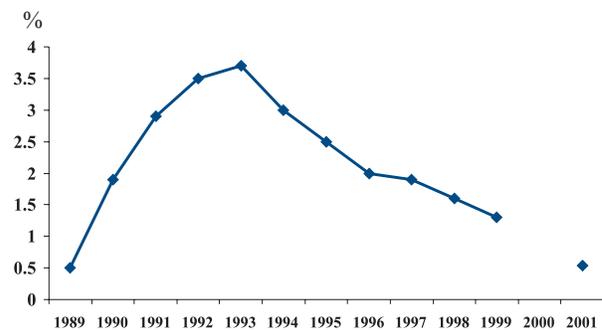
Figure 1.9 HIV Seroprevalence for antenatal women 15–24 in Yaounde, Cameroon: 1992 and 1998

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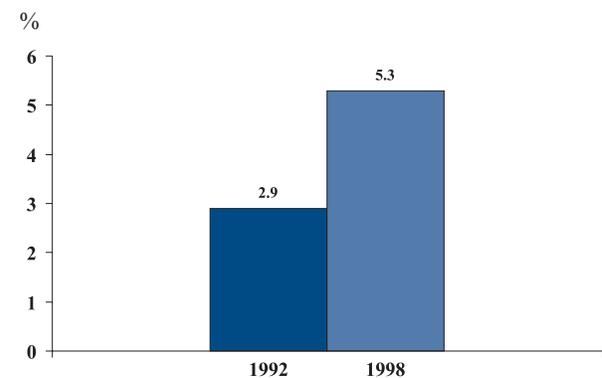
Figure 1.10 HIV Seroprevalence for antenatal women by age in Nairobi, Kenya: 1991–1997

%

Legend: ■ 1991-1992 ■ 1992-1993 ■ 1993-1994 □ 1994-1996 □ 1996-1997

Data values by age group:
- <20: 9.9, 18.1, 16, 11.9, 12.5
- 20-24: 11.9, 17.2, 13.9, 17.7, 16.2
- 25-29: 15.4, 14.4, 16.4, 14.6, 18.9
- 30+: 7.8, 11.8, 12.7, 17, 15.5
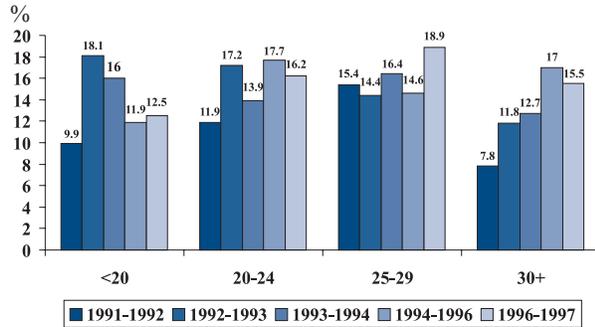
Figure 1.11 HIV Seroprevalence for antenatal women in Harare, Zimbabwe: 1990–2000

%

Data values: 1990: 17.9, 1995: 32, 1996: 30.4, 1997: 28, 1999: 31.1, 2000: 30
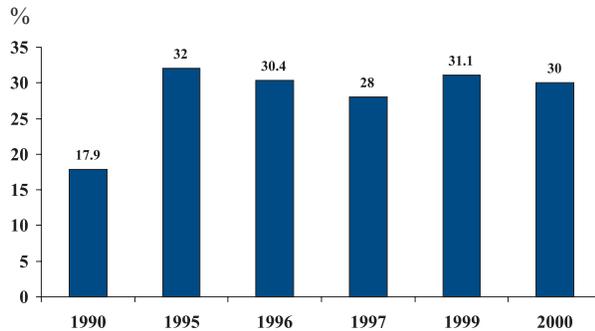
Figure 1.12 HIV Seroprevalence for antenatal women in Zimbabwe: 2000–2001

%

Legend: ■ 2000 ■ 2001

Data values by age group:
- 15-19: 27.8, 19.5
- 20-24: 35.1, 28.9
- 25-29: 40.1, 36.5
- 30-34: 43.5, 39.9
- 35-39: 31.2, 31
- 40-44: 15.6, 23.4
- ALL: 34.9, 29.5
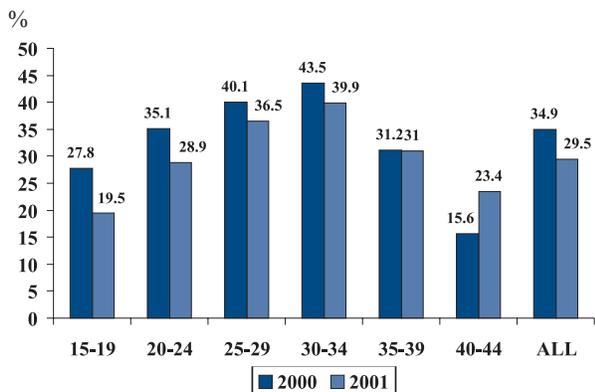
found among women seeking antenatal care (UNAIDS, 1998a). Figure 1.7 shows the rise in HIV prevalence in antenatal women during the early 1990s with a leveling off in the late 1990s at about 2%. Sentinel surveillance of key high-risk groups shows a decline in HIV infection among military conscripts starting around 1993, a proxy group for young men in the general population (Figure 1.8). In addition, HIV prevalence declined among female sex workers and male STD clinic patients between the mid- and late 1990s, though rates among intravenous drug users continued to remain high (30–40%) (UNAIDS, 2002b).

Cameroon

Cameroon experienced steady increases in HIV prevalence beginning in the early 1990s. Although the level of HIV infection remained lower than in many countries in eastern and southern Africa, it now has one of the highest rates in West Africa. Median HIV infection among antenatal women in Cameroon's two main cities (Yaoundé and Douala) rose from 1% in 1990 to 5% in 1996 and then up to 9% in 2000. Among antenatal women aged 15–24 years in Yaoundé, HIV prevalence increased from less than 3% in 1992 to more than 5% in 1998 (Figure 1.9).

Kenya

Kenya, though somewhat less affected than Zimbabwe and Zambia, has seen HIV prevalence among pregnant women steadily increase from about 5% in 1993 to 13% in 1999 (NASCOP, 1999). While data from sentinel sites across the country show increases in HIV prevalence during the 1990s, HIV prevalence in antenatal women less than 20 years of age in Nairobi may have declined somewhat between 1992 and 1997 (Figure 1.10). Similar trends are not seen, however, among women aged 20–24 years. Preliminary data for 2001 recently released by the MoH indicate that HIV prevalence among antenatal women in Nairobi declined from 16.5% in 2000 to 14.4% in 2001 (with even greater declines in younger women), perhaps an indication that the epidemic was stabilizing.

5

Zimbabwe

Finally, Zimbabwe has been extremely hard hit by the epidemic. The first cases of AIDS were identified in 1985, and by 1990 median HIV prevalence at sentinel antenatal clinic sites was estimated to be 19% in urban areas and 12% in rural areas. Since this time, HIV prevalence has continued to increase, and by 2000 HIV prevalence among antenatal women across all sentinel sites was estimated to be 36% compared to 27% in 1997 (BUCEN, 2000). Data from sentinel sites in Harare indicate that seroprevalence among ANC women in the capital city peaked in the mid-1990s and then stabilized through 2000 (Figure 1.11). Recent data from the surveillance system for 2001 indicate that there may be a decline beginning in HIV prevalence among young antenatal women (Figure 1.12).

1.3 *Study Objectives*

In generalized epidemics, such as those in much of sub-Saharan Africa, HIV prevention programs among the general population have promoted delaying the onset of sexual debut among youth, mutual monogamy, and condom use. However, the "mix" or emphasis of prevention messages has varied from country to country.

In countries where the epidemic has been concentrated among high-risk populations (such as commercial sex workers), behavior-change approaches have usually been more targeted to these groups. Just as the levels and trends of the epidemic in the six countries included in this report have varied, so have the programmatic responses. As such, the behavioral response to HIV prevention efforts on a wide scale is likely to be mixed, as are the resulting effects on HIV incidence. In addition to changes that may be in response to HIV prevention programs, changes in sexual behavior may also occur as a direct response to HIV infection

and resulting mortality. People may change their behavior due to fear of infection and death even in the absence of any formal HIV prevention program. This phase of the study aims to assess whether trends in sexual behavior are consistent with trends in HIV prevalence (and incidence where possible) in these six countries. Phase II will explore the broad programmatic, societal, and other contextual factors potentially associated with sexual behavior trends in these same six countries.

In addition, changes in fertility may result from changes in sexual behavior in response to the epidemic, as well as to the impact of the epidemic on fecundity, mortality, and orphanhood. The relationship between AIDS and fertility is complex, and AIDS may have both depressing and increasing effects on fertility rates (Gregson, 1994; Ntozi, 2001; Gregson, Zaba, et al., 2002; United Nations (UN), 2002). HIV/AIDS and the adoption of HIV prevention behaviors can affect fertility patterns, and fertility can affect the risk of HIV infection. Many of the proximate determinants of fertility and HIV infection are similar, such as sexual exposure within or outside marriage, contraceptive use, breastfeeding, and pathological sterility from sexually transmitted infections (Bongaarts, 1978). In addition, changes in socio-economic, cultural, and other contextual factors (i.e., political stability and population policy) are also major determinants of reproductive behavior as well as HIV infection. It is, therefore, very difficult to discern the effects of AIDS on fertility among the many competing factors. While a comprehensive overview of fertility and fertility-related behaviors in the context of the epidemic is warranted, it is beyond the scope of this report. Therefore, with regard to fertility, this report aims to look specifically at whether changes in sexual behavior are consistent with changes in fertility-related behaviors and outcomes.

Chapter 2: Data and Methods

2.1 *Nationally Representative Data Sources*

While the analysis draws primarily on data from the DHS, other national-level population-based surveys are included when the survey samples and indicators are thought to be comparable. Because of differences in the content and scope of the different surveys, and because the introduction of detailed sexual behavior questions in the DHS did not occur until the mid-1990s, trend data for many indicators are available for the second half of the 1990s only.

Table 2.1 lists the nationally representative surveys included in the secondary data analysis. The surveys are grouped by time period with those surveys conducted between 1988 and 1992 falling into the late 1980s/early 1990s, those conducted between 1994 and 1996 falling into the mid-1990s, and those conducted between 1998 and 2000 falling into the late 1990s. The surveys are nationally representative (with minor exclusions) and include women aged 15–49 and men aged 15–54. An exception to the age range for the survey is the 1993 Kenya DHS where only men aged 20–54 were included. While data for women are available from the late 1980s on, data for men are not generally available until the surveys conducted in the mid-1990s.

At the time of this report, the 2000–2001 Zambia DHS data set was not yet available for secondary analysis. Slight differences in survey implementation between the Zambia Sexual Behavior Survey (SBS) and the Zambia DHS may result in some differences in indicator values. A preliminary assessment of some of the data indicates that using the 2000 SBS to represent the late 1990s in Zambia instead of the 2000–2001 DHS may lead to somewhat of an overestimate of the decline in higher-risk sexual behavior and, to a smaller degree, of the increase in condom use. The differences are most apparent for men. While the overall pattern of behavior change reported here is similar to that of the DHS, the magnitude of the decreases should be interpreted with some caution. While the full data set was not available, a limited number of fertility indicators have been drawn from the Zambia DHS preliminary report as these data were not available in the ZSBS 2000.

While a comparative analysis of the five sub-Saharan African countries included in this report was possible due to the availability of the DHS and other data, the same was not true for Thailand. Although there is a wealth of data on sexual behavior in Thailand, most is obtained from specific populations such as commercial sex workers, their clients, military conscripts, and various other occupational groups. These data are valuable for tracking behavior change in specific groups, but less so when making comparisons across countries. Two surveys conducted in the first half of the decade, the Survey of Partner Relations and Risk of HIV Infection in Thailand in

Table 2.1 Nationally representative surveys[a] for each country used in the analysis

	Timing of Surveys								
	Late 1980s/Early 1990s (1988–1992)			Mid-1990s (1994–1996)			Late 1990s (1998–2001)		
	Year of Survey	Number of Women	Number of Men	Year of Survey	Number of Women	Number of Men	Year of Survey	Number of Women	Number of Men
Cameroon	1991	3,871	814 [b]	--	--	--	1998	5,501	2,562
Kenya	1988–1989	7,150	--	1993	7,540	2,336[c]	1998	7,881	3,407
Uganda	1988–1989	4,730	--	1995	7,070	1,996	2000–2001	7,246	1,962
Zambia	1992	7,060	--	1996	8,021	1,849	2000[d]	1,791	1,525
Zimbabwe	1988	4,201	--	1994	6,128	2,141	1999	5,907	2,609

[a] Unless otherwise noted, surveys were conducted as part of the Demographic and Health Surveys program.
[b] In the 1991 Cameroon DHS, only married men were surveyed, and no data on sexual behavior were obtained.
[c] In the Kenya 1993 DHS, only men aged 20–54 were surveyed.
[d] Data for Zambia in 2000 were obtained from the Zambia Sexual Behaviour Survey. While data from the 2001–2002 Zambia DHS were not available at the time of this report, a limited number of fertility-related indicators were drawn from the preliminary report.

1990 (Sittitrai 1992) and the Survey on the Effectiveness of AIDS Media on Behavior and Values in 1993 (Thongthai 1995), provide national-level data that can be used for comparative purposes. As these data were not available for secondary analysis, and because some of the indicators differed in their calculations from others in the report, the few indicators available from these surveys are presented in separate tables. Data are also presented, when available, in the figures.

2.2 Supplemental Data Sources

In order to better understand changes in sexual behavior that may have occurred in the late 1980s and early 1990s, there has been a strong interest in conducting secondary analysis of the surveys carried out with support of WHO's Global Programme on AIDS (GPA). While the DHSs are valuable sources of data on sexual behavior from the mid- and late 1990s, many of the DHSs conducted in the late 1980s and early 1990s did not include a male sample, nor did they collect information on sexual behavior beyond whether or not the respondent was sexually active. A direct comparison of the GPA data (when available) from the late 1980s with DHS data from the mid- to late 1990s has the potential to allow for a more thorough assessment of changes in sexual behavior throughout the decade. For the countries included in this report, only Kenya and Uganda had GPA surveys with broad geographic coverage. The Kenya GPA data have not been included due to numerous irregularities in the data. The Uganda 1989 and 1995 GPA surveys were subnational and have a strong urban bias (approximately 30% of the sample in 1989 was from Kampala as compared to 6% in the DHS conducted the same year). However, because these data make an important contribution to the understanding of behavior change in Uganda in the late 1980s and early 1990s when the main decline in HIV incidence was likely to have occurred, a secondary analysis of the GPA data was conducted for this report. However, results are not compared directly with the nationally representative DHS data. A discussion of the Uganda GPA surveys is included in Appendix B at the end of this report.

Chapter 3: Background Characteristics of Respondents

3.1 *Introduction*

As factors such as educational attainment and work status (a proxy for socioeconomic status) are important determinants of reproductive behavior, a summary of levels and trends in these characteristics is presented here. In addition, because of the importance of the interaction between male circumcision, STDs, and sexual behavior in the transmission of HIV, this chapter also includes data on levels of male circumcision.

3.2 *Background Characteristics*

Education

Education is an important determinant of individual behavior. Higher educational attainment may be associated with lower fertility and even lead to positive changes in sexual behavior through various mechanisms, such as access to better knowledge for informed reproductive choices, adoption of small family norms, use of modern contraception, and delayed ages at first birth and first marriage. Extra years of schooling may also lead to an increase in exposure to premarital sex because of delayed marriage. For men, education may result in higher socioeconomic status and a resource gateway that can be used to access commercial or casual sex.

Table 3.1 presents levels and trends in educational attainment among women and men during the 1990s. Results for women are also presented in Figure 3.1.

Overall, educational attainment for women increased in all countries throughout the decade. The percent of women reporting they had not attended school was higher in the late 1980s/early 1990s than at the end of the decade. By the end of the 1990s, these percentages had substantially declined by between 7% and 16% in all countries. A concomitant increase in the percent of women with secondary or higher education was also witnessed in all countries. The increase was much greater in Zimbabwe (22%) than in Uganda, Zambia, Kenya, or Cameroon, where increases ranged between 6% and 9%. Overall, Ugandan women lagged behind somewhat in secondary education throughout the 1990s. Although Zambia and Zimbabwe witnessed some decline in the percentage of women with primary education, this was primarily due to a shift toward more women attaining secondary or higher education.

Sex differentials in education are evident across countries and surveys (see Table 3.1). Throughout the decade, the percent of men with no education was less than women, although the gap between women and men was narrow. Similar to women, the percent of men reporting secondary or higher education increased in all countries throughout the 1990s. The percent of men with higher education almost doubled in Cameroon between 1991 and 1998 (from 24% to 46%), and in Zambia, 42% of men reported having secondary or higher level of education in 1996 compared to 44% in 2001–2002.

Figure 3.1 Trends in educational attainment among women
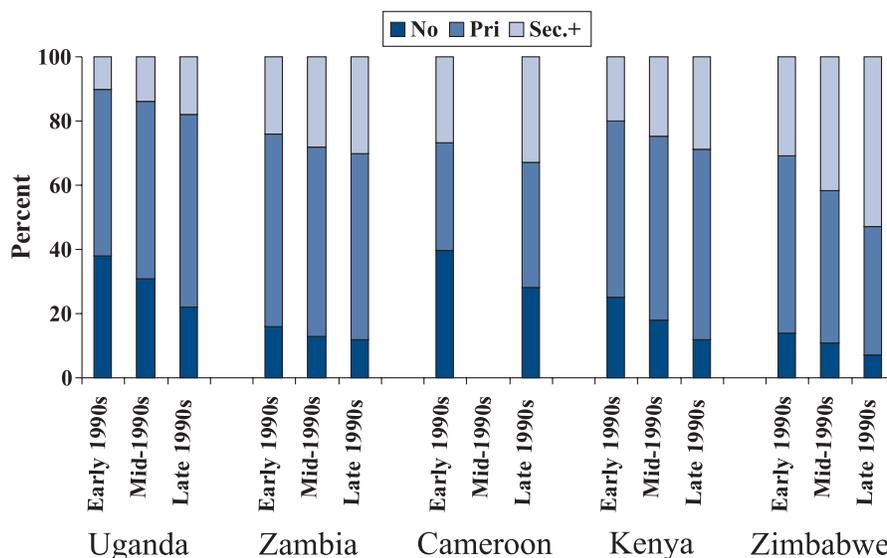
Work Status

Employment is closely linked to earnings and is reflective of a person's level of education and wealth. Table 3.1 shows that during the 1990s, there was a steady increase in the percent of working women in Cameroon, Kenya, Uganda, and Zimbabwe, though there may have been a small decline in Zambia. While there are fewer trend data for men, it does appear that men were more likely than women to work for pay, but differences were narrower in the late 1990s than in the early 1990s.

Male Circumcision

While not traditionally considered a background characteristic, male circumcision may be an important factor affecting HIV transmission and acquisition in a population. There is substantial evidence suggesting a protective effect of male circumcision on HIV acquisition by men. Circumcision is believed to reduce the risk of ulcerative STDs (Bailey, 2001), which are thought to enhance the transmission and acquisition of HIV. Circumcision may also protect against HIV directly as the foreskin appears to be a highly vulnerable point of entry to HIV and other pathogens (Patterson, 2002; USAID, 2003). A meta-analysis of studies examining the relationship between male circumcision and the risk for HIV infection among males in sub-Saharan Africa concluded that uncircumcised men are more than twice as likely as circumcised men to be HIV-infected. The effect was even stronger among men at high risk for HIV than among men in the general population (Weiss, 2000; USAID, 2003).

Only two of the surveys included in this report obtained data on male circumcision. The 1989 Uganda GPA survey found that 25% of men surveyed were circumcised, with higher levels of circumcision in urban areas than in rural areas (30% compared to 22%). This was a slightly higher rate of circumcision than reported elsewhere in Uganda. In the Rakai district in southwestern Uganda, a population-based study found that 17% of men were circumcised (Gray, 2000). Differences in rates of circumcision between these surveys may reflect the differences in populations surveyed and their cultural practices or in methods of data collection. Both samples, however, had a similar percentage of men who were Muslim (13% of men in the Rakai study and 11% in GPA), and these figures are similar to the national figures reported in the 1995 Uganda DHS (10%).

The Zambia Sexual Behavior Survey (ZSBS) 2000 reported that 17% of men in Zambia were circumcised, with rates of male circumcision of 15% in urban and 18% in rural areas. For the other countries included in this report, rates of circumcision in Cameroon and Kenya were reported to exceed 80%, while they were below 20% in Zimbabwe and Thailand (Halperin, 1999). In the multi-center study, a survey of men in Yaounde, Cameroon, found that almost all men (99%) were circumcised (Auvert, 2001). While the rate of circumcision in Kenya appears to be roughly 80%, the same study found that in Kisumu in western Kenya, only 28% of men were circumcised. The prevalence of HIV in Kisumu has been estimated to be as great as 35% in 1997 (though it has since declined to 29% in 1999), a rate much higher than that found in other parts of Kenya, where most men are circumcised (BUCEN, 2002).

Chapter 4: Levels and Trends in Sexual Behavior

4.1 *Introduction*

The aim of this chapter is to present national-level trends in sexual behavior, including condom use, in five sub-Saharan countries (Cameroon, Kenya, Uganda, Zambia, and Zimbabwe), as well as in Thailand. Differences in sexual behavior across countries are explored, as are trends within countries. For purposes of presentation of the data in the tables, the countries are organized into two groups. The first group includes the countries that have experienced declines in HIV prevalence during the 1990s; the second group includes the countries that have not yet experienced a clear decline.

Because the greatest declines in HIV incidence in Uganda are believed to have occurred in the late 1980s, special attention is paid to this time period for Uganda. As nationally representative surveys provide only a limited amount of data on changes in

sexual behavior for this time period, results from the 1989 and 1995 GPA surveys are presented. Also included are findings from research studies from the early 1990s, where sexual behavior was assessed in the same population at two or more points in time.

Before presenting the findings, the limitations of self-reported sexual behavior data need to be acknowledged. It is possible that respondents may underreport sexual activity, and it is believed that this underreporting is particularly problematic among youth and young women. In addition, as an AIDS epidemic matures and the level of AIDS awareness increases, survey respondents may be more likely to give socially desirable answers (such as having used a condom) and less likely to disclose more socially unacceptable behavior (such as premarital sexual activity and multiple sexual partners). This tendency may be even more pronounced in highly educated societies such as Zimbabwe.

4.2 *Sexual Behavior Among Youth*

Sexual Debut

A major component of HIV prevention programs is encouraging young people to delay sexual debut. Two standard indicators to measure the onset of sexual activity are considered. Table 4.1 presents levels and trends in the percent of young people aged 15–19 who had ever had sex by residence. Table 4.2 presents the median age of sexual debut among 15- to 24-year-olds and was calculated as the age at which one half of youth aged 15–24 reported having had sex. Median age at first sex is also presented in Figure 4.1 for women and in Figure 4.2 for men.

In both Uganda and Zambia, there was a clear trend towards delayed age of sexual debut among youth. The sexual debut among girls in Uganda increased from 16.5 to 17.3 years during the 10-year period, while for boys it increased from 17.6 to 18.3 years in the second half of the decade. An analysis of the sexual debut data that used both current status and retrospective data (thus allowing trends before the time of the survey to be assessed) found that there was about a one year increase in age of sexual debut for young men and women in Uganda over a 10-

Figure 4.1 Median age at first sex among women aged 15–24 years

Figure 4.2 Median age at first sex among men aged 15–24 years

Figure 4.3 Percent of women aged 15–24 years who had never been married

%

| | Early 1990s | Mid-1990s | Late 1990s |

15-19 | 20-24
Uganda
15-19 | 20-24
Zambia
15-19 | 20-24
Cameroon
15-19 | 20-24
Kenya
15-19 | 20-24
Zimbabwe
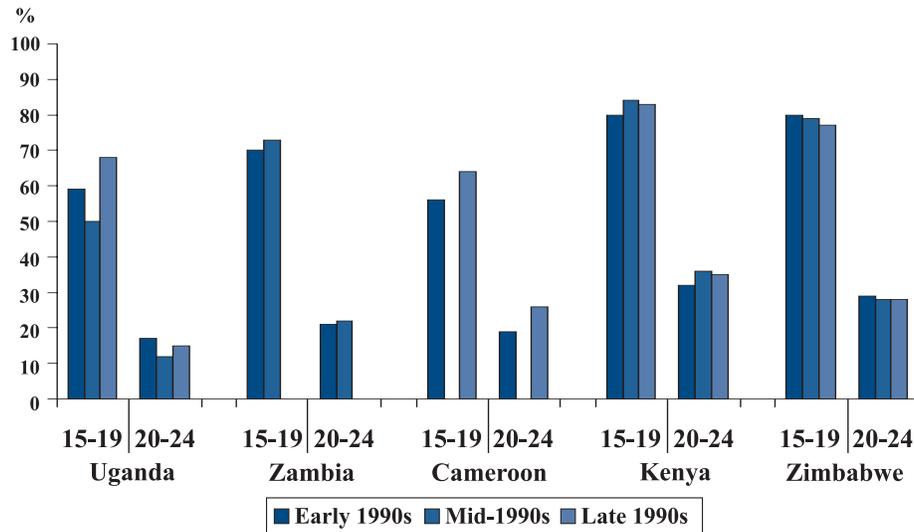
Figure 4.4 Percent of men aged 15–24 years who had never been married

%

| | Mid-1990s | Late 1990s |

15-19 | 20-24
Uganda
15-19 | 20-24
Zambia
15-19 | 20-24
Cameroon
15-19 | 20-24
Kenya
15-19 | 20-24
Zimbabwe
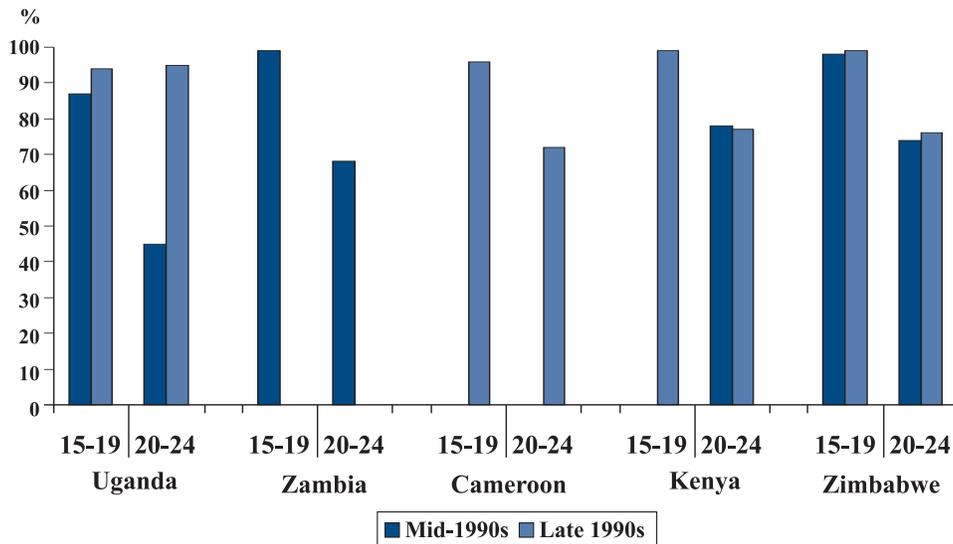
year period (Zaba, 2002). Similarly, the percent of youth aged 15–19 reporting ever having had sex also decreased. A delay in the onset of sexual activity is most evident among urban women in the first part of the 1990s, while a delay in the onset of sexual activity really began during the second half of the decade for rural women. Between the late 1980s and mid-1990s, the percent of women aged 15–19 who had sex declined from 66% to 59% in urban areas with no change in rural areas. Declines of about 5% and 10%, respectively, were seen among young urban and rural women in the second half of the 1990s. The Uganda GPA data also show a decline in sexual activity among both young women

and men between 1989 and 1995 (Tables 4.14 and 4.15). It is notable that the decline in sexual activity among women based on the GPA data is much greater than that based on the DHS data, indicating that the changes in sexual behavior based on GPA estimates may overstate national-level estimates, even when results are disaggregated by residence. In addition to real changes in sexual activity, differences between the estimates from the GPA surveys may reflect differences in populations surveyed as well as in survey implementation.

In Zambia, the data also indicate that both young women and young men are postponing sexual debut.

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There was a small decline in the percentage of 15-to 19-year-old females who reported ever having sex (from 61% in the early 1990s to 56% in the late 1990s). The decline for boys was greater (65% in the mid-1990s to 44% in the late 1990s) and occurred over a shorter period of time. Median age at first sex for young men also increased from 16.2 to 18.1 years over the five-year period (this is likely to be somewhat of an overestimate), though there was little change in median age at first sex for girls. A survival analysis using both current status and retrospective data did, however, show a statistically significant increase in age at first sex for women (of about half a year) and a small but insignificant increase for young men (Zaba, 2002). Among young women, changes in age of sexual debut occurred only in the urban areas with little change in rural areas.

Figure 4.5 Percent of women aged 20–24 years who were first married by exact age 20 years
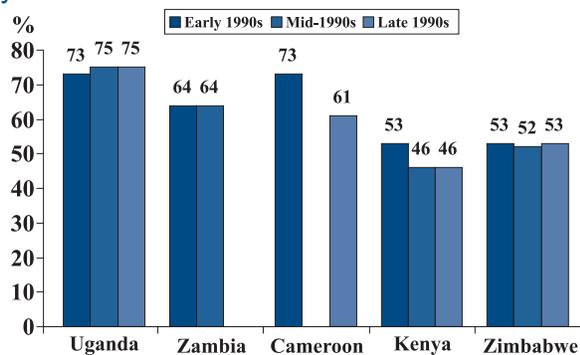
Figure 4.6 Percent of men aged 20–24 years who were first married by exact age 20 years
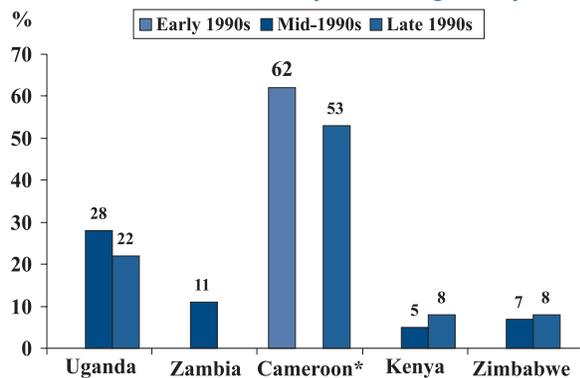
* Figures for Cameroon are for married men only.

There is little evidence of a postponement of sexual debut among young men and women in Zimbabwe and among women in Cameroon or Kenya (there were no trend data available for men). However, a survival analysis of the Kenya data that used both current status as well as retrospective data (and therefore could assess change over time) found a small but insignificant increase in age of sexual debut for women and men in Kenya during the 1990s (Zaba, 2002).

Despite the increase of age of sexual debut in Uganda and Zambia, women still experienced an earlier age of sexual debut than their counterparts in Kenya and Zimbabwe. On the other hand, young men in Uganda and Zambia initiated sexual activity at an older age than their counterparts in Cameroon and Kenya. The late age of sexual debut reported among young men and women in Zimbabwe is particularly surprising given the high HIV prevalence. Yet Cameroon, with the earliest onset of sexual debut for girls and the second youngest for boys, had much lower rates of HIV infection. In general, young women in the 1990s in Uganda, Zambia, and Cameroon became sexually active about one year earlier than did young men. Kenya shows the opposite pattern, while there is very little gender difference in Zimbabwe.

Age at First Marriage
Delay of sexual initiation may potentially result in a concomitant delay in the age at which people enter into first marriage. Other factors such as increased years of schooling and urbanization may also result in later marriage. Table 4.3 and Figures 4.3 and 4.4 show the percentage of never-married women and men according to current age.

Of all the countries in this report, the greatest changes in the percentage of never married young women over the past decade occurred in Uganda (Figure 4.3). From the late 1980s to mid-1990s, the percentage of never-married women aged 15–19 years declined, indicating a move toward earlier marriage. This was followed by a substantial increase in the percentage of never-married young women in the second half of the decade, indicating a move away from marriage in this young age group. There was, however, only a marginal increase in

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women aged 20–24 years who had never been married. It is plausible that this shift toward marriage among 15- to 19-year-olds in the early part of the decade was a result of the fear of AIDS associated with premarital sex. While the reasons for the trend away from marriage in young women in the second half of the decade are unclear, this is consistent with the increase in premarital sex (described in the next section) as fewer sexually active women in this age group were married.

Figures 4.5 and 4.6 and Table 4.4 present the percentage of women and men aged 20–24 years who were first married by the exact age of 20 years. The data show that in Uganda, Zambia, and Zimbabwe there was little change in the proportion of women aged 20–24 years who were first married by 20 years of age. In Cameroon and Kenya, however, there seems to have been a delay in age at first marriage over the past decade. Young women in Kenya and Zimbabwe married later than their counterparts in Uganda, Zambia, and Cameroon. About three quarters of young women in Uganda and almost two-thirds in Zambia and Cameroon were first married by age 20 across all surveys. As there has been increases in ages of sexual debut in Uganda and Zambia, the result is a shorter period of time in which premarital sexual activity can occur and a reduced likelihood of exposure to HIV through sex with non-marital partners. The narrowing gap between sexual debut and marriage is illustrated for young Ugandan women in Figure 4.7.

Men married, on average, later than did women. Although trend data for men are more limited than they are for women, there is a clear indication that the proportion of young men who were first married by age 20 in Uganda and Cameroon (based on married men only) declined during the 1990s (Figure 4.6). There was little change in Kenya and Zimbabwe, and trend data are not yet available for Zambia. Although the age of sexual debut for men increased during the 1990s in Uganda, the concomitant increase in age at first marriage means

Figure 4.7 Percent of young women who were sexually active and married by age, 1989 and 2000, Uganda
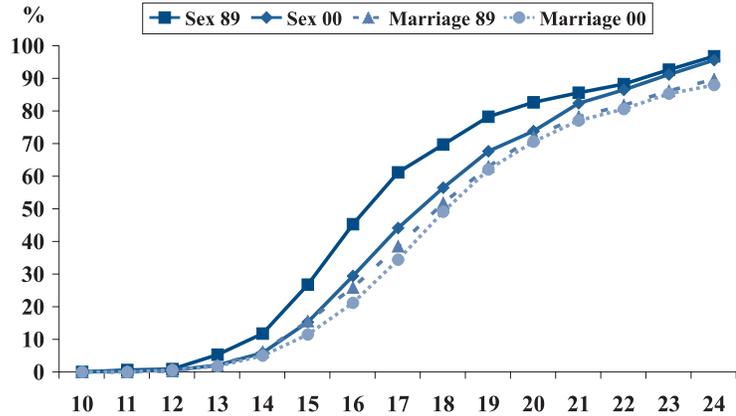
Figure 4.8 Premarital sex: Percent of never-married women aged 15–24 who had sex in the previous year
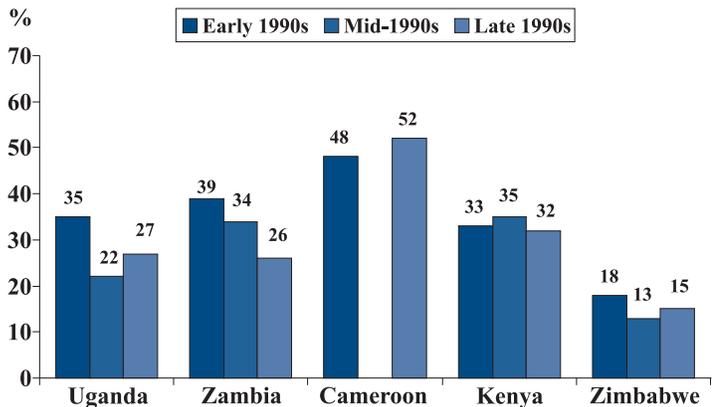
that there would have been a similar period of time between when men become sexually active and marry for the first time, during which premarital sex occurs.

Premarital Sex

The percent of never-married 15- to 24-year-olds who had sex in the previous 12 months by residence is presented in Table 4.5. This indicator reflects age of sexual debut as well as sexual activity among single adolescents who are already sexually active. Consistent with changes in age of sexual debut, there was a positive change for young women in Uganda and Zambia (Figure 4.8). The proportion of single 15- to 24-year-old women who report having had sex in the previous year declined in Uganda and Zambia in the first part of the decade. Continuing declines in Zambia are seen among young women,

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while sexual activity increased in Uganda during the second part of the decade. As age of sexual debut among women continued to increase in Uganda during the second half of the decade, this increase in premarital sex reflects an increase in sexual activity among young women who had already initiated sexual activity. In Cameroon, Kenya, and Zimbabwe, there is little evidence for a decline in premarital sex during the 1990s. At the end of the decade, premarital sex among women was most common in Cameroon and least so in Zimbabwe, while rates were similar in Uganda, Kenya, and Zambia.

Nationally representative data for men are available only for the second half of the decade (Figure 4.9). These data show a large decline in premarital sex among men in Zambia, although preliminary data from the 2001 DHS indicate that while there has been a decline, levels of premarital sex among men are somewhat higher than what was reported in the SBS. Kenya (based on an indicator of premarital sex among 20- to 24-year-old single men) also shows a decline. There was little change in Zimbabwe and no trend data are available for Cameroon. In Uganda, between the late 1980s and early 1990s, the GPA data indicate there was a large decline in premarital sex among men (Table 4.15). However, as the decline in premarital sex among women based on the GPA data is much greater than that seen from the DHS, it is likely that the decline seen among men also overestimates the decline nationally. During the late 1990s, there was no change in premarital sexual activity among young men in Uganda.

Figure 4.9 Premarital sex: Percent of never-married men aged 15–24* who had sex in the previous year
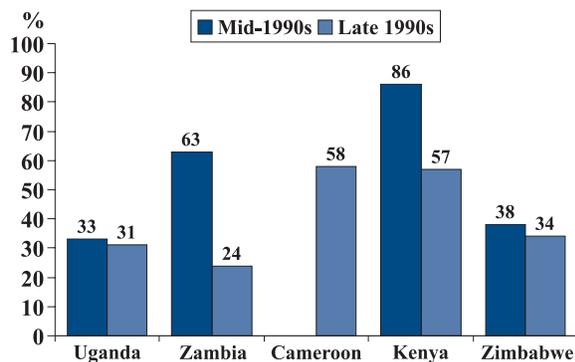
*Kenya age range is 20–24 years

A comparison of levels of premarital sex at the end of the 1990s indicates that premarital sex is much more common among young men in Cameroon and Kenya, while rates for Uganda and Zimbabwe were similar and much lower.

4.3 Sexual Behavior Outside of Marriage

Non-Regular Partnerships

A general measure of the level of sexual activity in the population occurring outside of a marital or cohabiting union is the percent of sexually active respondents (both married and unmarried) with one or more non-regular (defined as non-marital or non-cohabiting) partners. Results are presented by age group and by residence in Table 4.6 and for men and women in Figures 4.10 and 4.11. Because of differences in recall periods for sexual activity (six months in some cases and 12 months in others), figures for both recall periods are presented, where possible, to allow for more comparability over time within a country and across countries at various points in time. Nationally representative data for this and all subsequent indicators of sexual activity presented are available from the second half of the 1990s. For Uganda, the GPA surveys provide these indicators for the late 1980s.

In the second half of the 1990s, Zambia saw declines in non-regular partnerships among both men and women. These declines occurred among both adolescents and adults, and among urban and rural residents. Declines in non-regular partnerships are greater for men; while 53% of men reported a non-regular partner in the mid-1990s, only 29% did so in the late 1990s. Preliminary data from the 2001 DHS indicate, however, that while levels of non-regular partnership among men have declined, the figure for 2001 may be several percentage points higher than what is reported here.

In Kenya, there was a small decline in non-regular partnerships among urban women and men and a small decline overall among men. Because of serious differences in the recall period for sexual activity in Zimbabwe (4 weeks in 1994 and 12 months in the 1999 survey), trend data for Zimbabwe are not presented. No trend data are available for Cameroon.

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Data from the early 1990s from Thailand indicate a substantial decline in non-regular partnerships among men (Table 4.13 and Figure 4.11).

During the first half of the 1990s, data from the Uganda GPA surveys indicate that there was a decline in non-regular partnerships for men and women (Tables 4.14 and 4.15). While these figures may overestimate declines, they do indicate a notable reduction in high-risk sexual partners. An additional indicator from the GPA surveys is the percent of respondents who had a casual partner in the last year (that is, a partner with whom they had been having sex for less than 12 months). As seen in Figures 4.12 and 4.13, both men and women reported many fewer casual partners in the mid-1990s than they did in the late 1980s.

During the second part of the 1990s, Uganda experienced little change in non-regular partnerships overall, though small differences are evident when the data are disaggregated by age and residence. There was a small increase in non-regular partnerships among young women aged 15–24; this is consistent with the increase in premarital sex described earlier. There was also a small increase in non-regular partnerships among urban men, though this is offset by a slight decline in rural areas.

When comparing levels of non-regular partnerships across countries at the end of the 1990s, what is notable are the very high levels of non-regular partnerships among men and women in Cameroon. About 61% of men reported non-regular partners in the previous year compared to 40% of men in Zimbabwe, 35% of men in Kenya, and less than 30% in Uganda. While only 15% of men in Thailand reported non-regular partners (data from 1993), this indicator is based on all men and is likely to reflect lower levels of non-regular partnerships than an indicator based on sexually active men (as was the case in the other countries). As expected, there were large differences between men and women, with many more men reporting sex outside of a marital or cohabiting union.

Extramarital Sex

Table 4.7 presents data looking more specifically at extramarital sex among currently married

Figure 4.10 Percent of women with one or more non-regular sexual partner in the previous year*
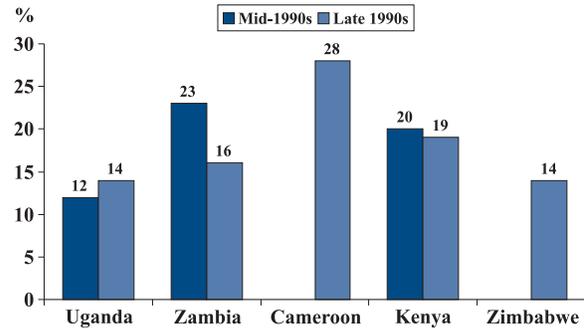
* Figures for Kenya are for the previous six months.

Figure 4.11 Percent of men with one or more non-regular sexual partner in the previous year*
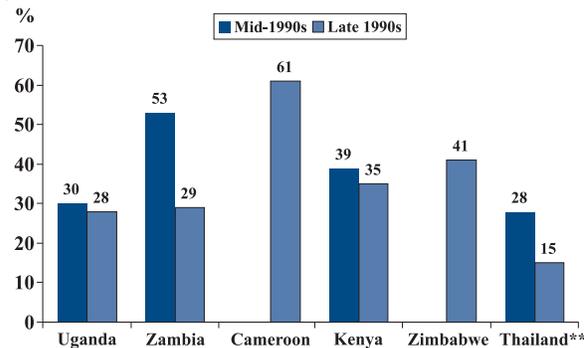
* Figures for Kenya are for the previous six months.
** Denominator is all men rather than sexually active men, data are for 1990 and 1993.

respondents by age and residence. Among women in Uganda, Zambia, Kenya, and Zimbabwe, reported extramarital sex was extremely rare (1% to 3%), and there was little change in this indicator in the second half of the decade. Levels of extramarital sex were only higher (5%) among women in Cameroon.

Married men were much more likely to report having sex with someone other than their spouse than were married women. Three countries have trend data available for this indicator. In Zambia there were large declines in extramarital sex among men (from 21% in the mid-1990s to 12% in the late 1990s). Declines, though smaller, were also apparent in Kenya and were greatest among married men aged 15–24 and among men living in urban areas (Figure 4.14).

In Uganda, the GPA data indicate that extramarital sex among men declined substantially during the first half of the decade; there was no change for women (see Figures 4.12 and 4.13). While there was no change in levels of extramarital sex during the second half of the decade overall, young married men aged 15–24 were less likely to have extramarital sex than they were five years earlier. By the mid-1990s, extramarital sex among men was already much lower in Uganda than in it was in Zambia, and to some extent in Kenya.

4.4 *Multiple Sexual Partners*

Multiple Sexual Partners Among Singles

One measure of multiple partnership is the percent of sexually active single respondents who had sex with two or more partners in the previous 12 months. This indicator is presented by age and residence in Table 4.8. It should be noted that conclusions drawn from these data are somewhat limited due to differences in the recall period for reporting the numbers of sexual partners. For Uganda and Kenya

in the mid-1990s, respondents were asked to report on the number of sexual partners in the previous six months, whereas all other surveys reported for the previous 12 months. This shorter reference period is likely to result in a lower number of partners than would have been reported for a 12-month period. For the indicator of one or more non-regular partners reported in Section 4.3, in both Kenya and Uganda results for both a six-month and a 12-month period could be reported for the same survey and the differences overall were not great (Table 4.6). It is possible, however, that the differences may be greater when a greater number of sexual partners (i.e., two or more, three or more) are considered.

Between the late 1980s and mid-1990s, results from the Uganda GPA surveys indicated that there was a large decline in the percent of single men reporting two or more partners in the previous year (from 54% to 33%), but a smaller decline for women (22% to 17%) (Tables 4.14 and 4.15 and Figures 4.12 and 4.13). This decline is supported by results of a series of surveys in a semi-urban area just north of Kampala, where there was also a decline in respondents (both married and single) reporting multiple partners. However, in two districts in southwestern Uganda near the epicenter of the epidemic, little change was found in the percent of men reporting multiple partners between 1992 and 1994 in Rakai district and between 1992 and 1996 in Masaka district (Box 4.1). The already relatively low rates of multiple partnerships in these populations in the early 1990s suggest that significant behavior change may have already occurred by the time of the first surveys.

As seen in Figure 4.15, for both Zambia and Uganda, there were large declines in the percents of single women reporting multiple sexual partners from the mid- to the late 1990s. Changes are evident among younger and older women and among urban and rural residents. The change among Kenyan women, if any, was small and is only apparent if one assumes that the mid-1990s value is an underestimate due to the shorter reference period.

As with women, fewer single men in Zambia are reporting multiple partners. In contrast, there was little change overall in the percent of single men in

Figure 4.12 Changes in sexual behavior among women in the late 1980s/early 1990s in Uganda, GPA 1989 and 1995
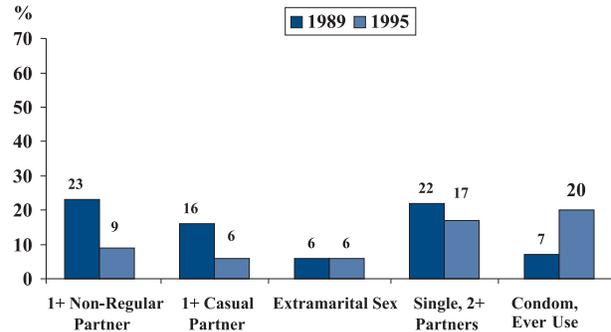
Figure 4.13 Changes in sexual behavior among men in the late 1980s/early 1990s in Uganda, GPA 1989 and 1995
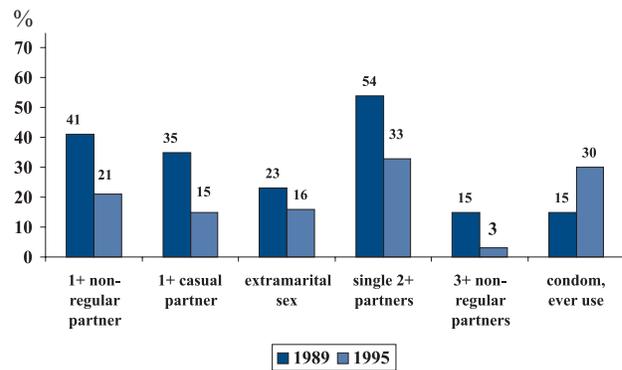
Uganda reporting multiple sexual partners in the mid-to late 1990s, and there may actually have been an increase in multiple partnerships among urban men. In Kenya, there may be a small decline in multiple partnerships among singles, driven by changes in urban areas and among youth; however, the differences in recall period make these results difficult to interpret (Figure 4.16).

While trend data for Cameroon and Zimbabwe are not available, it is interesting to note that at the end of the 1990s, almost twice as many sexually active single men in Cameroon reported two or more sexual partners (68%) as did single men in Uganda, Zambia, and Zimbabwe (all roughly 30%). Multiple partners among Kenyan men still remained high (52%) at the end of the decade. Similarly, roughly three times as many single women in Cameroon reported two or more sexual partners (30%) than did single women in Uganda, Zambia, and Zimbabwe (which range from 6% to 11%). Kenya falls in the middle

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Figure 4.14 Percent of married men who had sex with someone other than their spouses in the previous 12 months*

%

Values by country:
- Uganda: mid-1990s 14, late 1990s 12
- Zambia: mid-1990s 21, late 1990s 12
- Cameroon: late 1990s 34
- Kenya: mid-1990s 18, late 1990s 13
- Zimbabwe: late 1990s 16

■ mid-1990s ■ late 1990s
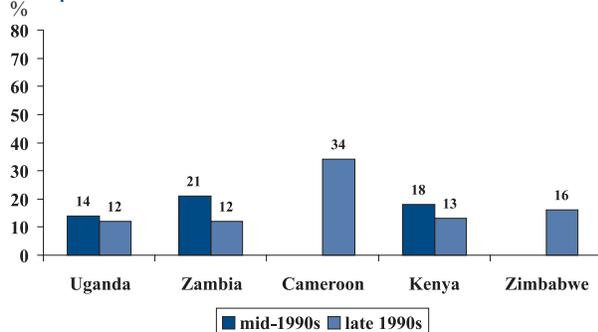
* Figures for Kenya are for the previous six months.

Figure 4.15 Percent of sexually active single women reporting two or sexual partners in the previous 12 months*

%

Values by country:
- Uganda: mid-1990s 11, late 1990s 6
- Zambia: mid-1990s 17, late 1990s 8
- Cameroon: late 1990s 30
- Kenya: mid-1990s 19, late 1990s 18
- Zimbabwe: late 1990s 11

■ mid-1990s ■ late 1990s
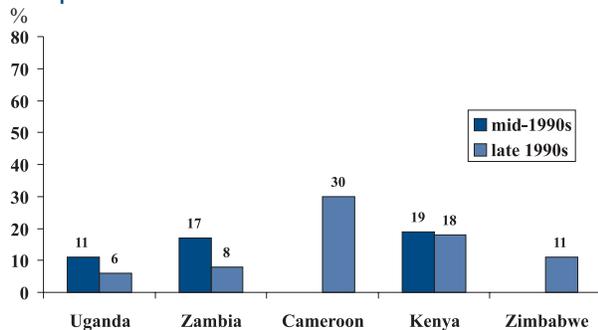
* Figures for Uganda and Kenya in the mid-1990s are for the previous six months.

Figure 4.16 Percent of sexually active single men reporting two or more sexual partners in the previous 12 months*

%

Values by country:
- Uganda: mid-1990s 29, late 1990s 31
- Zambia: mid-1990s 54, late 1990s 30
- Cameroon: late 1990s 68
- Kenya: mid-1990s 55, late 1990s 52
- Zimbabwe: late 1990s 28

■ mid-1990s ■ late 1990s
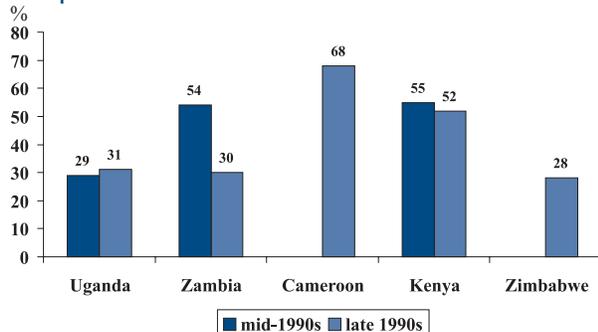
* Figures for Uganda and Kenya in the mid-1990s are for the previous six months.

ground with 18% of single women reporting multiple partners.

Higher-Level Partnering Among Men

Table 4.9 presents the percent of sexually active men reporting three or more (and four or more) non-regular partners in the previous year. Because of the difficult issue of sorting out the total number of partners in polygamous situations, this indicator is based on the number of non-regular (defined as non-marital/non-cohabiting) partners. As with the previous indicator, differences in reference periods between surveys make interpreting these data somewhat difficult, particularly when changes are small or nonexistent. In addition, the sets of questions used to obtain the total number of sexual partners differed between surveys, so data may not always be truly comparable. Finally, these figures may underreport the percent of men with large numbers of sexual partners because men with multiple partners may be less likely to be captured in household surveys. They are more likely to be traveling away from home, living in institutional arrangements (i.e., work camps or military barracks), or more likely out socializing. Nationally representative data for these indicators are available for the second half of the 1990s only.

Data from the GPA surveys in Uganda suggest that by 1995 men were much less likely to have three or more non-regular partners in the previous year than they were in 1989 (Figure 4.13 and Table 4.17). By the mid-1990s, only 3% of sexually active men surveyed reported having three or more non-regular partners, down from 15% at the end of the 1980s. Results from national-level surveys in the mid- and late 1990s indicate that only among 15- to 24-year-olds was there an additional decline in multiple partnerships. What is striking, however, is the very low percentage of men reporting this behavior in Uganda (2% of men reported three or more non-regular partners at the end of the decade) as compared to Zambia, Kenya, and Cameroon (12%, 6%, and 26%, respectively) (Figure 4.17).

A large decline in the number of sexually active men reporting three or more partners during the previous year also occurred in Zambia, with the greatest

changes seen among youth aged 15–24 years and in urban areas. For Kenya, there seems to be little change. The contrast between Cameroon and Zimbabwe is striking. Over one-quarter of men in Cameroon reported three or more sexual partners at the end of the decade, while only 2% of men in Zimbabwe did so. Yet Zimbabwe is one of the countries hardest hit by the epidemic. The patterns for four or more non-regular partners are similar.

4.5 Commercial Sex

Sex for Payment

While trend data are very limited, four of the countries do have somewhat comparable indicators of commercial sex for the late 1990s. The percent of sexually active men who reported having paid for sex in the last 12 months is presented in Table 4.10 by age and residence, and in Figure 4.18.

There is wide variation in the percent of men reporting commercial sex. Very few sexually active men in Uganda (about 2%) reported having paid for sex in the previous 12 months. This is a much lower figure than that reported in the late 1980s GPA survey (17%). Payment for sex at the end of the decade was also relatively uncommon in Zimbabwe (5%). While payment for sex among all men was only slightly more common in Zambia (about 7%), this practice was quite prevalent among sexually active youth aged 15–24, of whom 17% reported having paid for sex in the previous year. This practice was more common in Kenya, where 14% of sexually active men reported paying for sex, and more common still in Cameroon where 23% reported having done so. In both countries, payment for sex was more common among adolescents than among adults. Payment for sex also differs by residence, with the practice more common in rural areas in Zambia and Cameroon and in urban areas in Kenya and Zimbabwe. It should be noted that the questions in the Kenya and Cameroon surveys differed: men were asked if they had given money, gifts, or favors for sex (rather than strictly payment), so those estimates may be somewhat higher.

Figure 4.17 Percent of sexually active men reporting three or more non-marital/non-cohabiting partners in the previous 12 months*
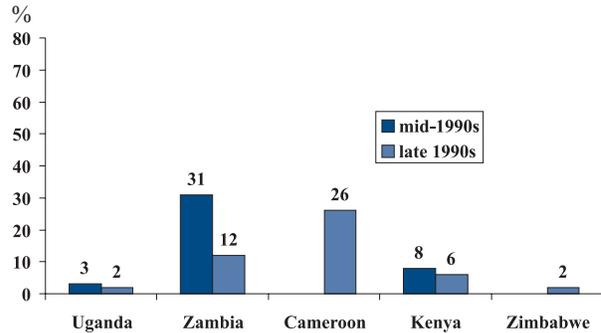
* Figures for Uganda and Kenya in the mid-1990s are for the previous six months.

Figure 4.18 Percent of sexually active men who paid for sex in the previous 12 months and who used a condom at last paid sex, late 1990s
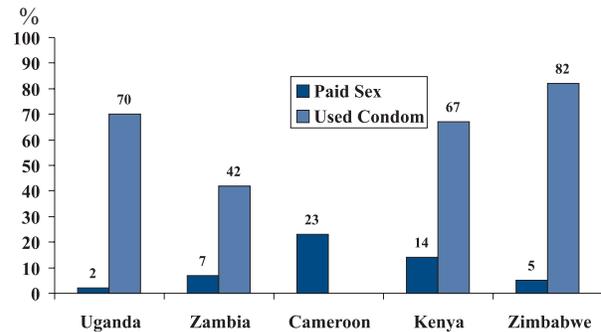
While data for the late 1990s in Thailand are not available, data from the 1990 and 1993 national surveys indicate a large decline in the percent of all men who report having paid for sex in the previous 12 months, from 21% to 10% (Figure 4.19).

Condom Use for Commercial Sex

Table 4.10 and Figure 4.18 also provide information on condom use during commercial sex. The majority of men in Zimbabwe, Uganda, and Kenya (82%, 70%, and 67%, respectively) who reported paying for sex in the previous year said that they used a condom when they last did so. Condom use at last commercial sex was lowest in Zambia (42%), and data are unavailable for Cameroon. A somewhat different indicator in Thailand found that 71% of men who reported paying for sex in 1993 said that they used a condom consistently during commercial sex. This was up considerably from three years earlier (Figure 4.19).

Figure 4.19 Percent of men paying for sex in the previous 12 months and who consistently used condoms during commercial sex, Thailand, 1990 and 1993
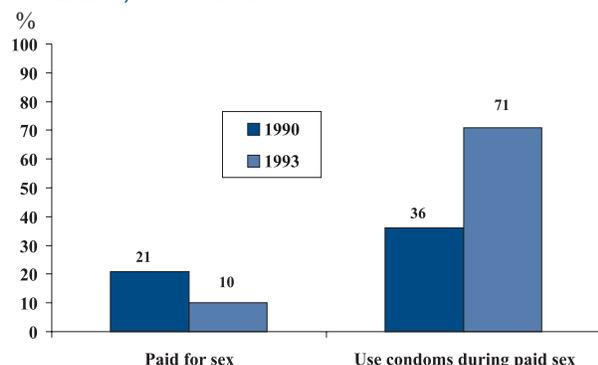
Figure 4.20 Condom use at last sex with a non-regular partner, women
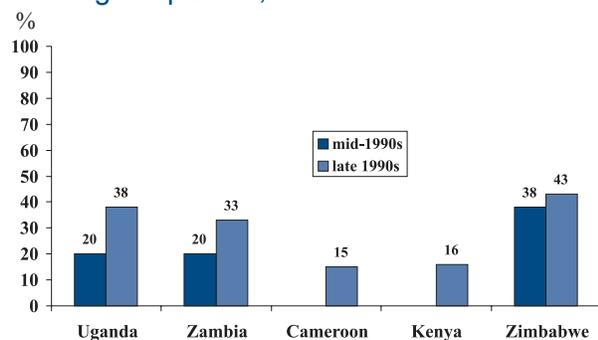
Figure 4.21 Condom use at last sex with a non-regular partner, men
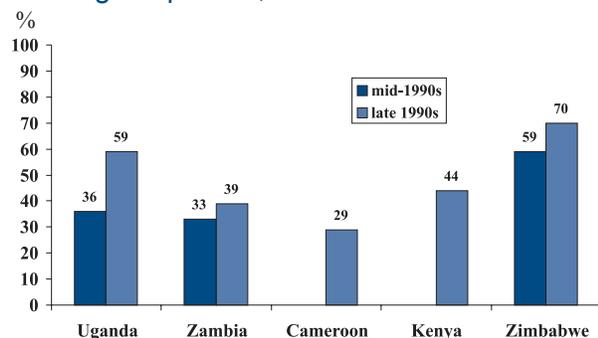
4.6 *Condom Use*

While current condom use in the context of family planning is presented in Chapter 5, this section presents data on condom use at last sex with both non-regular (non-marital/non-cohabiting) and with marital/cohabiting partners.

Condom Use with Non-Regular Partners

HIV prevention programs encourage the use of condoms with non-regular partners. The percent of sexually active respondents who reported using a condom at last sex with a non-regular partner is presented in Table 4.11. As with many of the indicators of sexual behavior, this indicator is available for the second half of the decade only. The countries for which trend data were available (Uganda, Zambia, and Zimbabwe) all saw substantial increases in condom use with non-regular partners. Increases were seen in both urban and rural areas, among adolescents and adults, and among men and women. Increases were greatest in rural areas, where condom use was lower. By the middle of the decade, condom use by women with non-regular partners was already 20% in Uganda and Zambia and 38% in Zimbabwe, indicating that condom use had started to rise earlier (Figure 4.20). Among men, 36% in Uganda used condoms, 33% in Zambia, and 59% in Zimbabwe (Figure 4.21). At the end of the decade, condom use at last sex with a non-regular partner was highest for women and men in Zimbabwe (43% and 70%, respectively), followed by Uganda (38% and 59%, respectively).

There was a large variation in condom use among women by age and residence in Uganda and Zambia and to some extent in Cameroon. In both Uganda and Zambia, adolescents aged 15–24 were much more likely than their older counterparts to have used a condom at last sex with a non-regular partner. As expected, condom use was much more prevalent among urban than among rural women. Among men, differences in condom use by age and residence were generally smaller, but there are exceptions. While 50% of rural men in Uganda used a condom at last sex with a non-regular partner, 81% of their urban counterparts did so. Similarly, in Zimbabwe, 62% of rural men reported using a condom at last sex as compared to 80% of urban men.

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Condom Use with Regular Partners

As Table 4.12 indicates, few women or men used a condom at last sex with a marital or cohabiting partner. Less than 5% of women reported doing so in the late 1990s and there was little change from the mid-1990s for those countries where trend data are available. While condom use with a regular partner was greater among urban women, use still remained low. There was little variation in condom use with regular partners across countries. While there was greater variation among men with respect to condom use with regular partners, as with women, use was low and there was little change from the mid-1990s. For men, condom use with regular partners was slightly more common among adolescents and in urban areas.

Additional Data on Condom Use

While similar data on condom use at last sex by partner type are not available for the late 1980s in Uganda, results from the GPA and other surveys indicate large increases in ever-use of condoms in the populations surveyed. Among men in the GPA surveys, ever-use of condoms doubled to 30% between 1989 and 1995, while in urban areas, ever-use increased from 19% to 59% (Table 4.15 and Figure 4.13). Among women, ever-use almost tripled from 7% to 20% (Figure 4.12). Results from the earlier survey also indicate that 11% of men with a casual partner in the previous four weeks used a condom on at least one occasion (results not shown). Other surveys conducted around the same time period also found large increases in condom ever-use among men. In Kasangati, north of Kampala, ever-use increased from just 4% in 1987 to 27% in 1994. Similarly, large increases were seen in Rakai, Masaka, and Moyo districts in the early 1990s (Box 4.1). It should be noted that the indicator of "ever-use of a condom" is different from the more standard one of "use at last sex" discussed in previous paragraphs.

Chapter 5: Fertility-Related Behavior

5.1 *Introduction*

The aim of this chapter is to present national-level trends in fertility and fertility-related behavior in five sub-Saharan countries (Cameroon, Kenya, Uganda, Zambia, and Zimbabwe). In contrast to the fertility-related trends in sub-Saharan Africa, there was very little change in fertility rates in Thailand during the 1990s largely because by the 1990s Thailand had already undergone the demographic transition to low fertility. Thus, this chapter focuses on the five countries in sub-Saharan Africa.

5.2 *Fertility Levels and Trends*

Efforts to alter sexual behavior in response to HIV prevention programs, or more directly in response to the epidemic itself, may be expected to affect fertility patterns. Figures 5.1 to 5.3 and Tables 5.1 and 5.2 show levels and trends in total fertility rates (TFR)[1] and age-specific fertility rates (ASFR) in the three years preceding the surveys. The data in Figure 5.1 show declines of the TFR among women aged 15–49 in all countries, although the declines are particularly high in Cameroon, Kenya and Zimbabwe. Overall, the TFR declined by one to two children in these countries during the 1990s. On the contrary, Uganda and Zambia, countries that registered declines in sexual activity among youth and reductions in non-regular partners among men, had comparatively lower declines of the TFR during the decade. In all countries, declines in TFR were more rapid in the first part of the decade and slowed somewhat during the second half of the decade.

The TFR was consistently higher in rural than in urban areas in all countries and across surveys (Figure 5.2 and Table 5.1). Rural TFR is particularly high in Uganda and Zambia, where the rate hardly changed over time. The differences in TFR between urban and rural areas ranged from 1.1 children in Cameroon at the beginning of the decade to 3.4 children in Uganda at the end of the decade. With the exception of Kenya and Zimbabwe where declines in TFR were evident in both urban and rural areas, overall decline in TFR appears to be due to declines among urban rather than rural women. The greater use of more effective contraceptive methods in urban areas may explain much of the difference between urban and rural TFR.

Although TFR provides information on change in the average number of children per woman, it cannot show the nature of change occurring at different ages. The relationship between changes in sexual behavior and fertility are more observable through age-specific fertility rates.[2] The age pattern of

Figure 5.1 Trends in total fertility rates for the three years preceding the survey in selected countries
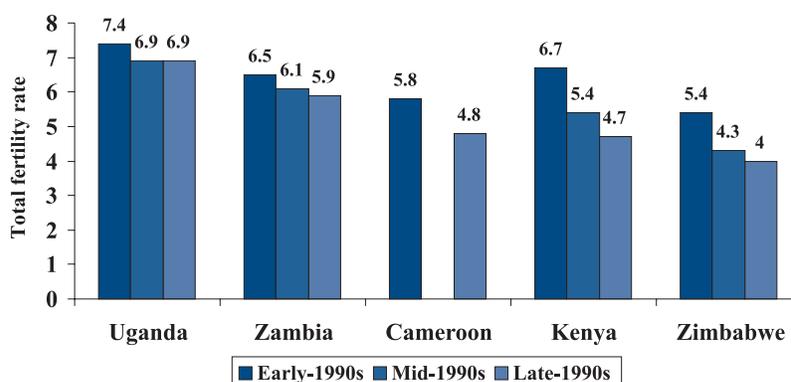
Figure 5.2 Trends in total fertility rates among urban women for the three years preceding the survey

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[1] TFR is the average number of births a woman would have if she survived all her reproductive years and experienced the age-specific fertility rates prevailing in a given period.

[2] ASFR is the average number of live births per 1,000 women in a specific age group in a given year.

23
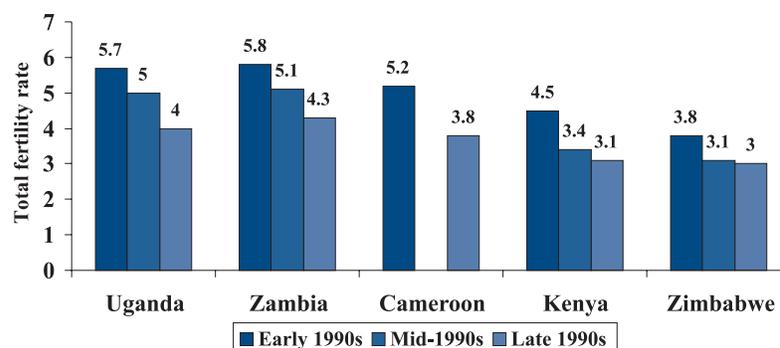
Figure 5.3 Trends in age-specific fertility rates, DHSs 1988–2001

Uganda

Zambia

Cameroon

Kenya

Zimbabwe
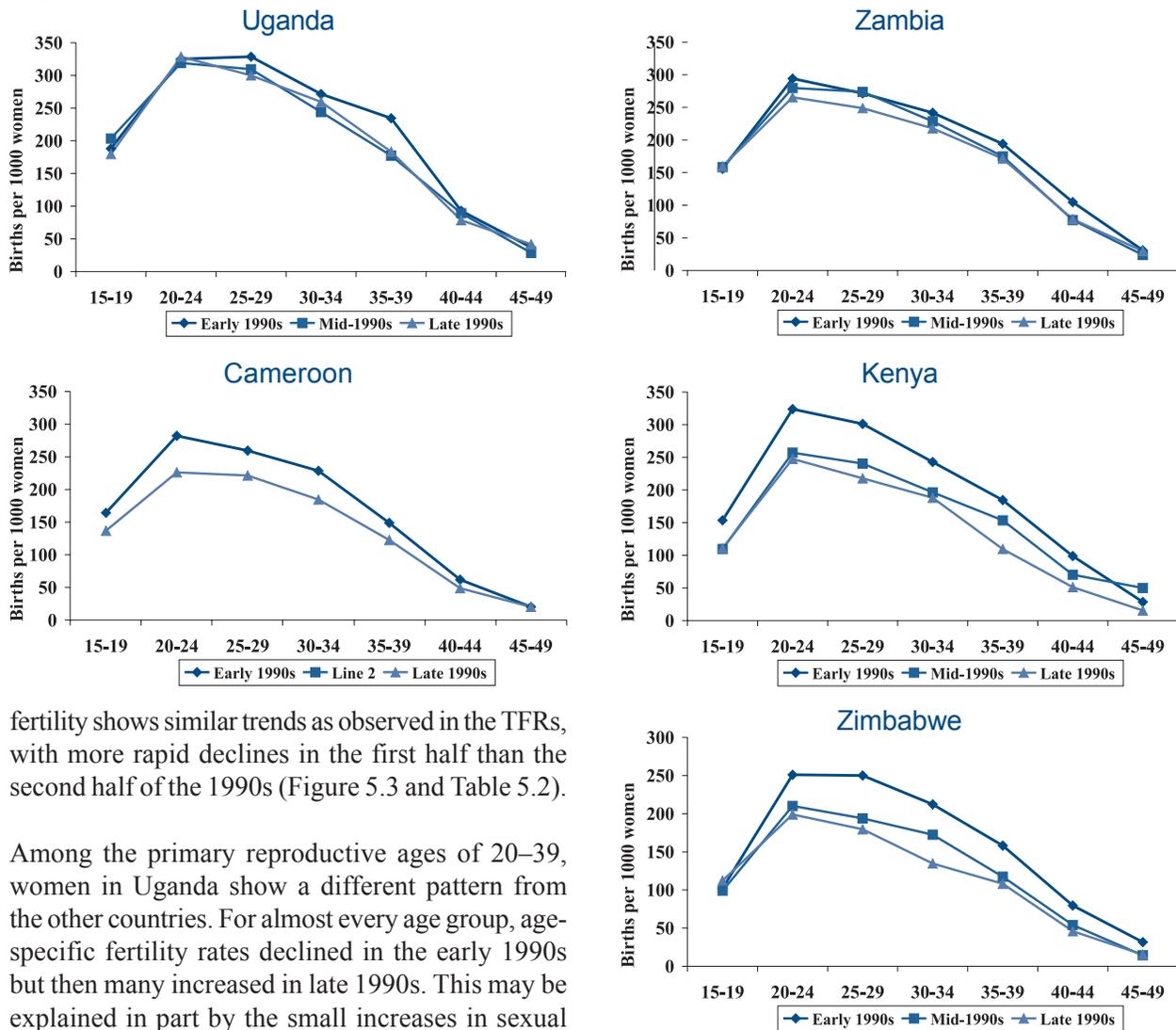
fertility shows similar trends as observed in the TFRs, with more rapid declines in the first half than the second half of the 1990s (Figure 5.3 and Table 5.2).

Among the primary reproductive ages of 20–39, women in Uganda show a different pattern from the other countries. For almost every age group, age-specific fertility rates declined in the early 1990s but then many increased in late 1990s. This may be explained in part by the small increases in sexual activity among younger women, particularly in urban areas, seen in the late 1990s in Uganda. Percentage declines in age specific fertility rates among 20- to 39-year-olds were between 23% and 41% in Kenya, 21% and 32% in Zimbabwe, and 15% and 20% in Cameroon during the decade. In Zambia, declines were between 4% and 9% among 20- to 39-year-olds.

The trends in age-specific fertility rates among the 15- to 19-year-olds are mixed. In Kenya, the rates declined in the first half of the decade then virtually remained the same in the last half of the 1990s; in Uganda the rate increased in the first half (when a larger percentage of 15- to 19-year-old women were married) and decreased at the end of the 1990s;

and in Zambia the rate continued to slightly increase over time. However, the rates for younger women are based on relatively few cases and have large sampling errors.

Median Age at First Birth

It would be expected that if a significant group of young people delayed onset of sexual intercourse, then age at first birth would also increase. On the other hand, the fear of contracting HIV during the search for a marriage partner may influence young people to rush into marriage, thereby overriding delay of sexual initiation. Data shown in Figure 5.4 and Table 5.3 suggest that overall, the median age at first birth (among women aged 20–49 years) increased during the 1990s in all countries. However,

Figure 5.4 Trends in median age at first birth among women aged 15–49 years, DHSs late 1980s-2001
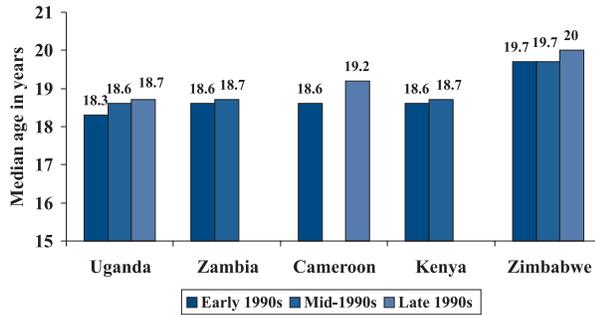
Figure 5.5 Trends in percentage of women aged 15-19 years who had begun childbearing, DHSs late 1980s-2001
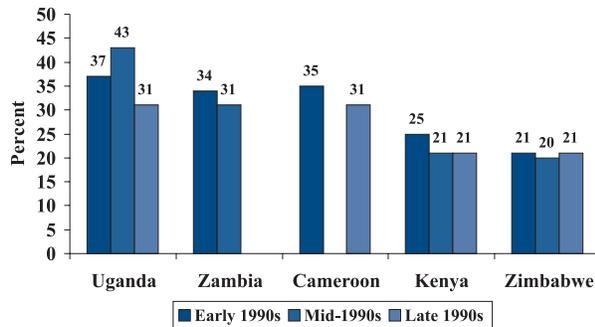
in Zambia and Uganda the rise in age at first birth was modest throughout the 1990s, despite the significant increases in age of sexual debut. During the early to mid-1990s, first birth occurred at a median age that was slightly higher among 20- to 24-year-olds than among 25- to 49-year-olds. Between the first and later surveys, the median age at first birth among 20- to 24-year-olds dropped slightly in Uganda and Zambia, but continued to rise in Kenya and Cameroon. In Zimbabwe, median age at first birth rose modestly. Age at first birth was consistently higher in urban than rural areas in all countries and throughout the decade (Table 5.3).

Adolescent Childbearing

Changes in reproductive behavior, particularly an increase in age at first marriage, a delay in sexual debut, or adoption of sexual abstinence by young people, would be expected to affect teenage pregnancy levels. Figure 5.5 and Table 5.4 show the percentage of adolescent women (aged 15–19) who had started childbearing at the time of the

survey, according to age and urban/rural residence. Overall, the data show declining trends in adolescent childbearing in four of the five countries presented, though with varying differences across countries and inter-survey periods. In Zimbabwe, adolescent rates of childbearing remained nearly the same throughout the decade. This may be due to the relatively late age of sexual debut among young women, and because teenage childbearing in Zimbabwe was already relatively low at the beginning of the decade compared to the rest of the study countries.

For all ages from 15 to 19, adolescent women in Uganda show strikingly different trends in childbearing from the other countries (Table 5.4). For almost every age, childbearing rates either remained the same or increased between the late 1980s to early 1990s, with increases in childbearing seen among 18- and 19-year-olds and in rural areas. This increase in teenage childbearing was likely due to the increase in the percent of women in this age group who were married. During the late 1990s, adolescent childbearing in Uganda declined by 5 percentage points among 15-year-olds and by a high of 20% among 17-year-olds. The declines were seen among both urban and rural residents. This may be partly explained by a decline in the percent of young women in this age group who were married and perhaps by the trend towards delayed age of sexual debut.

In Zambia, during the early 1990s, a similar shift away from adolescent motherhood is evident, particularly among older adolescents and those living in rural areas. Trend data are not available for the later part of the decade. Throughout the 1990s, Kenya and Cameroon experienced declines in adolescent motherhood among nearly all age groups. For Kenya, declines in adolescent childbearing were larger during the first than the last half of the 1990s.

Ideal Number of Children
The concerns about AIDS orphans, vertical transmission of HIV, or HIV status being revealed during childbearing may influence a reduction in desire for children among couples. On the contrary, the need to have more children for "insurance" purposes or to replace dead children could lead to the desire for more children. Figure 5.6 and Table

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5.5 present data on the mean ideal number of children among women and men who gave numeric responses to a hypothetical question on the number of children they would choose to have if they had a chance[3] by age and urban/rural residence. Some respondents may have had difficulty answering this hypothetical question if they were unfamiliar with family planning or because of the limitations of normative beliefs. The data show that the number of children women and men desire declined over time, but with varying differences across countries and by sex. Figure 5.6 shows that declines were more rapid during the first half than the last half of the decade. At the beginning of the decade, overall mean ideal family size among women was five and above in all countries except Kenya. By the end of the 1990s, the mean ideal number of children among women had dropped by about half to one child in Cameroon, Kenya, Zimbabwe, and Zambia, and by almost two children in Uganda. In all countries, men reported higher ideal number of children on average than women. The sex differential in the ideal number of children was greater in Cameroon, Uganda and Zambia than in Kenya and Zimbabwe (Table 5.5).

In all countries, the mean ideal number of children declined among women and men of all ages (Table 5.5). Nonetheless, women and men aged 15–24 consistently desired fewer children than those aged 25–49 across all surveys. In Kenya, the average desired family size among women and men nearly remained the same between the mid- and late 1990s regardless of age. Urban women and men expressed desire for smaller families than their rural counterparts in all countries. With the exception of men in Kenya, the mean ideal number of children declined in both urban and rural areas in the rest of the study countries during the decade.

Wanted Fertility Rates

Total wanted fertility is another measure of fertility preferences, which theoretically expresses the level of fertility that would result if all unwanted births were prevented. It provides another indicator of fertility aspirations and may be interpreted as the number of births that a woman would have by age 50 if she experienced the wanted fertility rate. This measure is calculated in the same manner as the conventional total fertility rate, except that unwanted

Figure 5.6 Trends in mean ideal number of children among women aged 15–49 years, DHSs late 1980s-2001
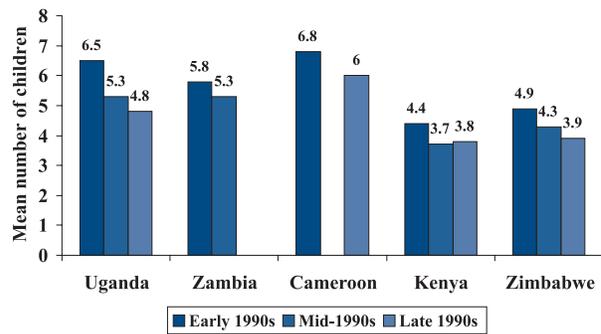
births are excluded from the numerator. For this report, unwanted births are defined as those which exceed the number considered ideal. Women who did not report a numeric ideal family size were assumed to want all their births. Comparison of the actual fertility rate with the wanted fertility rate would indicate the potential success in women achieving their reproductive intentions. Table 5.6 presents the total wanted fertility rates for the three years preceding the survey (compared to the total fertility rates presented earlier in Table 5.5.)

The data show that if all unwanted births were reduced, the total fertility rate would be lower by almost one to two children per woman in all countries under study and across survey periods. In Uganda, the gap between wanted and actual fertility widened much more between the late 1980s/early 1990s and the end of the decade, while these differences narrowed over time in Zambia, Cameroon, Kenya, and Zimbabwe. The gap between wanted and observed fertility was greater among women living in rural than urban areas in Uganda, Kenya and Zimbabwe and lower in rural than urban areas in Zambia.

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[3] The question was asked differently for respondents with children and those without children: "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?" or, "If you could choose exactly the number of children to have in your whole life, how many would that be?"

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Figure 5.7 Trends in percentage of currently married women currently using modern contraception, DHSs late 1980s-2001
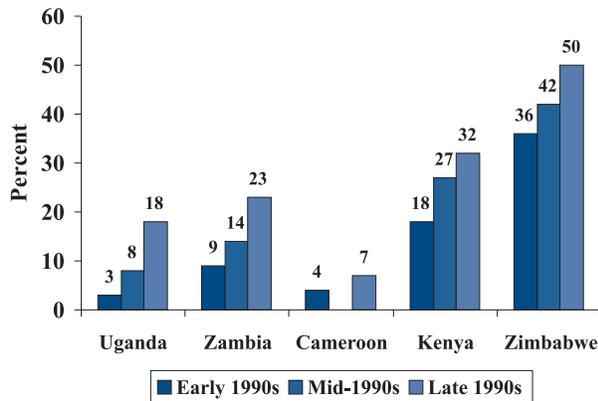
Figure 5.8 Trends in percentage of currently married women in urban areas currently using modern contraception, DHSs late 1980s-2001
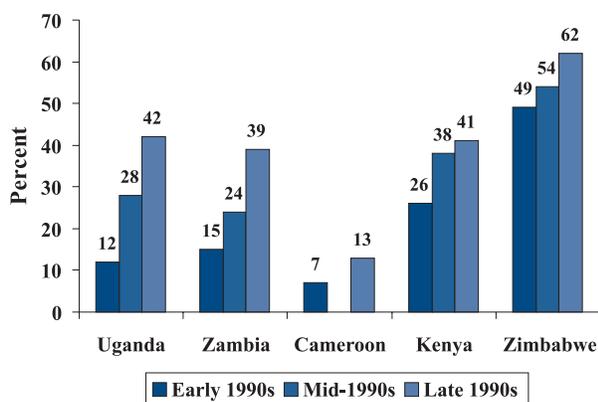
5.3 *Family Planning*

Current Use of Modern Contraception

Figure 5.7 and Table 5.7 show the levels and trends in use of modern methods of contraception by age and urban/rural residence. The data show all five countries experienced an increase in the use of modern methods of contraception with each subsequent survey, though with varying differences. Even though contraceptive prevalence rates were

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[4] Current condom use refers to use for family planning and may underestimate condom use overall if women report using another contraceptive method in addition to condoms (only the most effective contraceptive method is recorded), or if condoms used for disease prevention rather than pregnancy prevention are not reported.

highest in Kenya and Zimbabwe, Uganda and Zambia witnessed the largest relative inter-survey increase in modern contraceptive use among married women. In all countries, married men were consistently more likely than their female counterparts to report using modern contraception, though the differences are not too wide. It is likely that married men use contraceptives with extramarital partners rather than their spouses and they probably used condoms. Use of modern contraception was much lower among women and men aged 15–24 than among those aged 25–49/54 in all countries and across all surveys.

Differentials by residence show that use of modern contraception was higher among married women and men living in urban areas than their rural counterparts, across all countries and inter-survey periods (Figure 5.8). Except for Cameroon, trends in contraceptive use appear to follow the same pattern as observed for fertility; use of modern contraceptives was higher in Kenya and Zimbabwe, countries showing no decline in HIV prevalence, and lower in Uganda and Zambia, where declines in HIV prevalence have been noted. However, Kenya and Zimbabwe had much higher contraceptive prevalence rates at the start of the 1990s. Although the increases have been 14% to 16% in all countries except Cameroon, relative increases in contraceptive use were larger in Uganda (six times greater) and Zambia (two and a half times more). In Cameroon, modern contraceptive prevalence was surprisingly low with very little change over the period among females and with modest increases among men. But, use of traditional methods of contraception among married women was much higher in Cameroon (16% in early 1990s and 12% by late 1990s) than the rest of the countries, where use of traditional methods ranged from 1% to 12% among different subgroups during the decade (data not shown).

Current Use of Condoms Among Married People[4]

While HIV prevention programs emphasize use of condoms in non-regular sexual partnerships, if married people switch from hormonal contraceptives to condom use for purposes of disease prevention

as well as pregnancy prevention, then an increasing trend would be expected in the current use of condoms for family planning. Figure 5.9 and Table 5.8 show the levels and trends in current use of condoms among currently married women and men by age and residence. Although condom use among married women is still very low, it increased during the 1990s in all countries. In the early 1990s, current condom use among married women ranged from almost none in Uganda to 2% in Zambia. At the end of the decade, 4% of married women in Zambia, 2% in Cameroon, Uganda, and Zimbabwe, and 1% in Kenya reported using condoms. It appears that these modest increases in condom use among married women were largely due to increases in use among younger women and those living in urban areas (Table 5.8).

In each country and across surveys, married men were more likely than married women to report current use of condoms, presumably mainly with non-marital partners. However less than 10% of married men reported using condoms (Table 5.8). Trends in condom use among married men, however, are more difficult to track, as there are no trend data for Uganda and Zambia. In the early 1990s only 2% of married men in Cameroon used condoms, but use had increased four-fold by 1998. In the mid-1990s, overall condom use among married men was about 8% in Zambia, 7% in Kenya, 6% in Zimbabwe, and 3% in Uganda; at the end of the 1990s, use had increased by just 1% in Kenya, but declined in Zimbabwe. The largest increase in condom use occurred among men aged 15–24. For example, virtually none of the married 15- to 24-year-old men in Cameroon used condoms in the early 1990s. By the late 1990s, 16% of 15- to 19-year-olds and 8% of 20–24 year old married men reported using condoms. Similarly, condom use among married men aged 15–19 more than doubled in Zimbabwe between 1994 and 1999, but surprisingly decreased by more than 2% among urban residents. In Kenya condom use among married men aged 20–24 increased from 10% to 12% in the five-year period. With the exception of Zimbabwe, a larger percentage of married men in urban areas reported using condoms in a later survey than in an earlier one.

Figure 5.9 Trends in percentage of currently married women currently using condoms, DHSs late 1980s-2001
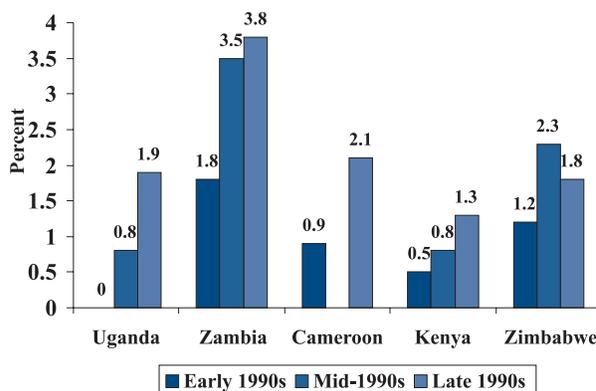
Figure 5.10 Trends in percentage of sexually active unmarried women currently using condoms, DHSs late 1980s-2001
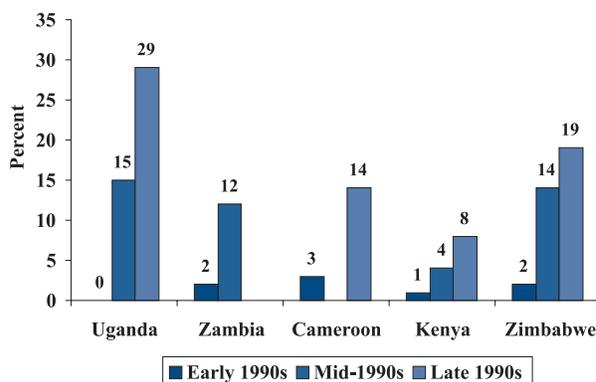
Current Use of Condoms Among Sexually Active Unmarried People[4]

Figure 5.10 and Table 5.9 indicate that in all five countries, very few sexually active unmarried women reported using condoms at the beginning of the decade. By the mid-1990s, condom use among sexually active unmarried women had increased to 4% in Kenya and to between 12% and 15% in Uganda, Zambia and Zimbabwe. By the end of the decade, use was the highest in Uganda (29%), moderate in Cameroon and Zimbabwe (14% and 19%, respectively), and lowest in Kenya (8%). Uganda, which had the largest increase in condom use during the 1990s, also experienced a decline in HIV prevalence and somewhat in incidence during this period. However, the overall proportion of sexually active single women declined significantly between the late 1980s and mid-1990s. In all

Figure 5.11 Trends in percentage of sexually active unmarried men currently using condoms, DHSs late 1980s-2001
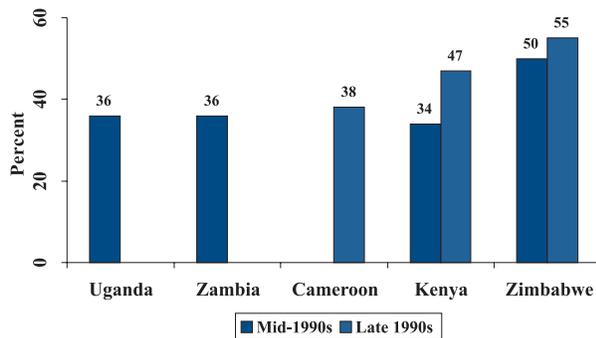
Figure 5.12 Trends in mean duration of any breastfeeding (in months), DHSs late 1980s-2001
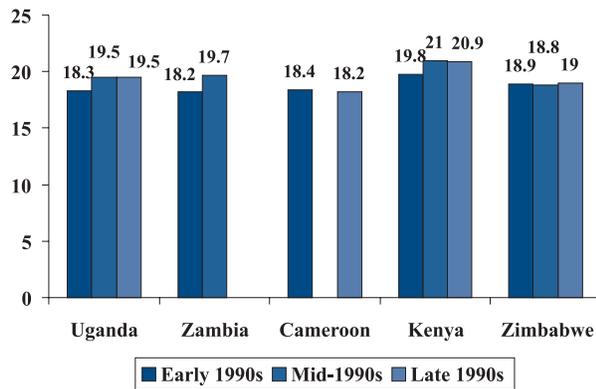
countries, unmarried men were significantly more likely than unmarried women to use condoms.

Similar patterns are observed by age. In the early 1990s, no age differences existed in use of condoms among unmarried women (Table 5.9). But by mid-1990s use of condoms among unmarried women had remarkably increased across all ages, although unmarried women aged 15–24 were more likely to use than the 25- to 49-year-olds. The age differences were more pronounced in Uganda and Zimbabwe than in Kenya and Zambia. The increasing trend in condom use among unmarried women of all ages remained to the end of the decade. Overall, condom use was higher among unmarried men aged 15–39 than those over 40 years old. Levels of condom use rose in urban and rural areas, except Zimbabwe where condom use increased in urban areas but declined in rural areas among sexually active unmarried women and men during the 1990s.

5.4 *Other Proximate Determinants of Fertility*

Breastfeeding
Concerns over mother-to-child transmission of HIV or regular partners having other relationships might influence women to shorten breastfeeding and periods of postpartum abstinence. Similarly, high HIV-induced infant mortality might lead to shorter periods of breastfeeding and postpartum abstinence. Data shown in Figure 5.12 and Table 5.10 suggest that the mean duration of breastfeeding has not changed appreciably in any country. Overall, the mean duration of breastfeeding increased slightly between the early and mid-1990s in Kenya, Uganda and Zambia, but then almost remained the same in the last half of the 1990s in these countries (data for Zambia at the end of the decade were not yet available). In Cameroon and Zimbabwe, the duration of breastfeeding changed little during the 1990s.

Age is associated with breastfeeding durations (Table 5.10). Younger women were more likely than older ones to breastfeed for shorter periods. Breastfeeding duration declined slightly or remained the same over time among 15- to 19-year-olds in Cameroon and among 20- to 24-year-olds in Kenya, Uganda and Zimbabwe. Overall, no clear differences exist in changes in breastfeeding durations by level of HIV prevalence or changes in sexual behavior. In all countries, urban women breastfed less compared to rural women, although the gap between urban and rural areas narrowed over time.

Postpartum Abstinence
Overall, periods of postpartum abstinence have consistently declined in four of the five countries under review (Figure 5.13). In the early 1990s, periods of abstinence ranged from an average of four months in Zimbabwe, Zambia, and Uganda to six months in Kenya and 13 months in Cameroon. By the end of the 1990s, these had declined by one to three months in all countries but Zambia, with most of the declines occurring in the first half of the 1990s. Younger women (those under age 30) and women in urban areas tended to have shorter durations of postpartum abstinence than older

women (those over age 30) and women in rural areas (Table 5.11).

Birth Intervals

There is increasingly strong evidence that larger birth intervals (used to gauge birth spacing) are associated with improved child health outcomes. Figure 5.14 and Table 5.12 show levels and trends in the median number of months (interval) since the previous birth, and by age and urban/rural residence limited to all births up to five years before the date of the surveys. Overall, median birth intervals increased noticeably in Kenya and Zimbabwe, and just slightly in Cameroon and Zambia. In Uganda birth intervals remained virtually unchanged during the decade.

The median birth interval is longer among births to older than younger women (Table 5.12). Throughout the decade, median birth intervals among 15- to 19- year-olds remained almost the same or decreased in all countries except Zimbabwe where the median birth interval increased. Notable increases in birth intervals occurred during the decade among women aged 25–49 years in Zimbabwe and in Kenya. During the 1990s, the median birth interval increased among 25- to 39-year-olds by nine months in Zimbabwe, from 33 to 42 months. In Kenya, the median birth interval for 25- to 39-year-olds was 29 months in 1988–1989 compared to 34 months in 1998 — an increase of 5 months. Cameroon, Uganda and Zambia each had a small increase of only one month among 25- to 39-year-olds, while no change occurred in Zambia among this age group during the five-year period (1992–1996). Trend data are available for only half of the 1990s in Zambia as the data from the 2001–2002 DHS were not yet published.

Overall, there was little difference in birth intervals by residence (only a one- to two-month difference) between the first and last survey except in Zimbabwe, where urban women had longer birth intervals than rural women. The longer birth intervals in urban areas appear to be associated with high levels of modern contraceptives among urban women.

Figure 5.13 Trends in median duration of postpartum abstinence (months), DHSs late 1980s-2001
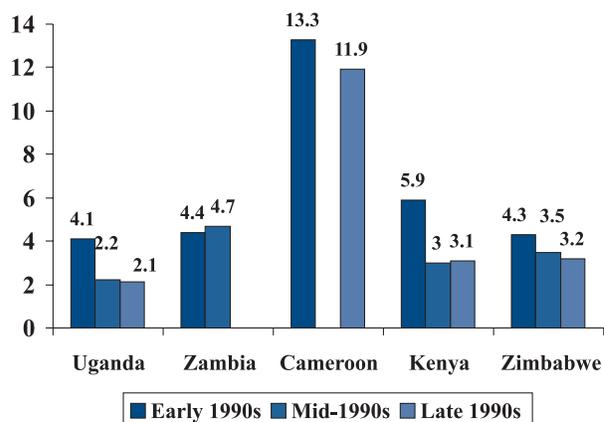
Figure 5.14 Trends in median birth intervals (months), DHSs late 1980s-2001
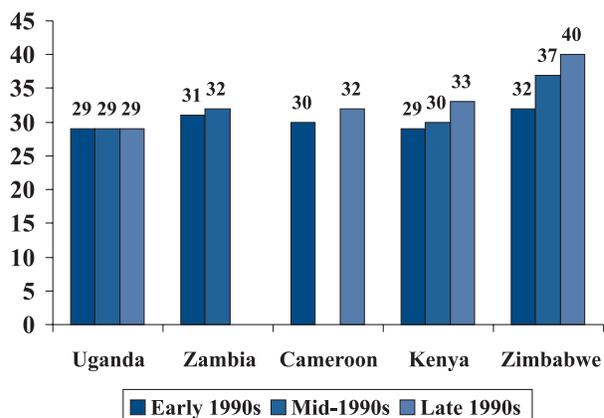
Chapter 6: Summary

This chapter summarizes changes in sexual behavior in the six countries under review and the relationship between these changes and fertility. A summary and interpretation of key findings is presented for each country. This is followed by key observations from the cross-country comparisons of sexual behavior and fertility-related behavior.

6.1 *Country Summaries*

Uganda

While some declines in HIV incidence are likely to have occurred through the mid- to late 1990s in Uganda, the greatest declines in HIV incidence are thought to have occurred in the late 1980s and early 1990s. Thus, a focus on behavioral changes that took place during these earlier years is important for understanding what may have been behind the initial decline in incidence.

A significant increase in age of sexual debut among youth occurred from the late 1980s through the end of the 1990s. The decline in premarital sex in the early part of the decade reflects a later age of sexual debut as well as an increase in abstinence among unmarried youth who had already initiated sexual activity. Data from sub-national surveys indicate a substantial decline in non-regular and multiple sexual partners from the late 1980s to mid-1990s, particularly for men. A large decline in commercial sex was also likely to have occurred. During the second part of the 1990s, changes in sexual partnering were mixed, a finding confirmed by the Ministry of Health's behavioral surveillance surveys (Kirungi, 2002). A substantial increase in the use of condoms occurred from the late 1980s, when levels of condom use were very low, through the end of the 1990s, when condom use with non-regular partners was relatively high. The greatest increases have been among young, unmarried men and women and among those with non-marital partners. However, since most sex is occurring within regular partnerships (where condoms are seldom used), the percent of Ugandans overall using condoms remains relatively low.

In assessing trends in sexual behavior in the context of declining HIV incidence, it is likely that declines in non-regular and multiple partnerships played a key role in the declining HIV incidence in the late 1980s and early 1990s. A delay in sexual debut also occurred during these early years (with change most apparent in urban youth), as did a reduction in premarital sexual activity. Such changes among youth were clearly very important, but alone are unlikely to account for the large decline in HIV incidence in the earlier years. In addition, while condom use increased steadily through the 1990s, use with non-regular partners did not reach substantial levels until the mid-1990s. While changes in sexual behavior well into the 1990s may have contributed to declining incidence in the 1990s, it is also possible that with sufficient behavior change in the late 1980s, HIV prevalence and incidence would have continued to decline even without additional behavior change. This issue will be addressed using modeling in Phase II of the ABC Study.

Uganda is notable for its "Zero Grazing" behavior-change campaign beginning in the late 1980s which encouraged men and women to "stay within the household" and not seek sex elsewhere. Adolescents in Uganda have also been a special focus of AIDS education campaigns, many of which have encouraged postponing sex, secondary abstinence, and fidelity. Condom promotion had increasing emphasis throughout the 1990s. The significant changes seen in sexual behavior are consistent with the prevention strategy in Uganda. It is difficult to determine, however, the extent to which these changes are directly attributable to HIV prevention programs rather than to other factors. It is possible that early changes also came about in part as a result of being exposed to AIDS-related morbidity and mortality in the community, or perhaps because of the stabilization of society after the end of a 20-year civil war. These questions will be explored in greater depth in Phase II of the Study.

While a delay in age of sexual debut among youth and declines in sexual activity with non-regular partners among both youth and adults have been noted, there was no decline in fertility rates that can be attributed to these changes. In fact, fertility rates in countries without significant changes in sexual behavior declined to a greater extent than they have in Uganda. While overall fertility rates stagnated in

Uganda in the later part of the 1990s, fertility continued to decline substantially in urban areas. Whether or not this decline in fertility was linked to the large declines in sexual activity that occurred in urban areas (particularly among youth) is not clear. More likely, declines in fertility were due to other factors related to urbanization such as higher levels of education and greater access to and use of modern contraceptives.

Despite the relatively small declines in fertility, Uganda experienced the greatest increases in CPR among married women with an average increase in the CPR of 1.5% per year. Uganda, however, was starting with much lower levels of contraceptive use than most of the other countries considered here. Despite the increases, the CPR lagged behind among 15- to 24-year-olds. This low use of contraception by young married women, coupled with a reduced period of postpartum abstinence, may more than offset any gains from the increase in age of sexual debut and decline in premarital sexual activity among younger women. While the CPR remained relatively low, the use of condoms by single, sexually active women (the main method of contraception among this group) was far greater in Uganda than in the other countries considered here, particularly among younger women. While the high levels of condom use may have provided protection from HIV, they appear to have done little to reduce fertility. This may be the case in part because the total number of sexually active single women represents a small overall proportion of the total female population in Uganda.

Zambia

HIV prevalence among young women seeking antenatal services appears to have declined in the mid-to late 1990s, particularly in urban areas. Results from our analysis of behavioral data indicate that there were declines in premarital sex and later onset of sexual activity, particularly for young men. In addition to changes in sexual behavior among youth, there were declines in non-regular partnerships and multiple sexual partners among men and women; these changes occurred among both younger and older respondents and in both urban and rural areas. Large increases in condom use with non-regular

partners were also evident, particularly for women. These changes are consistent with the declines in HIV prevalence among youth seen in the late 1990s and the efforts of behavior-change communication programs to delay age of sexual debut among youth and promote condom use for those who are sexually active.

It is notable that the levels of high-risk sexual behavior in Zambia in the mid-1990s resemble those seen in Uganda in late 1980s/early 1990s. The figures for the late 1990s in Zambia somewhat resemble those of the mid-1990s in Uganda (though levels may have been a bit higher in the former), indicating that changes in sexual behavior that occurred in Zambia may be similar to those in Uganda, though they occurred later. Compared to Uganda, the response to the epidemic in Zambia also came much later. As with Uganda, the delay in age of sexual debut and the decline in sexual activity outside of marriage appear not to have resulted in large declines in fertility.

Thailand

Thailand has been experiencing a concentrated AIDS epidemic that began in the mid-1980s and peaked among several high-risk groups in the mid-1990s, though it has continued to increase among intravenous drug users. While data on a national scale are much more limited in Thailand than they are in the other countries included here, the evidence points towards a reduction in high-risk sexual behavior and an increase in the use of condoms during commercial sex, which is a major mode of HIV transmission in Thailand. Results of behavioral surveillance of high-risk groups such as commercial sex workers and military conscripts, while not included in this report, also point towards decreasing visits to commercial sex workers and increased use of condoms during these encounters (UNAIDS, 1998b). The rapidly expanded response to the epidemic in Thailand began in 1991 with policies of aggressively promoting condom use in commercial sex and expanding STD services. In addition to increasing use of condoms during commercial sex work, there also appears to have been a reduction in non-regular (primarily commercial) sex partners. While this report did not assess fertility-related trends in Thailand, it is unlikely

that the changes in sexual behavior that occurred in the early 1990s would have had much of an effect on fertility as the reduction in sexual activity was with partners for whom childbearing was not the main motivation. In fact, by the early 1990s, Thailand had already undergone a demographic transition and had reached replacement fertility, and while there were some declines in fertility in the early part of the 1990s, they were minimal.

Kenya, Cameroon, and Zimbabwe

Of the three countries that did not experience a significant decline of HIV infection during the 1990s, none had consistent and significant patterns of changes in sexual behavior, other than increases in condom use. While there were some change in sexual behavior in Kenya, changes were less extensive relative to those in Uganda and Zambia. In Kenya, there is some evidence for a decline in premarital sex among men and a slight reduction in non-regular partners among men and women in urban areas. However, rates of premarital sex and of multiple sexual partners among single respondents in Kenya remained high and they changed little. In addition, condom use among women with non-marital partners remained low and increases in condom use were not as great as in other countries under study.

With the exception of increases in condom use, the data, though limited, do not indicate that widespread behavior change occurred in Zimbabwe. There is no evidence for a delay in age at first sex among men and women, nor for declines in premarital sex. Unfortunately, there are no trend data available to assess changes in faithfulness or partner reduction during the 1990s. When it comes to sex outside of marriage, rates in Zimbabwe were on par with those in Kenya and were higher than those in Uganda. What is notable, however, is that rates of multiple sexual partners were low, age of sexual debut was relatively late, and there were low levels of reported premarital sex. While preliminary data from a recent population-based survey of young adults in Zimbabwe reports similar levels of sexual experience among youth and of having two or more sexual partners, the estimates of three or more partners may be higher (CDC, nd). In addition, evidence from qualitative studies indicates that there may have been underreporting of early sexual activity in quantitative

surveys in Zimbabwe, particularly for females (Gregson and Nyamukapa, 2002).

Finally, data from Cameroon, a country with low yet increasing HIV prevalence, indicate that there was little change in age of sexual debut or in the occurrence of premarital sex among young women during the 1990s. While current condom use among non-married respondents increased, use still remained relatively low at the end of the decade. As with Zimbabwe, however, trend data on faithfulness and partner reduction are limited for women and are non-existent for men. Levels of high-risk sexual activity at the end of the decade were much higher in Cameroon than in any of the other countries considered in this report, indicating that large-scale reductions in non-regular and multiple partners are not likely to have occurred over the past decade.

While these countries experienced little change in age of sexual debut, the rise in modern contraceptive use may explain the large declines in fertility rates in those countries. While use of modern contraceptives remained low in Cameroon, age at first marriage was later and the duration of postpartum abstinence was much longer than in the other countries considered — factors that contribute to a lower than expected fertility rate. The possibility of an increase in abortion should also be considered.

6.2 Comparative Analysis of Sexual Behavior

In Uganda and Zambia, where there were delays in ages of sexual debut, declines in premarital sex, reductions in the occurrence and number of sexual partners outside of marriage, and increases in the use of condoms with non-marital partners, HIV prevalence declined. These are also the countries in which HIV prevention programs appear to have taken a more comprehensive approach and have promoted delay among youth and partner reduction, as well as the use of condoms. In Cameroon, Kenya, and Zimbabwe, where behavior change was not as widespread, and the prevention approach appears to have been more narrowly focused on condom promotion, HIV prevalence did not decline during the 1990s. While we cannot directly infer causality from this descriptive study between large-scale

declines in high-risk sexual behavior and declines in HIV prevalence, results are consistent with a positive association between the two.

There is substantial heterogeneity in the spread of HIV across the African continent and globally. Numerous explanations have been put forward to explain the large differences in HIV prevalence within and across countries. Biological explanations have included different subtypes of HIV-1 with potentially varying levels of infectivity and differences in infectivity related to the presence of co-factors such as sexually transmitted infections and male circumcision. Differences in sexual practices have also been put forward as explanations for the varying levels of infections.

While the changes in sexual behavior within the countries described in this report are consistent with trends in HIV infection, differences in the levels of high-risk sexual behavior between countries are insufficient to fully explain the differences in levels of HIV prevalence. Zimbabwe, with a very high HIV prevalence, had a later age of sexual debut among youth, relatively low reported rates of multiple partnerships and commercial sex, and very high use of condoms with non-regular partners. In contrast, Cameroon, with HIV prevalence relatively low (though increasing), premarital sex was common, rates of non-regular partnerships and multiple partnerships were high, and condom use was low (though increasing).

It is clear that other factors must also be considered when explaining differences in absolute levels of HIV infection across the countries. One important factor may be the differing rates of male circumcision. In Cameroon, for example, where nearly all males were circumcised, despite the levels of high-risk sexual behavior, HIV prevalence remained relatively low. Zimbabwe, on the other hand, a country where male circumcision is not commonly practiced, reported low levels of high-risk behavior, yet HIV prevalence was high. In Kenya, HIV prevalence was very high in the western part of the country where rates of circumcision were low.

Another factor to consider is that other markers of sexual activity may also account for cross-country differences. For example, the number of lifetime sexual partners has been found to be positively associated with HIV prevalence in Yaounde, Cameroon (Auvert, Carael et al., 2002), a factor not included in the present analysis as these data are not routinely collected. Other plausible explanations may include differences in the presence of the other STDs such as HSV-II, and cultural practices surrounding sexuality such as the practice of dry sex (Brown, 2000). Further research is needed to define more clearly the role of these and other potential factors in facilitating the spread of HIV.

The findings from this comparative analysis are consistent with results of a study of four urban areas in sub-Saharan Africa, two with high HIV prevalence (Ndola, Zambia and Kisumu, Kenya) and two with much lower HIV prevalence (Cotonou, Benin and Yaounde, Cameroon). Researchers found that differences in HIV prevalence could not be explained mainly by differences in sexual behavior (Buve, 2001). A more recent analysis of the four-city study using simulation models found that differences in rates of male circumcision and number of lifetime partners were the only major factors that explained the heterogeneous spread of HIV (Auvert, Ferry et al., 2002).

6.3 Comparative Analysis of Fertility

The findings show that during the period under review (1988–2001), overall fertility levels declined in all countries. However, the timing, the pace, and the pattern of declines varied across countries. The declines were more dramatic in the first half than the last part of the decade in all countries. In Kenya, Zimbabwe, and Cameroon, there were steep declines in fertility, while in Uganda and Zambia, fertility decline were more modest. In both Uganda and Zambia, there were significant delays in age of sexual debut among youth, though this does not appear to have had significant effects on fertility. It seems most plausible to suggest that much of the fertility declines in these countries were due to increases in use of modern contraceptives.

It may be possible that any suppressive effects of a reduction in sexual activity on fertility could be counterbalanced by any upward effects of AIDS on fertility. There is debate as to whether AIDS is reducing durations of breastfeeding and postpartum abstinence — both important means of regulating fertility in sub-Saharan Africa. Fear of mother-to-child transmission may lead to a reduction in breastfeeding, while fear of the male partner contracting HIV during extramarital sex may lead to shortened periods of postpartum abstinence (Carael, 1995). Likewise, increased mortality due to AIDS may lead to an increase in desired family size in order to ensure the survival of some children (Ntozi, 1998), though there is no empirical data to support this claim.

It has been suggested that the use of less effective methods of contraception such as condoms may have contributed to increased fertility. Trends in condom use among married women and men do not support this claim. Compared to use of any modern methods, overall current use of condoms remained extremely low in the 1990s among currently married women and men in all countries. Condoms were primarily being used by young and single men and women and with partners outside of the marital union where the frequency of sex is likely to be more sporadic and childbearing is not a prime motive for having sex. Furthermore, dramatic increases in condom use among sexually active unmarried women and men were evident in all countries, suggesting that condoms are used mainly for disease prevention.

Perhaps the competing pressures of achieving fertility goals, mortality from AIDS-related deaths, concerns over transmitting AIDS in the process of childbearing, and socioeconomic hardships during the 1990s may have caused the leveling off of fertility declines during the mid- to late 1990s, as this was the time when the effect of AIDS was most felt in many countries. Cameroon may be different because HIV prevalence was still relatively low. At the same time, the last decade was marked by social and economic hardships in many sub-Saharan African countries (Ainsworth, 1994). Some have argued that the World Bank's structural adjustment programs, for example, resulted in cost sharing in health and education sectors, which may have adversely affected the standard of living of the majority of people. Fertility desires and aspirations may have stabilized at this time when there was pervasive poverty and insecurity over the survival of children, as well as concerns regarding AIDS-related deaths. In addition, as countries (and therefore programs) have increasingly focused their efforts towards addressing the AIDS epidemic, family planning priorities may inadvertently have suffered as a result.

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Appendix A: Tables

Table 3.1 Trends in educational attainment and employment status of women and men by background characteristics*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda			GROUP I			
Education[a]						
No education	38	31	22	u	12	6
Primary	52	56	60	u	63	65
Secondary+	10	14	18	u	25	29
Work status[bc]						
Working	u	61	73	u	u	63
Not working	u	39	27	u	u	37
Zambia						
Education						
No education	16	13	12	u	7	5
Primary	60	59	58	u	51	51
Secondary+	24	28	30	u	42	44
Work status						
Working	48	46	u	u	63	u
Not working	52	54	u	u	37	u
Cameroon			GROUP II			
Education						
No education	40	u	28	43	u	15
Primary	34	u	39	33	u	40
Secondary+	27	u	33	24	u	46
Work status						
Working	57	u	69	u	u	75
Not working	43	u	31	u	u	25
Kenya						
Education						
No education	25	18	12	u	8	4
Primary	55	58	60	u	54	56
Secondary+	20	25	29	u	38	41
Work status						
Working	12	49	52	u	95	66
Not working	87	51	48	u	5	34
Zimbabwe						
Education						
No education	14	11	7	u	4	3
Primary	56	48	40	u	40	32
Secondary+	31	42	53	u	56	66
Work status						
Working	34	51	49	u	58	49
Not working	66	49	51	u	42	51

[a] Note that education categories refer to the highest level of education attended, whether or not the level was completed.
[b] Includes all types of work, i.e., paid and unpaid, formal and informal, agriculture and professional/managerial, etc.
[c] The 1989 UDHS is missing work status data because the question on current work status was asked only of women who reported that they had ever worked regularly to earn money other than on a farm or in family-run business, thus excluding the majority of women who farm or work in a family business. The 1989 survey questions on work status are, therefore, not comparable to what appears in the 1995 and 2000 UDHS. The later surveys used very different (and similar) sets of questions that include all work form money, on the farm or in family business.
u: Data not available.
* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.1 Percent of men and women aged 15–19 who had ever had sex*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda			GROUP I			
Residence						
Urban	66	59	54	u	58	48
Rural	62	62	52	u	46	37
Total	62	62	52	u	48	39
Zambia						
Residence						
Urban	56	53	40	u	67	34
Rural	66	63	67	u	63	52
Total	61	58	56	u	65	44
Cameroon			GROUP II			
Residence						
Urban	66	u	63	u	u	52
Rural	70	u	67	u	u	46
Total	68	u	65	u	u	50
Kenya[1]						
Residence						
Urban	61	42	53	u	u	57
Rural	43	47	41	u	u	54
Total	46	46	44	u	u	54
Zimbabwe						
Residence						
Urban	27	26	30	u	35	30
Rural	35	31	34	u	32	29
Total	33	30	32	u	33	29

u: Data not available.

[1] The age range for men in the 1993 Kenya DHS (20–54 years) does not allow for the calculation of this indicator.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.2 Median age at first sex among youth aged 15–24*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda				GROUP I		
Residence						
Urban	16.3	17.0	17.0	u	17.2	17.3
Rural	16.5	16.7	17.3	u	17.6	18.4
Total	16.5	16.7	17.3	u	17.6	18.3
Zambia						
Residence						
Urban	17.1	17.5	18.0	u	16.3	19.2
Rural	16.6	16.6	16.7	u	16.2	17.2
Total	16.9	16.9	17.1	u	16.2	18.1
Cameroon				GROUP II		
Residence						
Urban	16.5	u	16.6	u	u	17.6
Rural	15.9	u	16.4	u	u	17.6
Total	16.2	u	16.5	u	u	17.5
Kenya[1]						
Residence						
Urban	16.9	18.5	17.4	u	u	17.0
Rural	18.0	17.7	17.9	u	u	17.1
Total	17.9	17.8	17.9	u	u	17.1
Zimbabwe						
Residence						
Urban	19.8	19.9	19.4	u	18.5	19.1
Rural	18.4	18.7	18.5	u	18.9	19.0
Total	18.9	19.0	18.8	u	18.8	19.0

u: Data not available.

[1] The age range for men in the 1993 Kenya DHS (20–54 years) does not allow for the calculation of this indicator.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.3 Percent of women and men who had not yet married*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda			GROUP I			
Never married						
15–19	59	50	68	u	87	94
20–24	17	12	15	u	45	95
25–39	3	3	4	u	9	9
40+	1	1	1	u	2	3
Zambia						
Never married						
15–19	70	73	u	u	99	u
20–24	21	22	u	u	68	u
25–39	3	5	u	u	12	u
40+	0	1	u	u	1	u
Cameroon			GROUP II			
Never married						
15–19	56	u	64	u	u	96
20–24	19	u	26	u	u	72
25–39	4	u	7	u	u	24
40+	1	u	1	u	u	2
Kenya						
Never married						
15–19	80	84	83	u	u	99
20–24	32	36	35	u	78	77
25–39	7	7	8	u	14	17
40+	2	2	2	u	1	2
Zimbabwe						
Never married						
15–19	80	79	77	u	98	99
20–24	29	28	28	u	74	76
25–39	4	4	6	u	15	16
40+	1	2	1	u	1	2

u: Data not available.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.4 Percent of women and men aged 20–24who were first married by exact age 20 years in selected countries, DHSs late 1980s–2001*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
			GROUP I			
Uganda	73	75	75	u	28	22
Zambia	64	64	u	u	11	u
			GROUP II			
Cameroon[1]	73	u	61	62	u	53
Kenya	53	46	46	u	5	8
Zimbabwe	53	52	53	u	7	8

u: Data not available.
[1] Data for Cameroon are for married men only.
* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.5 Premarital sex: Percent of never-married 15- to 24-year-olds who had sex in the previous 12 months*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda			GROUP I			
Residence						
Urban	50	27	37	u	45	47
Rural	33	21	24	u	30	27
Total	35	22	27	u	33	31
Zambia						
Residence						
Urban	40	32	20	u	60	28
Rural	38	39	35	u	61	46
Total	39	34	26	u	60	36
Cameroon			GROUP II			
Residence						
Urban	54	u	58	u	u	62
Rural	41	u	46	u	u	54
Total	48	u	52	u	u	58
Kenya[1]						
Residence						
Urban	45	40	40	u	u	56
Rural	30	33	30	u	u	57
Total	33	35	32	u	u	56
Zimbabwe						
Residence						
Urban	21	13	17	u	44	40
Rural	17	13	13	u	35	31
Total	18	13	15	u	38	34

u: Data not available.
[1] The age range for men in the 1993 Kenya DHS (20–54 years) does not allow for the calculation of this indicator. If this indicator is calculated for men aged 20–24, the estimates are as follows: 1993 U-87, R-86, T-86, 1998: U-70, R-79, T-76 showing a decline in premarital sex among men aged 20–24 in Kenya.
* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.6 Percent of respondents who had sex in the previous year reporting sex with one or more non-marital/non-cohabiting partners in the previous 12 months[2]*

		Women			Men		
		Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda				GROUP I			
Age							
	15–24	u	15 (14)	22	u	61 (50)	59
	25+	u	10 (10)	9	u	18 (18)	19
Residence							
	Urban	u	22 (20)	25	u	43 (40)	49
	Rural	u	10 (10)	12	u	28 (25)	24
Total		u	12 (12)	14	u	30 (27)	28
Zambia							
Age							
	15–24	u	35	26	u	86	67
	25+	u	15	9	u	31	18
Residence							
	Urban	u	26	20	u	55	30
	Rural	u	20	13	u	52	28
Total		u	23	16	u	53	29
				GROUP II			
Cameroon							
Age							
	15–24	u	u	41	u	u	86
	25+	u	u	20	u	u	49
Residence							
	Urban	u	u	38	u	u	72
	Rural	u	u	23	u	u	55
Total		u	u	28	u	u	61
Kenya[1]							
Age							
	15–24	u	(37)	39 (33)	u	(84)	87 (84)
	25+	u	(11)	14 (12)	u	(27)	27 (24)
Residence							
	Urban	u	(33)	30 (27)	u	(42)	40 (36)
	Rural	u	(17)	19 (16)	u	(38)	38 (35)
Total		u	(20)	22 (19)	u	(39)	39 (35)
Zimbabwe							
Age							
	15–24	u	u	20	u	u	82
	25+	u	u	10	u	u	26
Residence							
	Urban	u	u	18	u	u	42
	Rural	u	u	11	u	u	39
Total		u	u	14	u	u	41

u: Data not available.

[1] The age range for men in Kenya is 20–54 years.

[2] Figures in parentheses () indicate a six-month rather than a 12-month reference period.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.7 Extramarital sex: Percent of married and cohabiting respondents who had sex with someone other than their spouses in the previous 12 months[2]*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda				GROUP I		
Age						
15–24	u	3	3	u	27	16
25+	u	2	2	u	11	11
Residence						
Urban	u	4	3	u	20	19
Rural	u	2	2	u	13	11
Total	u	2	3	u	14	12
Zambia						
Age						
15–24	u	2	2	u	33	17
25+	u	2	2	u	19	11
Residence						
Urban	u	2	1	u	18	12
Rural	u	2	2	u	23	12
Total	u	2	2	u	21	12
Cameroon				GROUP II		
Age						
15–24	u	u	5	u	u	34
25+	u	u	6	u	u	34
Residence						
Urban	u	u	6	u	u	43
Rural	u	u	5	u	u	31
Total	u	u	5	u	u	34
Kenya[1]						
Age						
15–24	u	(2)	2 (1)	u	(29)	29 (18)
25+	u	(2)	2 (1)	u	(17)	16 (12)
Residence						
Urban	u	(3)	2 (1)	u	(21)	18 (13)
Rural	u	(2)	2 (1)	u	(17)	16 (12)
Total	u	(2)	2 (1)	u	(18)	17 (13)
Zimbabwe						
Age						
15–24	u	u	2	u	u	23
25+	u	u	1	u	u	15
Residence						
Urban	u	u	2	u	u	15
Rural	u	u	1	u	u	16
Total	u	u	1	u	u	16

u: Data not available.

[1] The age range for men in Kenya is 20–54 years.

[2] Figures in parentheses () indicate a six-month rather than a 12-month reference period.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.8 Percent of single respondents who had sex in the previous year reporting sex with two or more partners in the previous 12 months[2]*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda				GROUP I		
Age						
15–24	u	(11)	5	u	(33)	30
25+	u	(11)	6	u	(22)	32
Residence						
Urban	u	(9)	7	u	(28)	35
Rural	u	(11)	5	u	(29)	29
Total	u	(11)	6	u	(29)	31
Zambia						
Age						
15–24	u	19	8	u	55	31
25+	u	13	8	u	50	29
Residence						
Urban	u	17	6	u	54	26
Rural	u	16	9	u	53	32
Total	u	17	8	u	54	30
Cameroon				GROUP II		
Age						
15–24		u	29	u	u	67
25+		u	31	u	u	69
Residence						
Urban		u	31	u	u	68
Rural		u	28	u	u	67
Total		u	30	u	u	68
Kenya[1]						
Age						
15–24	u	(19)	17	u	(59)	54
25+	u	(20)	19	u	(50)	48
Residence						
Urban	u	(21)	18	u	(61)	54
Rural	u	(18)	18	u	(54)	51
Total	u	(19)	18	u	(55)	52
Zimbabwe						
Age						
15–24	u	u	11	u	u	27
25+	u	u	11	u	u	30
Residence						
Urban	u	u	9	u	u	31
Rural	u	u	12	u	u	25
Total	u	u	11	u	u	28

u: Data not available.

[1] The age range for men in Kenya is 20–54 years.

[2] Figures in parentheses () indicate a six-month rather than a 12-month reference period.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.9 Percent of men who had sex in the previous year who reported three or more and four or more non-regular partners in the previous 12 months[2]*

	3 or more		4 or more	
	Mid	**Late**	**Early**	**Mid**
Uganda		GROUP I		
Age				
15–24	(9)	4	(4)	2
25+	(1)	1	(0)	1
Residence				
Urban	(4)	4	(2)	2
Rural	(3)	2	(1)	1
Total	(3)	2	(1)	1
Zambia				
Age				
15–24	33	10	16	5
25+	26	14	4	7
Residence				
Urban	30	6	8	4
Rural	31	15	9	7
Total	31	12	9	6
		GROUP II		
Cameroon				
Age				
15–24	u	38	u	21
25+	u	20	u	11
Residence				
Urban	u	29	u	16
Rural	u	24	u	13
Total	u	26	u	15
Kenya[1]				
Age				
15–24	u		(17)	17
25+	u		(5)	3
Residence				
Urban	(6)	5	(6)	5
Rural	(8)	6	(8)	6
Total	(8)	6	(8)	6
Zimbabwe				
Age				
15–24	u	4	u	2
25+	u	2	u	1
Residence				
Urban	u	2	u	2
Rural	u	2	u	1
Total	u	2	u	1

u: Data not available.

[1] The age range for men in Kenya is 20–54 years.

[2] Figures in parentheses () indicate a six-month rather than a 12-month reference period.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.10 Percent of men who had sex in the previous year who reported paying for sex[3] in the previous 12 months and the percent of men who paid for sex in the previous year who used a condom at last commercial sex, late 1990s*

	Paid for Sex	Used a Condom
Uganda[2]		GROUP I
Age		
15–24	2	u
25+	1	u
Residence		
Urban	2	u
Rural	2	u
Total	2	70
Zambia		
Age		
15–24	17	41
25+	4	44
Residence		
Urban	5	65
Rural	8	34
Total	7	42
Cameroon		
Age		
15–24	27	u
25+	21	GROUP II	u
Residence		
Urban	22	u
Rural	24	u
Total	23	u
Kenya[1]		
Age		
15–24	19	64
25+	12	68
Residence		
Urban	18	82
Rural	13	61
Total	14	67
Zimbabwe		
Age		
15–24	4	78
25+	7	83
Residence		
Urban	7	98
Rural	4	63
Total	5	82

u: Data not available.

[1] The age range for men in Kenya is 20–54 years.

[2] Small numbers do not allow for disaggregation of the data by age or residence.

[3] For Cameroon and Kenya, questions referred to exchange of money, gifts, or favors.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.11 Percent of respondents who had sex in the previous year with a non-marital/non-cohabiting partner who used a condom at last sex with that partner*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda			GROUP I			
Age						
15–24	u	25	44	u	42	62
25+	u	15	29	u	31	59
Residence						
Urban	u	46	59	u	62	81
Rural	u	11	30	u	29	50
Total	u	20	38	u	36	59
Zambia[1]						
Age						
15–24	u	20	38	u	37	41
25+	u	18	23	u	27	37
Residence						
Urban	u	27	38	u	45	48
Rural	u	11	29	u	23	34
Total	u	20	33	u	33	39
Cameroon			GROUP II			
Age						
15–24	u	u	16	u	u	31
25+	u	u	13	u	u	29
Residence						
Urban	u	u	22	u	u	38
Rural	u	u	9	u	u	22
Total	u	u	15	u	u	29
Kenya[2]						
Age						
15–24	u	u	14	u	u	43
25+	u	u	18	u	u	46
Residence						
Urban	u	u	23	u	u	49
Rural	u	u	12	u	u	42
Total	u	u	16	u	u	44
Zimbabwe						
Age						
15–24	u	42	42	u	61	69
25+	u	36	44	u	59	73
Residence						
Urban	u	47	51	u	69	80
Rural	u	31	34	u	54	62
Total	u	38	43	u	59	70

u: Data not available.
[1] The figure for men in the mid-1990s in Zambia, while based on DHS data, differs somewhat from the figures reported by the DHS program. For this report, the indicator was calculated in such a way as to ensure comparability with the late 1990s figures obtained from the SBS.
[2] The age range for men in Kenya is 20–54 years.
* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.12 Percent of respondents who had sex in the previous year with a marital/cohabiting partner who used a condom at last sex with that partner*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda			GROUP I			
Age						
15–24	u	2	3	u	5	6
25+	u	1	3	u	2	4
Residence						
Urban	u	6	7	u	7	8
Rural	u	1	2	u	2	3
Total	u	1	3	u	3	4
Zambia						
Age						
15–24	u	7	6	u	16	12
25+	u	4	3	u	7	6
Residence						
Urban	u	7	7	u	11	9
Rural	u	4	3	u	6	5
Total	u	5	4	u	8	6
			GROUP II			
Cameroon						
Age						
15–24	u	u	5	u	u	8
25+	u	u	2	u	u	5
Residence						
Urban	u	u	6	u	u	10
Rural	u	u	2	u	u	3
Total	u	u	3	u	u	5
Kenya[1]						
Age						
15–24	u	u	3	u	u	12
25+	u	u	3	u	u	8
Residence						
Urban	u	u	5	u	u	11
Rural	u	u	3	u	u	7
Total	u	u	3	u	u	8
Zimbabwe						
Age						
15–24	u	8	5	u	19	11
25+	u	7	4	u	11	6
Residence						
Urban	u	8	5	u	12	6
Rural	u	7	4	u	11	7
Total	u	7	4	u	12	7

u: Data not available.

[1] The age range for men in Kenya is 20–54 years.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 4.13 Indicators of sexual behavior in the general population in Thailand

Men	1990	1993
Non-Regular Partnerships:		
Percent of men 15–49 reporting sex with a non-marital partner in the previous 12 months (all men)	28	15
Extramarital Sex:		
Percent of married men reporting sex with someone other than their spouse in the previous 12 months (all married men)	17	u
Percent of married women reporting sex with someone other than their spouse in the previous 12 months (all married women)	1	u
Commercial Sex:		
Percent of men 15–49 who paid for sex during the previous 12 months (all men)	21	10
Percent of men who consistently use a condom during commercial sex (all men who report commercial sex)	36	71

u: Data not available.

Source: Survey of Partner Relations and Risk of HIV infection in Thailand, 1990; Survey on the Effectiveness of AIDS Media on Behaviour and Values 1993.

Table 4.14 WHO/GPA and DHS data for 1989 and 1995 in Uganda, women

Women	GPA 1989	UDHS 1989	GPA 1995	UDHS 1995
Ever had sex, 15–19 year olds				
Urban	81	66	44	59
Rural	65	62	56	62
Total	74	62	51	62
Premarital sex[1], never married 15–24 year olds				
Urban	65	50	25	27
Rural	46	33	6	21
Total	53	36	16	22
Had sex in the previous 12 months, all				
Urban	85	81	66	77
Rural	83	83	79	75
Total	83	82	74	75
Sex with non-marital/non-cohabiting partner in previous 12 months				
Urban	29	u	12	22
Rural	20	u	18	12
Total	23	u	9	12
Extramarital sex, married				
Urban	6	u	7	4
Rural	6	u	6	2
Total	6	u	6	3
Two or more partners among singles[3]				
Urban	20	u	22	(9)
Rural	25	u	9	(11)
Total	22	u	17	(11)
One or more casual partners in previous 12 months[2]				
Urban	19	u	11	9
Rural	15	u	3	4
Total	16	u	6	5
Ever used a condom, sex in previous year[4]				
Urban	8	4	42	24
Rural	5	1	10	3
Total	7	1	20	6

u: Data not available.

[1] Denominator is never-married 15- to 24-year-olds who had sex in the last year. In the 1989 GPA, the denominator is all respondents 15–24 years not currently married.

[2] *Casual* is defined as a partner with whom the respondent has been having sex for less than one year.

[3] Figure for 1995 UDHS is for the previous six months.

[4] In the 1989 GPA survey, respondents were asked if they had ever used a condoms with their *regular* partner, while the type of partner is not specified in the other surveys.

Table 4.15 WHO/GPA and DHS data for 1989 and 1995 in Uganda, men

Men	GPA 1989	GPA 1995	UDHS 1995
Ever had sex, 15–19 year olds			
Urban	73	37	58
Rural	69	43	46
Total	68	42	48
Premarital sex[1]			
Urban	61	30	45
Rural	59	18	31
Total	60	23	33
Had sex in the previous 12 months			
Urban	85	73	77
Rural	86	79	75
Total	85	77	75
Sex with non-marital/non-cohabiting partner in previous 12 months			
Urban	45	32	44
Rural	39	15	26
Total	41	21	29
Extramarital sex			
Urban	26	24	20
Rural	21	12	14
Total	23	16	14
Two or more partners among singles[3]			
Urban	52	36	(28)
Rural	55	28	(29)
Total	54	33	(29)
Three or more non-regular partners[3]			
Urban	18	6	(4)
Rural	15	2	(3)
Total	15	3	(3)
One or more casual partners in previous 12 months[2]			
Urban	39	23	35
Rural	33	11	22
Total	35	15	24
Ever used a condom[4]			
Urban	19	59	41
Rural	13	15	12
Total	15	30	16

u: Data not available.

(1) Denominator is never-married 15- to 24-year-olds who had sex in the last year. In the 1989 GPA, the denominator is all respondents 15–24 years not currently married.

(2) *Casual* is defined as a partner with whom the respondent has been having sex for less than one year.

(3) Figure for 1995 UDHS is for the previous six months.

(4) In the 1989 GPA survey, respondents were asked if they had ever used a condoms with their regular partner while the type of partner is not specified in the other surveys.

Table 5.1 Trends in total fertility rates[a] for the three years preceding the survey in selected countries, DHSs late 1980s–2001*

| | Women | | |
	Early	Mid	Late
		GROUP I	
Uganda			
Urban	5.7	5.0	4.0
Rural	7.6	7.2	7.4
Total	7.4	6.9	6.9
Zambia			
Urban	5.8	5.1	4.3
Rural	7.1	6.9	6.9
Total	6.5	6.1	5.9
Cameroon		GROUP II	
Urban	5.2	u	3.8
Rural	6.3	u	5.4
Total	5.8	u	4.8
Kenya			
Urban	4.5	3.4	3.1
Rural	7.1	5.8	5.2
Total	6.7	5.4	4.7
Zimbabwe			
Urban	3.8	3.1	3.0
Rural	6.2	4.9	4.6
Total	5.4	4.3	4.0

u: Data not available.
[a] All rates refer to the three years prior to the surveys and are based on births to women aged 15–49.
* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.2 Trends in age-specific fertility rates in selected countries[a], DHSs late 1980s–2001*

	Early	Mid	Late
		GROUP I	
Uganda			
Age			
15–19	188	204	180
20–24	325	319	329
25–29	329	309	300
30–34	271	244	260
35–39	234	177	183
40–44	93	89	78
45–49	37	29	42
Zambia			
Age			
15–19	156	158	160
20–24	294	280	266
25–29	271	274	249
30–34	242	229	218
35–39	194	175	172
40–44	105	77	79
45–49	31	24	30
		GROUP II	
Cameroon			
Age		u	
15–19	164	u	137
20–24	282	u	226
25–29	260	u	221
30–34	228	u	185
35–39	149	u	123
40–44	62	u	49
45–49	20	u	20
Kenya			
Age			
15–19	153	110	111
20–24	324	257	248
25–29	301	241	218
30–34	243	197	188
35–39	184	154	109
40–44	99	70	51
45–49	29	50	16
Zimbabwe			
Age			
15–19	102	99	112
20–24	251	210	199
25–29	250	194	180
30–34	212	172	135
35–39	158	117	108
40–44	80	54	46
45–49	32	14	15

u: Data not available.

[a] All rates refer to the three years prior to the surveys and are based on births to women aged 15–49.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.3 Trends in median age at first birth among women in selected countries, DHSs late 1980s–2001[b]*

	Early	Mid	Late
		GROUP I	
Uganda			
Age			
15–19	a	a	a
20–24	18.6	18.7	18.5
25–39	18.2	18.6	18.8
40–49	18.4	18.5	18.6
Residence			
Urban	19.0	19.3	19.5
Rural	18.3	18.5	18.6
Total	18.3	18.6	18.7
Zambia			
Age			
15–19	a	a	u
20–24	19.1	19.0	a
25–39	18.4	18.7	
40–49	18.5	18.3	
Residence			
Urban	18.7	19.1	u
Rural	18.6	18.5	u
Total	18.6	18.7	u
Cameroon		GROUP II	
Age			
15–19	a	u	a
20–24	18.4	u	19.5
25–39	18.6	u	19.0
40–49	18.9	u	19.2
Residence			
Urban	19.0	u	20.1
Rural	18.3	u	18.8
Total	18.6	u	19.2
Kenya			
Age			
15–19	a	a	a
20–24	19.3	19.8	a
25–39	18.5	19.1	19.5
40–49	19.0	19.1	19.2
Residence			
Urban	19.9	20.8	20.9
Rural	18.6	19.1	19.4
Total	18.8	19.3	19.7
Total	18.6	18.7	u
Zimbabwe			
Age			
15–19	a	a	a
20–24	a	a	a
25–39	19.5	19.5	19.9
40–49	19.5	19.7	19.7
Residence			
Urban	20.0	20.3	20.8
Rural	19.5	19.5	19.6
Total	19.7	19.7	20.0

u: Data not available.

[a] Less than half the women had ever had a birth by this age.

[b] The figures by residence are calculated among women aged 20–49.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.4 Trends in percentage of women aged 15–19 who had begun childbearing[a] by background characteristics in selected countries, DHSs late 1980s–2001*

	Early	Mid	Late
Uganda		GROUP I	
Age			
15	9	8	3
16	21	22	13
17	44	43	23
18	58	65	54
19	59	71	61
Residence			
Urban	31	31	23
Rural	38	45	34
Total	37	43	31
Zambia			
Age			
15	5	5	u
16	15	15	u
17	30	28	u
18	54	46	u
19	66	59	u
Residence			
Urban	29	27	u
Rural	40	34	u
Total	34	31	u
Cameroon		GROUP II	
Age			
15	16	u	6
16	24	u	21
17	33	u	34
18	47	u	41
19	57	u	54
Residence			
Urban	29	u	20
Rural	40	u	38
Total	35	u	31
Kenya			
Age			
15	5	5	3
16	7	6	6
17	22	14	20
18	35	34	30
19	55	44	45
Residence			
Urban	29	17	18
Rural	25	21	22
Total	25	21	21
Zimbabwe			
Age			
15	4	3	5
16	10	10	6
17	19	16	18
18	30	31	32
19	42	44	46
Residence			
Urban	15	15	16
Rural	24	22	23
Total	21	20	21

u: Data not available.

[a] Includes women who had already given birth or were pregnant with their first child at the time of the survey.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.5 Trends in the mean ideal number of children among women and men in selected countries, DHSs late 1980s–2001*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
			GROUP I			
Uganda						
Age						
15–19	5.9	4.4	4.1	u	5.0	4.6
20–24	6.1	4.8	4.3	u	5.1	4.8
25–39	6.7	5.6	5.1	u	5.9	5.8
40–49/54	7.4	6.8	6.1	u	7.2	7.1
Residence						
Urban	5.5	4.2	3.8	u	4.9	4.4
Rural	6.6	5.5	5.1	u	5.9	5.9
Total	6.5	5.3	4.8	u	5.8	5.6
Zambia						
Age						
15–19	5.1	4.6	u	u	5.3	u
20–24	5.3	4.7	u	u	5.0	u
25–39	6.0	5.6	u	u	5.7	u
40–49/59	7.5	7.2	u	u	8.1	u
Residence						
Urban	5.2	4.6	u	u	5.1	u
Rural	6.4	5.9	u	u	6.6	u
Total	5.8	5.3	u	u	5.9	u
			GROUP II			
Cameroon						
Age						
15–19	5.9	u	5.3	13.2	u	5.8
20–24	6.2	u	5.4	8.5	u	6.1
25–39	7.2	u	6.3	9.2	u	7.0
40–49/59	8.4	u	7.6	13.2	u	10.2
Residence						
Urban	5.9	u	5.1	9.4	u	5.8
Rural	7.5	u	6.6	12.3	u	8.1
Total	6.8	u	6.0	11.2	u	7.2
Kenya						
Age						
15–19	3.7	3.5	3.5	u	u	3.8
20–24	3.9	3.4	3.4	u	3.3	3.5
25–39	4.6	3.8	3.9	u	3.8	3.9
40–49/54	5.4	4.3	4.8	u	4.3	4.6
Residence						
Urban	3.8	2.9	3.2	u	3.3	3.4
Rural	4.6	3.9	4.0	u	4.0	4.2
Total	4.4	3.7	3.8	u	3.8	4.0
Zimbabwe						
Age						
15–19	3.9	3.4	3.2	u	3.7	3.8
20–24	4.2	3.7	3.3	u	3.5	3.5
25–39	5.3	4.7	4.2	u	4.2	3.8
40–49/54	6.5	5.8	5.5	u	6.1	5.8
Residence						
Urban	4.2	3.5	3.2	u	3.7	3.5
Rural	5.3	4.7	4.4	u	4.7	4.5
Total	4.9	4.3	3.9	u	4.3	4.1

u: Data not available.
* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.6 Trends in total wanted fertility rates in selected countries, DHSs late 1980s–2001*

	Early	Mid	Late
		GROUP I	
Uganda			
Urban	4.6	3.8	3.2
Rural	6.6	5.9	5.7
Total	6.4	5.6	5.3
Zambia			
Urban	4.7	4.1	u
Rural	6.2	6.1	u
Total	5.4	5.2	u
Cameroon		GROUP II	
Urban	4.5	u	3.3
Rural	5.7	u	4.9
Total	5.2	u	4.3
Kenya			
Urban	3.8	2.5	2.6
Rural	4.7	3.7	3.8
Total	4.5	3.4	3.5
Zimbabwe			
Urban	3.3	2.6	2.6
Rural	5.1	3.9	3.8
Total	4.4	3.5	3.4

u: Data not available.
* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.7 Percent of currently married women and men using a modern method of contraception[a] among currently married women and men in selected countries, DHSs late 1980s–2001*

	Women Early	Women Mid	Women Late	Men Early	Men Mid	Men Late
Uganda			GROUP I			
Age						
15–19	1	4	9	u	11	u
20–24	1	5	17	u	8	
25–39	3	10	21	u	11	
40–49/54	4	9	17	u	10	u
Residence						
Urban	12	28	42	u	32	u
Rural	2	5	15	u	7	u
Total	3	8	18	u	10	u
Zambia						
Age						
15–19	3	9	17	u	0	u
20–24	8	15	20	u	14	u
25–39	11	16	26	u	23	u
40–49/59	9	14	18	u	20	u
Residence						
Urban	15	24	39	u	30	u
Rural	3	8	14	u	14	u
Total	9	14	23	u	21	u
Cameroon			GROUP II			
Age						
15–19	2	u	3	0	u	16
20–24	3	u	5	0	u	10
25–39	5	u	8	5	u	14
40–49/59	7	u	10	7	u	12
Residence						
Urban	7	u	13	9	u	21
Rural	3	u	5	4	u	10
Total	4	u	7	6	u	13
Kenya						
Age						
15–19	7	6	10	u	u	12
20–24	12	18	25	u	21	21
25–39	20	32	36	u	33	41
40–49/54	20	30	32	u	32	39
Residence						
Urban	26	38	41	u	42	48
Rural	16	25	29	u	29	35
Total	18	27	32	u	32	39
Zimbabwe						
Age						
15–19	28	30	39	u	18	40
20–24	42	47	52	u	47	49
25–39	40	47	57	u	60	64
40–49/54	22	29	35	u	50	60
Residence						
Urban	49	54	62	u	64	69
Rural	31	37	44	u	47	55
Total	36	42	50	u	55	61

[a] Modern methods refer to pill, IUD, injectables, sterilization, diaphragm, condoms, implants, lactational amenorrhea method (LAM), and foam jelly.

u: Data not available; contraceptive use data for men for the Zambia 2001–2002 DHS were not available at the time of writing this report.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

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Table 5.8 Percent of currently married women and men currently using condoms[a] among currently married women and men in selected countries, DHSs late 1980s–2001*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
Uganda				GROUP I		
Age						
15–19	0.0	0.7	1.8	u	2.9	u
20–24	0.0	0.9	1.9	u	4.3	u
25–39	0.0	0.9	2.0	u	2.9	u
40–49/54	0.0	0.2	1.7	u	0.6	u
Residence						
Urban	0.2	3.6	5.0	u	8.3	u
Rural	0.0	0.4	1.4	u	1.7	u
Total	0.0	0.8	1.9	u	2.5	u
Zambia						
Age						
15–19	1.7	5.7	5.9	u	0.0	u
20–24	3.0	5.1	4.9	u	11.2	u
25–39	1.7	3.2	3.5	u	8.6	u
40–49/59	0.5	0.6	1.3	u	4.9	u
Residence						
Urban	2.6	4.7	4.9	u	8.8	u
Rural	1.1	2.7	3.2	u	6.9	u
Total	1.8	3.5	3.8	u	7.7	u
Cameroon				GROUP II		
Age						
15–19	0.6	u	1.3	0.0	u	16.1
20–24	1.1	u	3.7	0.0	u	8.2
25–39	1.1	u	2.4	2.4	u	9.6
40–49/59	0.5	u	0.1	1.0	u	6.3
Residence						
Urban	1.4	u	4.5	3.8	u	13.1
Rural	0.7	u	1.1	0.2	u	6.2
Total	0.9	u	2.1	1.6	u	8.3
Kenya						
Age						
15–19	0.0	0.4	2.3	u	u	4.6
20–24	1.1	0.8	1.6	u	9.9	12.1
25–39	0.5	0.9	1.3	u	8.6	9.2
40–49/54	0.1	0.8	1.0	u	3.8	5.2
Residence						
Urban	0.8	1.3	1.9	u	8.1	9.2
Rural	0.4	0.8	1.2	u	6.4	7.2
Total	0.5	0.8	1.3	u	6.8	7.8
Zimbabwe						
Age						
15–19	0.0	2.6	2.3	u	8.2	16.5
20–24	1.4	2.1	1.6	u	6.0	8.4
25–39	1.5	2.6	2.2	u	5.4	5.2
40–49/54	0.4	1.7	0.5	u	7.5	5.8
Residence						
Urban	1.5	2.9	2.1	u	8.0	5.5
Rural	1.0	2.1	1.6	u	4.9	5.9
Total	1.2	2.3	1.8	u	6.2	5.7

u: Data not available.

[a] Includes only male condoms.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.9 Trends in current use of condoms among sexually active unmarried women and men[a] in selected countries, DHSs late 1980s–2001*

	Women			Men		
	Early	**Mid**	**Late**	**Early**	**Mid**	**Late**
			GROUP I			
Uganda						
Age						
15–19	0	17	40	u	17	u
20–24	0	25	33	u	50	u
25–39	0	13	21	u	43	u
40–49/54	0	0	7	u	44	u
Residence						
Urban	0	32	43	u	51	u
Rural	0	9	23	u	31	u
Total	0	15	29	u	36	u
Zambia						
Age						
15–19	1	11	u	u	32	u
20–24	3	16	u	u	38	u
25–39	3	11	u	u	42	u
40–49/59	3	4	u	u	13	u
Residence						
Urban	3	17	u	u	46	u
Rural	1	6	u	u	26	u
Total	2	12	u	u	36	u
			GROUP II			
Cameroon						
Age						
15–19	4	u	17	u	u	37
20–24	2	u	16	u	u	44
25–39	2	u	11	u	u	36
40–49/59	5	u	0	u	u	10
Residence						
Urban	4	u	18	u	u	47
Rural	1	u	10	u	u	30
Total	3	u	14	u	u	38
Kenya						
Age						
15–19	1	2	11	u	u	43
20–24	1	5	4	u	35	51
25–39	1	5	9	u	34	49
40–49/54	0	0	0	u	0	6
Residence						
Urban	2	7	9	u	41	55
Rural	1	2	7	u	31	44
Total	1	4	8	u	34	47
Zimbabwe						
Age						
15–19	2	19	30	u	48	39
20–24	4	23	31	u	55	68
25–39	1	9	13	u	52	54
40–49/54	0	8	5	u	24	29
Residence						
Urban	3	12	27	u	49	65
Rural	0	15	10	u	50	46
Total	2	14	19	u	50	55

u: Data not available.

[a] The denominator is unmarried women (men) who had sex in the month before the survey.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.10 Trends in mean duration of any breastfeeding[a] in selected countries, DHSs late 1980s–2001*

	Early	Mid	Late
Uganda		GROUP I	
Age			
15–19	17.6	18.1	19.1
20–24	17.1	19.2	18.4
25–39	18.8	19.9	20.0
40–49	20.1	21.8	22.5
Residence			
Urban	15.0	16.6	18.0
Rural	18.7	19.9	19.7
Total	18.3	19.5	19.5
Zambia			
Age			
15–19	17.5	18.1	u
20–24	17.2	19.1	u
25–39	18.7	20.2	u
40–49	19.5	20.8	u
Residence			
Urban	17.5	18.9	u
Rural	18.9	20.1	u
Total	18.2	19.7	u
Cameroon		GROUP II	
Age			
15–19	17.3	u	17.0
20–24	17.8	u	18.4
25–39	18.7	u	18.2
40–49	21.8	u	20.8
Residence			
Urban	15.6	u	16.0
Rural	20.3	u	19.1
Total	18.4	u	18.2
Kenya			
Age			
15–19	19.3	18.8	19.1
20–24	18.2	20.8	20.2
25–39	20.4	21.4	21.4
40–49	21.8	21.4	23.8
Residence			
Urban	18.4	19.7	19.1
Rural	20.1	21.2	21.3
Total	19.8	21.0	20.9
Zimbabwe			
Age			
15–19	17.6	17.5	18.9
20–24	18.2	18.3	18.0
25–39	19.2	18.8	19.2
40–49	21.3	23.1	21.4
Residence			
Urban	16.4	17.5	18.2
Rural	19.9	19.4	19.4
Total	18.9	18.8	19.0

u: Data not available.

[a] Mean durations are based on current status and are in months.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.11 Trends in duration of postpartum abstinence in selected countries, DHSs late 1980s–2001[a]*

	Early	Mid	Late
Uganda[b]		GROUP I	
Age			
<30	3.9	2.2	2.0
30+	4.7	2.2	2.3
Residence			
Urban	5.9	2.2	2.2
Rural	4.0	2.2	2.1
Total	4.1	2.2	2.1
Zambia			
Age			
<30	4.3	4.8	u
30+	4.5	4.5	u
Residence			
Urban	4.6	4.3	u
Rural	4.2	5.0	u
Total	4.4	4.7	u
Cameroon		GROUP II	
Age			
<30	13.2	u	11.0
30+	13.4	u	14.9
Residence			
Urban	9.9	u	10.1
Rural	14.6	u	12.8
Total	13.3	u	11.9
Kenya[b]			
Age			
<30	6.3	3.1	3.0
30+	5.2	2.7	3.3
Residence			
Urban	9.1	2.1	2.2
Rural	11.2	3.1	3.3
Total	5.9	3.0	3.1
Zimbabwe			
Age			
<30	4.3	3.2	2.8
30+	4.5	4.2	4.6
Residence			
Urban	3.7	2.5	2.3
Rural	4.7	3.9	3.7
Total	4.3	3.5	3.2

u: Data not available.

[a] Medians and means are based on current status data.

[b] Figures for 1988–1989 Kenya and 1988 Uganda DHSs are means.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Table 5.12 Trends in median birth intervals (months)[a] in selected countries, DHSs late 1980s–2001*

	Early	Mid	Late
Uganda		GROUP I	
Age			
15–19	25	25	24
20–24	27	27	27
25–39	29	30	30
40–49	34	35	35
Residence			
Urban	28	28	31
Rural	29	29	29
Total	29	29	29
Zambia			
Age			
15–19	26	24	u
20–24	29	29	u
25–39	32	33	u
40–49	36	39	u
Residence			
Urban	31	32	u
Rural	32	32	u
Total	31	32	u
		GROUP II	
Cameroon			
Age			
15–19	27	u	27
20–24	28	u	30
25–39	31	u	32
40–49	37	u	33
Residence			
Urban	30	u	33
Rural	30	u	31
Total	30	u	32
Kenya			
Age			
15–19	25	24	24
20–24	26	28	28
25–39	29	31	34
40–49	34	35	40
Residence			
Urban	30	31	35
Rural	29	30	33
Total	29	30	33
Zimbabwe			
Age			
15–19	26	29	30
20–24	30	33	35
25–39	33	38	42
40–49	37	41	44
Residence			
Urban	35	41	43
Rural	32	37	39
Total	32	37	40

u: Data not available.

[a] Calculated for births occurring in the five years preceding the surveys.

* *Early* surveys were conducted from 1988 to 1992, *Mid* from 1994 to 1996, and *Late* from 1998 to 2001.

Appendix B: Comparability of Uganda GPA and DHS Surveys

The Global Programme on AIDS (GPA) Surveys were conducted in many countries throughout the late 1980s and early 1990s before other large surveys had begun to focus on HIV/AIDS and respondents' knowledge of it. Thus, for some countries, these surveys provide the only source of data on knowledge, attitudes, behaviors, and practices related to HIV/AIDS at a time when the epidemic was emerging. While certain indicators calculated from these data are useful, the methodologies, the questionnaire designs, and the wordings of the questions differ from those of later surveys, making it difficult to compare some indicators across time. Sample coverage also varied and was not always nationally representative even in surveys with broad national coverage.

In Uganda, GPA surveys were conducted in 1989 and 1995, though sample coverage and questionnaires differed substantially. While the 1989 survey is often referred to as a national survey, it was conducted in eight districts and was designed to overrepresent Kampala, the capital. The 1995 survey covered four districts. As detailed information on the sampling procedures are not available, and sample weights were not calculated, it is not possible to adjust for how unrepresentative the sample was. This has implications when assessing trends across GPA surveys, as well as between GPA and later surveys such as the DHS.

Table B.1 presents a comparison of background characteristics of the female samples included in the 1989 and 1995 GPA surveys and the 1989 and 1995 DHSs. The distribution of the women by age across surveys was very similar, as was the distribution of women by current marital status. The greatest differences were in the geographic representations of the samples. In the 1989 GPA survey, 31% of the respondents resided in Kampala, as did 27% in the 1995 GPA survey. This compared to 6% and 7% in the DHSs conducted the same years. As a result, 39% of the 1989 GPA respondents and 36% of the 1995 GPA respondents were considered to be urban dwellers as compared to 12% and 15%, respectively, of the DHS respondents. Definitions of residence also differed between the GPA surveys and DHSs. In the GPA surveys, residents of all cities, towns, and trading centers were considered urban while residents of villages were considered to be rural. In the DHSs, women living in clusters located in localities with a population size greater than 1,000 were considered to be urban. As indicators of sexual behavior vary by urban/rural residence as well as by region, comparison of indicators between the surveys can be problematic. For example, data from both the GPA surveys and DHSs indicate that high-risk sexual behavior was most common in the central region (which includes Kampala) and in the eastern region of the country, and much less common in the southwest.

The differences in urban/rural residence were reflected in the distribution of female respondents with respect to education and household amenities, a measure of socioeconomic status. In 1989, a larger percentage of women in the DHS had no formal education as compared to the GPA survey. No such differences existed between the 1995 surveys. Respondents in the 1989 GPA survey were also much more likely to have amenities in the household such as electricity, radios, and televisions than were respondents in the DHS that same year. Even when stratified by residence, respondents in the GPA survey were more likely to have these amenities than their counterparts in the DHS. Unfortunately, the 1995 GPA survey collected little background information on respondents so comparisons with the 1995 DHS are not possible on these variables. The percent of women with no formal education was less in the GPA survey than in the DHS in 1989. What is interesting is that the percent of women with no formal education is similar in the 1995 GPA surveys and DHSs, despite large differences in distribution of respondents by urban/rural residence. Thus, if one were interpreting changes in education status of women based on GPA survey data, one would conclude that there was no change in the percent of women receiving formal education between 1989 and 1995. Yet based on DHS data over the same five-year period, more women were receiving formal schooling.

A comparison of indicators of sexual activity among young women between the GPA surveys and DHSs yielded some interesting findings. The 1989 GPA survey reported higher levels of sexual activity among adolescent females than did the 1989 DHS. This may be attributable in part to the urban bias in the GPA survey as sexual activity appears to start slightly earlier in urban areas. This difference remains, however, when stratified by urban/rural residence. Unfortunately, no other indicators for women and none for men can be compared across surveys in 1989.

When comparing the 1995 surveys (Appendix A, Tables 4.14. and 4.15), the GPA survey reported lower levels of sexual activity among adolescent men and women as compared to the DHS, the reverse of what was found when comparing the 1989 surveys. Differences are apparent when comparing the urban and the rural samples in each survey. Among women, overall estimates of sexual activity in the previous 12 months, sex with non-regular partners, and casual sex were similar between the two surveys, although differences are apparent when stratified by residence. In contrast, ever-use of condoms by women is three times higher in the GPA survey than in the DHS. For men, however, the 1995 GPA survey appears to underestimate sexual activity as compared to the 1995 DHS. A much larger percent of men report non-regular partners and casual partners in the DHS and the differences were apparent among both urban and rural residents. Levels of extramarital sex, however, were similar. While percentages of men reporting two or more and three or more partners were similar, it should be noted that the UDHS uses a six-month reference period and the GPA

survey uses a 12-month period. The shorter reference period in the UDHS likely to biased estimates downward. As with women, ever-use of condoms is much higher among men in the 1995 GPA survey than in the 1995 DHS (a two-fold difference). It is not clear why levels of sexual activity are lower (and condom use is higher) in the GPA survey than in the DHS conducted the same year.

An assessment of trends in sexual activity among youth in the early 1990s using the GPA data would yield much larger reductions in sexual activity than would similar comparisons using the DHS. While it is not possible to assess differences in trends across surveys of sexual partnerships, the lower levels of non-regular and casual partnerships among men in the 1995 GPA survey indicate that the same may be true. Differences between surveys may be related to differences in questionnaires (there are large differences between the 1989 GPA survey and the 1995 GPA survey and DHS questionnaires), sample coverage, or survey implementation. While the GPA data are valuable in helping to understand the changes that occurred in Uganda during the early 1990s, these limitations should be considered when interpreting the findings.

Table B.1 Comparison of demographic characteristics of female samples in 1989 and 1995 Uganda DHS and 1989 and 1995 WHO/GPA surveys

	GPA 1989	UDHS 1989	GPA 1995	UDHS 1995
Total sample	1429	4730	3089	7070
Age				
15–19	19	25	23	23
20–24	21	21	21	22
25–39	46	41	44	43
40–49	11	13	12	12
50+	2	0	0	0
Marital status				
Currently married	65	67	68	73
Formerly married	u	13	12	12
Never married	u	20	20	16
Region[1]				
Kampala	31	6	27	7
Eastern	20	28	u	25
Central	26	25	u	21
Western	23	36	u	28
Northern	0	6	u	20
Residence[2]				
Urban	39	12	36	15
Rural	61	88	64	85
No formal education	27	38	29	31
Amenities in HH				
Electricity	24	7	u	9
Radio	53	28	u	44
Television	7	2	u	5

u: Data not available.

[1] Based on district groupings from 1989 UDHS.

[2] Definitions of urban/rural residence differ between GPA surveys and DHSs. In the GPA surveys, all cities, towns, and trading centers were considered urban, while villages were considered rural. In the DHS, all clusters located in localities with a population size of greater than 1,000 were considered urban.